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Banks turn to pay-as-you-go IT.

One year later: American Airlines secures wireless LANs.

COMPUTERWORLD

THE NEWSPAPER FOR IT LEADERS • WWW.COMPUTERWORLD.COM

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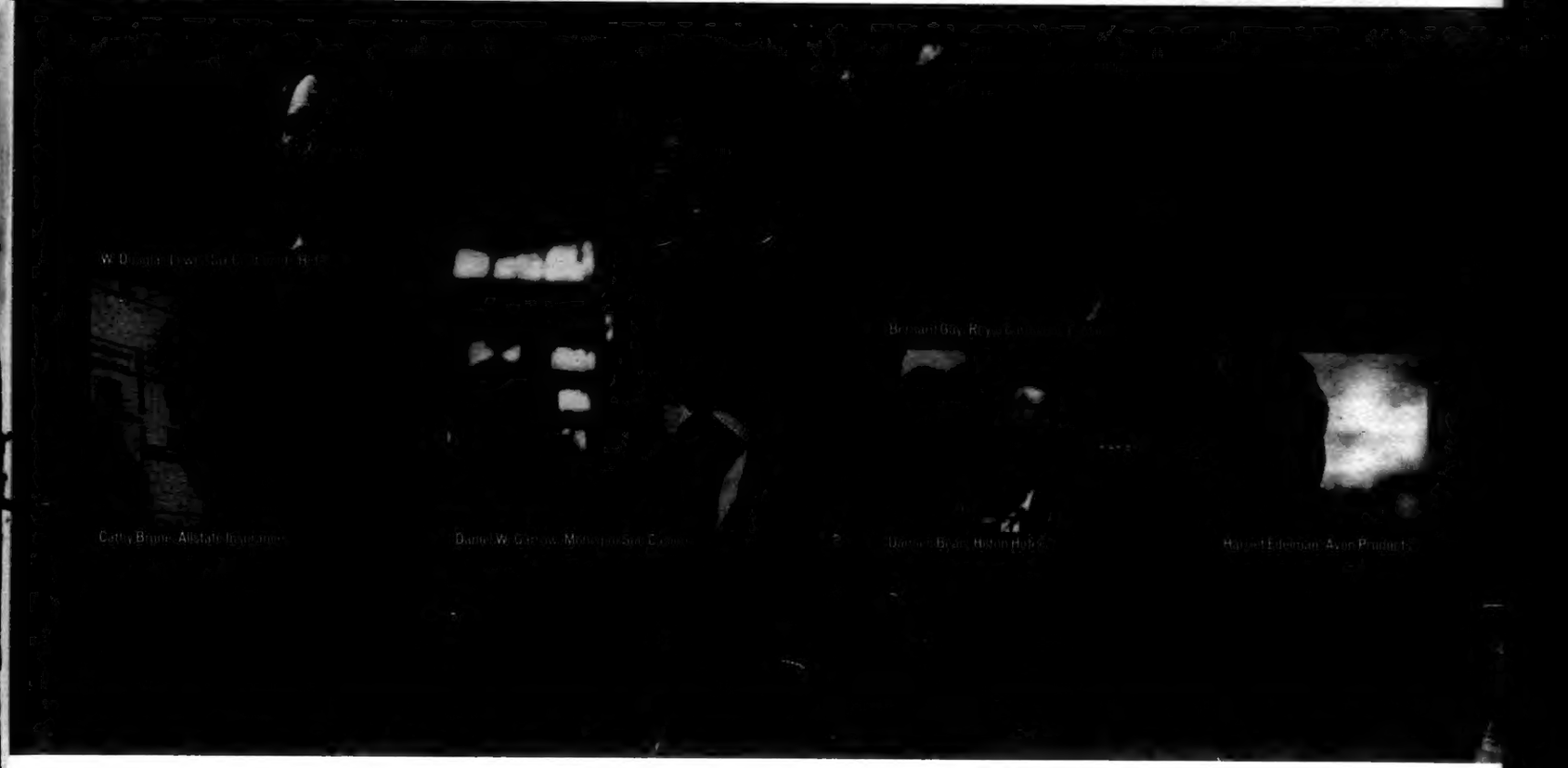
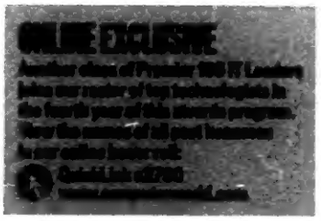


PREMIER 100 IT LEADERS 2003

How will *Computerworld*'s Premier 100 IT Leaders make their mark in 2003? Facing yet another challenging year of tight budgets and industry uncertainty, this elite group of men and women takes charge of everything from vendor and project management to building business on the Web, improving core systems, connecting ever more closely with customers and investing IT dollars wisely. Inside, in our fourth annual issue honoring the Premier 100, you'll find their stories, their strategies and their best advice for IT success in this new year. **Stories begin on page 13.**



A sampling of the stories inside:

- **Minimal risk and surefire payoff are key considerations for investing IT dollars this year.** PAGE 14
- **As the technology recession takes its toll on employee morale, IT leaders strive to keep valuable staffers focused and well informed.** PAGE 28
- **Striking better deals with IT suppliers is a new core competency requiring sharper negotiating skills.** PAGE 32

NEWSPAPER

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Visual Studio .NET can help you with (nearly) every part of your job. Say goodbye to DLL [illegible] .NET packages applications into "assemblies" which are self-describing, versioned units of functionality that can run in isolation or side by side with other versions, and all but eliminate DLL hell. Visual Studio .NET provides three powerful new features to help you seamlessly deploy applications: **1 Side-By-Side Execution** eliminates version conflicts by enabling you to safely deploy multiple versions of the same component. **2 XCOPY Deployment** lets you simply copy your Web applications to the target Web

server. You avoid installation scripts, DLL registration, and having to restart your servers.

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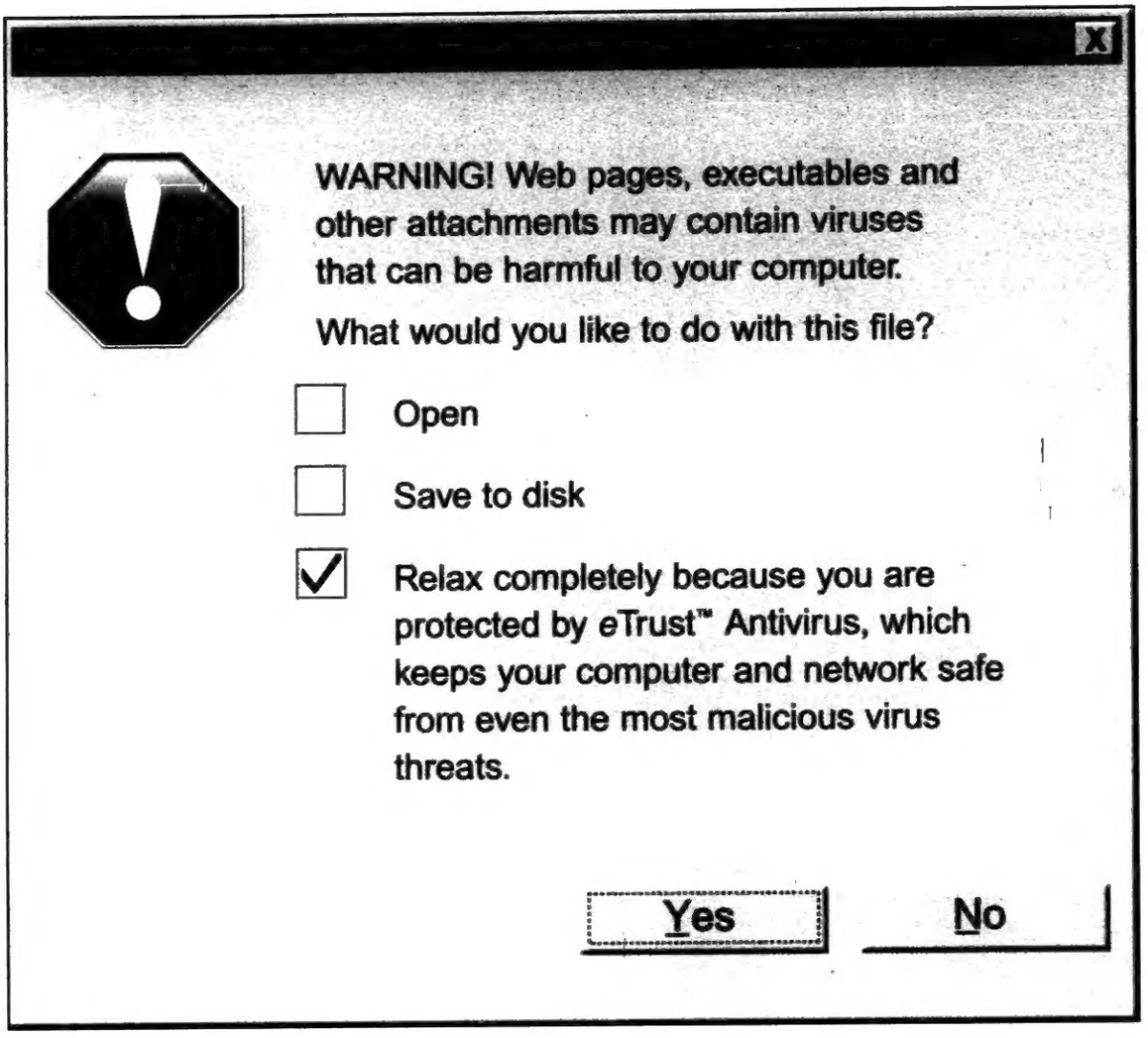
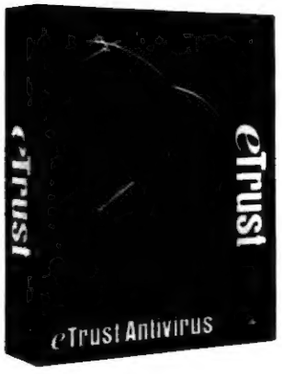
Visual Studio .net

Credit Suisse First Boston (CSFB) is using the No-Touch Deployment and the Windows Forms features in Visual Studio .NET to eliminate DLL hell and enable instant deployment of new applications to over 17,000 desktops, giving them all of the deployment benefits of a Web-based solution coupled with the rich interface of an application for Windows.





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On some pages in this issue, you'll see a QuickLink code pointing to additional, related content on our Web site. Just enter that code into our QuickLink box, which you'll see at the top of each page on our site.

The IT Leadership Agenda

PREMIER 100 IT LEADERS 2003

Which projects have made it onto the 2003 to-do lists of the top IT strategists? Find out right here in *Computerworld*'s annual Premier 100 IT Leaders special issue, which showcases the men and women driving change in the IT industry and gives a glimpse of their plans and strategies for 2003. Also, look for profiles of select honorees that highlight their career triumphs and challenges. **PACKAGE BEGINS ON PAGE 13.**

14 How Will You Invest Your IT Dollars? For this year's Premier 100 IT Leaders, technology spending in 2003 will depend heavily on industry and business needs. Read about how some will deal with budget cutbacks, set their priorities and decide which projects will get the precious few dollars they have to spend this year.

18 What Are Your Top Projects? We asked our Premier 100 IT Leaders which projects they plan to tackle in the year ahead and then talked with some who have survived similar projects. In a series of five concise case studies, we examine deployments of enterprise resource planning (*page 18*) and customer relationship management (*page 19*) software, as well as enterprise application integration projects (*page 20*), e-business initiatives (*page 21*) and major systems upgrades (*page 22*).

24 How Will You Secure Your Company Data? Whether balancing the needs of security with the push for greater access to data, coping with government mandates or planning for possible budget cuts, IT security managers have their hands full this year. **ONLINE:** Robert L. Otto, vice president of IT at the U.S. Postal Service, describes a three-year plan to secure the mail service's infrastructure.
QuickLink 34943

25 How Will You Optimize Your Infrastructure? IT departments are being asked to do more with less this year. Read how some IT leaders are coping with the recession by squeezing efficiencies from their existing technologies through hardware consolidation projects, performance monitoring and application tuning.

28 How Will You Prove IT Value? Our Premier 100 honorees didn't reach the top of their professions by being softies. A vast majority of them regularly rely upon hard-dollar metrics to demonstrate to top brass the business value IT investments are expected to yield.

28 How Will You Manage Your Labor Force? For some IT managers, the recession has offered up high-quality workers at bargain salaries. But for others, budget cuts and staffing reductions have stalled or stopped IT projects. Learn how these IT leaders are keeping their staffs informed and motivated in these lean times.

32 How Will You Manage Your Vendors? Today's IT leaders juggle many dozens of vendors, from commodity to strategic, products to services, internal to outsourced. Here's how some Premier 100 leaders are mastering this new core competency in IT.

34 How They Have Learned to Lead. Profiles of 10 IT leaders and the career challenges that helped them hone their leadership skills.

35 The 2003 Premier 100 IT Leaders. An alphabetical listing of this year's honorees. **ONLINE:** View the names of all past honorees in our Premier 100 honor roll.
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35 Leader's Almanac. IT Leaders candidly reveal the technology decisions they wouldn't make again and tell us about the jobs that launched their careers.

54 Opinion: This year, IT leadership isn't about achieving great things by marshaling all the resources at your disposal. It's about getting the job done, even without the resources you need, says columnist Frank Hayes.

AT DEADLINE

McDonald's Scraps Networking Plans

McDonald's Corp. has scrapped a networking project that would have connected about 30,000 of its restaurants worldwide to its headquarters in Oak Brook, Ill. The project, called Innovate, began in 1999, and the network was due for initial deployment this year in Canada and France. McDonald's, which is trying to cut spending, said it expects to save "tens of millions of dollars" this year by dropping Innovate.

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Financial services firms seek savings through pay-as-you-go computing deals

BY LUCAS MEARIAN

A COMBINATION of intense competition, the sluggish economy and the lure of pay-as-you-go IT services is prompting a growing number of banks and brokerages to outsource back-office systems and business processes.

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For example, J.P. Morgan Chase & Co. last week announced a seven-year, $5 billion agreement under which IBM will take over its data processing infrastructure.

The contract, which had been in final negotiations since mid-November [QuickLink 34352], includes a planned transfer of about 4,000 J.P. Morgan IT workers and contractors to IBM during the first half of the year.

Utility Model Key

The deal also provides for New York-based J.P. Morgan to buy computing resources and other IT services from IBM under a utility model, meaning the bank will pay only for what it uses.

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In the current economic climate, Sztejnberg added, "it is more attractive for us to be on a more variable, pay-as-you-use structure instead of investing a significant amount of capital in bricks and mortar and hardware and software."

J.P. Morgan's outsourcing move came just two weeks after IBM announced a similar on-demand computing deal with Frankfurt-based Deutsche Bank AG. That agreement is valued at $2.5 billion over 10 years and includes the consolidation of data centers and smaller server sites across Europe to a new IBM facility in Frankfurt.

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In addition, Plano, Texas-based EDS inked a five-year outsourcing deal valued at $1.3 billion with Amsterdam-based ABN Amro Bank NV's wholesale banking business unit.

The recent agreements are indicative of a larger trend during the past 12 months in which more than a dozen financial services firms have turned to outsourcing vendors.

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But maintaining the security of sensitive financial data in outsourced IT environments "is a concern," Litan added. She said that she expects some banks to eventually "bring that data back in-house."

Klaus Thoma, a spokesman for Deutsche Bank, said the bank expects to save $1 billion over the next decade through its outsourcing deal with IBM. Deutsche Bank is transferring 900 of its IT employees to IBM this quarter as part of the agreement.

Key to the deal was IBM's ability to update Deutsche Bank to state-of-the-art technology while offering it a utility model for purchasing IT resources, Thoma said. "This is being driven by our strategy to get rid of fixed costs [and] areas that we feel are not our core competencies," he said.

Deutsche Bank felt comfortable outsourcing its data processing operations because IBM and other IT services vendors have proven that they can provide sufficient uptime and security, said Thoma.

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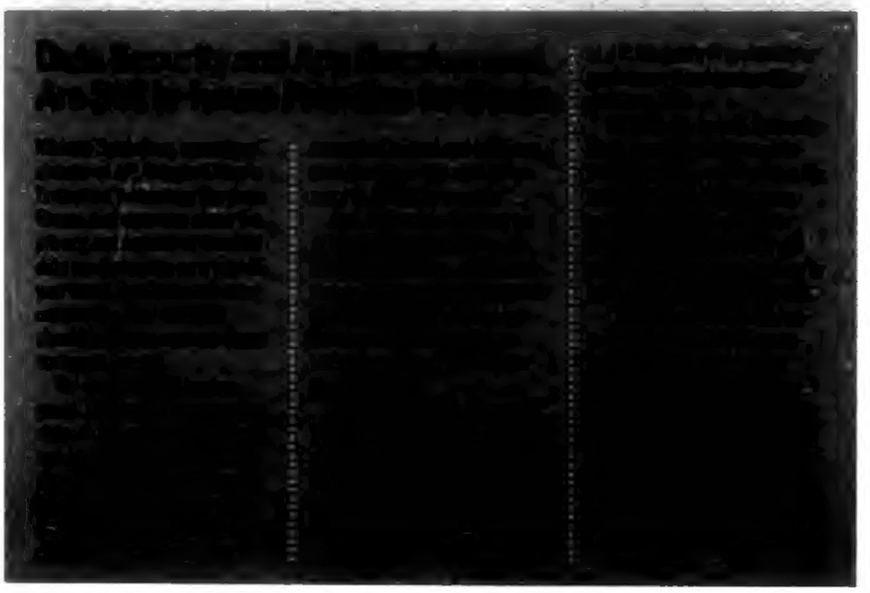

American Airlines Secures Wireless LANs in Denver

But airport wireless networks still pose security dangers to corporate data

BY DAN VERTON

American Airlines Inc. has taken significant steps to secure wireless bag-matching and curbside check-in operations at Denver International Airport (DIA) that a year ago were found to be highly vulnerable to hackers.

But a test conducted Dec. 20 at the airport by White Hat Technologies Inc., a Westminster, Colo.-based security firm, found that corporate data is still vulnerable throughout airport waiting areas and airline lounges

Last January, *Computerworld* reported on a similar test conducted by White Hat that discovered American had been operating wireless LANs without any encryption in its section of the DIA terminal and had even pasted the IP addresses of curbside terminals on the monitors [QuickLink 26374].

A Positive Sign

In what appears to be a positive sign that airlines are beginning to look more closely at the security ramifications of operating wireless systems, last month's test was unable to detect a single airline wireless network operating without encryption protection, said Thubten Comerford, CEO of White Hat.

In addition, American had not only removed the IP addresses from its OneStop self-service kiosks, but it had also added Cisco Systems Inc.'s Lightweight Extensible Authentication Protocol (LEAP) authentication technology on top of the standard 40-bit Wired Equivalent Privacy (WEP) encryption.

LEAP is an authentication algorithm that leverages the 802.1x framework and provides dynamic, per-user WEP keys to protect data in transit.

Stacey Frantz, a spokeswoman for American, said the changes are the result of a recent re-evaluation of security for all of the airline's wireless curbside check-in and roving-agent systems.

Frantz confirmed that the security fixes are being made at airports nationwide. However, she was unable to elaborate on the status of those fixes at individual airports.

Ongoing Concerns

On the downside, Comerford said White Hat's test of the DIA facility still managed to pick up a suspected rogue access point (AP), as well as a significant number of vulnerable wireless transmissions emanating from public traveler lounges and frequent-flier clubs throughout the airport.

The public areas and most of the airport lounges use the public wireless network operated on behalf of the DIA by AT&T Wireless Services Inc. The American Airlines Admiral's Club lounge uses T-Mobile USA Inc.'s HotSpot public wireless network.

What Corporate Users Can Do

RESEARCH AIRLINES AND AIRPORTS that offer wireless LANs that support standard VPN software.

CONSIDER CORPORATE POLICIES on when, where and how mobile users can access public wireless networks.

RESEARCH OPTIONS FOR CENTRALIZED COMPUTING, such as X terminals that store sensitive data on corporate databases and not on laptops.

"The biggest danger at DIA is the sniffing of sensitive information being transmitted by travelers," said Comerford. "Few, if any, airports have addressed this security vulnerability, [and] few airports or airlines warn travelers of the danger of using the wireless networks."

In July, the city of Denver and DIA outsourced the airport's public wireless network, known as GoPort, to AT&T Wireless. AT&T Wireless' service includes 54 APs spread throughout the DIA terminal and three concourses.

Ritch Blasi, a spokesman for Redmond, Wash.-based AT&T Wireless, acknowledged that the suspected rogue AP found by White Hat didn't belong to AT&T's network. He also said AT&T encrypts all personal user information entered into the system during registration and log-on, including payment information. Any other security precautions are up to the individual user, he said.

Frank Ramirez, director of business products at Bellevue, Wash.-based T-Mobile, said his company is in the process of updating security for 2,000 sites across the country, including American's Admiral's Club at DIA.

In addition to allowing corporate users to take advantage of their own investments in virtual private network technologies while using the T-Mobile network, the company has implemented blocking technology at the AP level, Ramirez said. He explained that users register on the network and get a Medium Access Control address. T-Mobile can block any system that's not recognized.

"We've also implemented network address translation technology to shield the IP addresses of the machines on the network from potential intruders," Ramirez added.

Seth Kulakow, an enterprise security analyst at DIA, said he conducts routine scans looking for suspicious wireless activity throughout the airport and is currently investigating White Hat's discovery of the non-AT&T AP.

Kulakow also acknowledged the need for airports and airlines to post warnings to users about the inherent risks of using public wireless networks. "The airlines should have something like that posted, but they don't," he said.

AT&T Wireless Slows Plan to Build Third-Generation Cellular Network

AT&T Wireless Services is delaying and scaling back its planned U.S. rollout of a high-speed cellular network based on technology developed by NTT DoCoMo Inc. But AT&T Wireless has plenty of reasons – 5 billion of them, in fact – to meet the revised rollout schedule.

The two companies on Dec. 20 announced a deal to push back the initial launch of third-generation (3G) wireless services built around NTT DoCoMo's Wideband Code Division Multiple Access (W-CDMA) technology from June 2004 to December of that year. In addition, the number of cities in the start-up plan was downsized from 13 to four: San Francisco, San Diego, Seattle and Dallas.

As part of the revised deal, AT&T Wireless could be forced to pay Tokyo-based NTT DoCoMo as much as $6 billion, plus interest, if it fails to make the W-CDMA service available at a total of 1,000 cell sites in the four cities by the end of 2004.

The 3G billion represents the price that NTT DoCoMo paid for a 16% stake in AT&T Wireless in November 2000, according to a filing about the new rollout plan that AT&T Wireless has submitted to the U.S. Securities and Exchange Commission.

Alternatively, the filing said, NTT DoCoMo could sell its 474.7 million shares on the open market, with AT&T Wireless making up any difference between the proceeds of the stock sale and the original investment.

David Cacuritz, a spokesman for AT&T Wireless, said the changes in the rollout plan resulted from a decision by the company "to meet market demands while at the same time making the most prudent use of our capital."

The company chose the four cities for the W-CDMA rollout because of the high concentration of mobile professionals in those markets, Cacuritz said. The W-CDMA technology supports data rates of up to 2M bit/sec., compared with top speeds of 40K bit/sec. on AT&T Wireless' existing General Packet Radio Service network.

But Alan Reiss, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said the 3G technology has had teething problems in Japan, including handsets with poor battery life and weak demand from users. Given those issues, the revised agreement with NTT DoCoMo leaves AT&T Wireless in an "awkward" financial position, Reiss said. He estimated that it could cost AT&T Wireless a total of $500 million to set up the 1,000 W-CDMA cell sites required by the deal.

Cacuritz acknowledged that AT&T Wireless could be liable for the total stock purchase price paid by NTT DoCoMo if the U.S. rollout goes awry. A stock sale by NTT DoCoMo is a more likely scenario, he said. But AT&T Wireless officials doubt that either event will be necessary, he added. "We are thoroughly committed to W-CDMA," Cacuritz said.

Ritch Blasi, another AT&T Wireless spokesman, said the company expects the battery problems and other issues facing W-CDMA to be resolved by 2004. He called Reiss's rollout cost estimate high but declined to disclose AT&T Wireless' budget for the project.

–Bob Brewin

AT DEADLINE

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Data Security and App Development Are Still In-house Priorities for Banks

Michael Sztejnberg, managing director of J.P. Morgan Chase's Enterprise Technology Services Group, said concerns about the privacy and security of financial data are increasing on a year-to-year basis. But the bank's new outsourcing deal with IBM should help ease some of those concerns, he said.

For example, IBM can upgrade J.P. Morgan's systems to state-of-the-art server and storage technologies more quickly than the bank could on its own, Sztejnberg said. On the other hand, he added that J.P. Morgan plans to keep "a significant amount of control and influence over the things that we feel we need to, including security."

And the bank isn't letting go of key IT functions such as architecture planning, application development or the deployment of online banking, electronic check-processing and other technology-driven banking services, he said.

Sztejnberg said he looks at IT in layers, with the basic delivery of system resources to business units being at the bottom in corporate value. "We've retained a lot of the top layers of that stack," he said, noting that none of J.P. Morgan's IT architects or application developers will be shifted to IBM.

IBM's ability to help Deutsche Bank meet regulatory requirements for data security was a big factor in favor of outsourcing, said bank spokesman Klaus Thoma. For example, IBM will use data-mirroring technology to back up the bank's information.

"There is more technical expertise on the side of the outsourcing companies these days," he said. But Deutsche Bank will still be responsible for maintaining the security of data, he added. "The real differentiator is that you're dividing the hardware side from the development side," Thoma said.

—Lucas Mearian

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WIRELESS

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"The biggest danger at DIA is the sniffing of sensitive information being transmitted by travelers," said Comerford. "Few, if any, airports have addressed this security vulnerability, [and] few airports or airlines warn travelers of the danger of using the wireless networks."

In July, the city of Denver and DIA outsourced the airport's public wireless network, known as GoPort, to AT&T Wireless. AT&T Wireless' service includes 54 APs spread throughout the DIA terminal and three concourses.

Ritch Blasi, a spokesman for Redmond, Wash.-based AT&T Wireless, acknowledged that the suspected rogue AP found by White Hat didn't belong to AT&T's network. He also said AT&T encrypts all personal user information entered into the system during registration and log-on, including payment information. Any other security precautions are up to the individual user, he said.

Frank Ramirez, director of business products at Bellevue, Wash.-based T-Mobile, said his company is in the process of updating security for 2,000 sites across the country, including American's Admiral's Club at DIA.

In addition to allowing corporate users to take advantage of their own investments in virtual private network technologies while using the T-Mobile network, the company has implemented blocking technology at the AP level, Ramirez said. He explained that users register on the network and get a Medium Access Control address. T-Mobile can block any system that's not recognized.

"We've also implemented network address translation technology to shield the IP addresses of the machines on the network from potential intruders," Ramirez added.

Seth Kulakow, an enterprise security analyst at DIA, said he conducts routine scans looking for suspicious wireless activity throughout the airport and is currently investigating White Hat's discovery of the non-AT&T AP.

Kulakow also acknowledged the need for airports and airlines to post warnings to users about the inherent risks of using public wireless networks. "The airlines should have something like that posted, but they don't," he said.

What Corporate Users Can Do

RESEARCH AIRLINES AND AIRPORTS that offer wireless LANs that support standard VPN software.

CONSIDER CORPORATE POLICIES on when, where and how mobile users can access public wireless networks.

RESEARCH OPTIONS FOR CENTRALIZED COMPUTING, such as X terminals that store sensitive data on corporate databases and not on laptops.

AT&T Wireless Slows Plan to Build Third-Generation Cellular Network

AT&T Wireless Services is delaying and scaling back its planned U.S. rollout of a high-speed cellular network based on technology developed by NTT DoCoMo Inc. But AT&T Wireless has plenty of reasons – 6 billion of them, in fact – to meet the revised rollout schedule.

The two companies on Dec. 26 announced a deal to push back the initial launch of third-generation (3G) wireless services built around NTT DoCoMo's Wideband Code Division Multiple Access (W-CDMA) technology from June 2004 to December of that year. In addition, the number of cities in the start-up plan was downsized from 13 to four: San Francisco, San Diego, Seattle and Dallas.

As part of the revised deal, AT&T Wireless could be forced to pay Tokyo-based NTT DoCoMo as much as $6 billion, plus interest, if it fails to make the W-CDMA service available at a total of 1,000 cell sites in the four cities by the end of 2004.

The $6 billion represents the price that NTT DoCoMo paid for a 16% stake in AT&T Wireless in November 2000, according to a filing about the new rollout plan that AT&T Wireless has submitted to the U.S. Securities and Exchange Commission.

Alternatively, the filing said, NTT DoCoMo could sell its 474.7 million shares on the open market, with AT&T Wireless making up any difference between the proceeds of the stock sale and the original investment.

David Caouette, a spokesman for AT&T Wireless, said the changes in the rollout plan resulted from a decision by the company "to meet market demands while at the same time making the most prudent use of our capital."

The company chose the four cities for the W-CDMA rollout because of the high concentration of mobile professionals in those markets, Caouette said. The W-CDMA technology supports data rates of up to 2M bit/sec., compared with top speeds of 40K bit/sec. on AT&T Wireless' existing General Packet Radio Service network.

But Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., said the 3G technology has had teething problems in Japan, including handsets with poor battery life and weak demand from users. Given those issues, the revised agreement with NTT DoCoMo leaves AT&T Wireless in an "awkward" financial position, Reiter said. He estimated that it could cost AT&T Wireless a total of $500 million to set up the 1,000 W-CDMA cell sites required by the deal.

Caouette acknowledged that AT&T Wireless could be liable for the total stock purchase price paid by NTT DoCoMo if the U.S. rollout goes awry. A stock sale by NTT DoCoMo is a more likely scenario, he said. But AT&T Wireless officials doubt that either event will be necessary, he added. "We are thoroughly committed to W-CDMA," Caouette said.

Ritch Blasi, another AT&T Wireless spokesman, said the company expects the battery problems and other issues facing W-CDMA to be resolved by 2004. He called Reiter's rollout cost estimate high but declined to disclose AT&T Wireless' budget for the project.

– *Bob Brown*

Java Developers Laud Ruling

Microsoft must include up-to-date Java in Windows

BY PATRICK THIBODEAU
WASHINGTON

A U.S. DISTRICT COURT judge's plan to force Microsoft Corp. to ship the most recent version of Java software with Windows desktop operating systems may revive Java development and help rival Sun Microsystems Inc. battle .Net.

That's how some Java developers, corporate IT executives and analysts see the impact of a pending action by U.S. District Court Judge J. Frederick Motz in Baltimore in the private antitrust case between Sun and Microsoft.

Java and the .Net framework are Internet-enabled distributed computing platforms that compete head-to-head. Motz, in an opinion released just before Christmas, said he doesn't want the antitrust violations of which Microsoft was found guilty in the recently settled federal case to help it defeat the Java platform.

The judge said he wants to ensure that Java gets a fair shake in the platform war by requiring Microsoft to ship up-to-date versions of Java. He is expected to issue his "must-carry" order within the next two weeks.

Having that Java desktop availability "removes a lot of the stress of competing with the .Net framework," said Jason Norman, who works with Java as a health systems software engineer at Vanderbilt University Medical Center in Nashville. "But it's not going to be a decisive thing either way. It does not mean that Java is going to dominate, because Java has its own set of challenges."

One such challenge is Swing, Sun's tool for creating interfaces, which Norman said is slow and difficult to work with.

But Andre Mendes, chief technology integration officer at the Public Broadcasting Service in Alexandria, Va., said IT departments have already decided the issue by not downloading and upgrading the desktop Java virtual machine (JVM).

"There has not been a clear mandate from the masses out there to have [Java] included as part of the operating system," said Mendes. He said that having to upgrade Java on their systems has never been an obstacle for companies that want to adopt the platform.

Raising Objections

Microsoft officials said their reasons for opposing the must-carry rule were outlined in legal briefs. Among the problems the company cited are potentially jeopardized Windows shipping dates and a lack of limitations on what Sun could put in its runtime environment. It could also hurt the quality and security of Windows releases, among other problems, according to Microsoft.

Microsoft currently ships a version of the JVM that's at least five years old. Developers have to either ensure that clients have the latest JVM, limit features to those supported by the earlier version or simply serve up HTML.

"If the JVM did become standard on every desktop, it could open the door for really, really rich clients," said Scott Davis, head of the Denver Java Users Group and a consultant at Kres Consulting in Englewood, Colo.

Java user group officials in Seattle, Atlanta and Cleveland who were interviewed for this story echoed Davis' point.

The "quality of Web applications will increase, as developers will be able to make use of the latest Java advances from within the browser," said Jayson Raymond, chairman of the Seattle Java Users Group and CEO and chief technology officer at Accelerant Mobile Corp., a Java development firm in Issaquah, Wash.

IDC analyst Rikki Kirzner called the ruling "extraordinarily important" for Java. "What this ruling does is force Microsoft to support Java, which makes the burden much easier on the development community," she said.

Judge's View

According to U.S. District Judge J. Frederick Motz:

- Java and .Net are direct competitors. If Microsoft isn't forced to carry Java, that battle could tip in Microsoft's favor.
- It's surprising that no other Sun competitors opposed the "must-carry" injunction. "Their silence speaks volumes," the judge wrote.
- If .Net dominates the market, it should be because of its superior qualities, not because Microsoft leveraged its PC monopoly.

Sun Exec: Ruling Will Boost Java

Sun Microsystems' top Java executive contends that the federal court's impending "must-carry" decision will aid corporate developers by assuring Java's ubiquitous distribution. In an interview with *Computerworld*'s Patrick Thibodeau, **Richard Green**, Sun's vice president and general manager for Java and XML, discussed the ruling's potential impact.

How has Java been affected by Microsoft's decision not to ship the latest version with its desktop operating system? Microsoft owns the principal distribution channels to the desktop. When they focus their energies on distributing an out-of-date version, they dilute the efforts of developers to create new applications by convincing them that this is not something that they should be using. The effect has been to freeze or delay development of really interesting state-of-the-art network applications based on Java for the desktop.

What would a must-carry order accomplish for Java? The ruling ensures that the volume for this development platform will be greater than any other platform in the world, because it will be the sum of Unix, plus Linux, plus handhelds, plus servers. This will be the largest-volume development platform shipping worldwide.

This ruling is limited to desktops. Will it affect other systems? If you have a consistent set of APIs and programming models across all your systems, as a developer you can be more productive. So although these injunctions do not bear directly on platforms other than the desktops, for developers and end users it will offer ease of development and consistency.

How does this help you compete against .Net? The killer feature to date that .Net has over Java is not technology. It's not marketing; it's not tools. It's distribution. It's the ability of developers to count on it being present when they deploy their applications. That is the .Net advantage, and this injunction cancels that out.

If Microsoft succeeds in reversing this injunction on appeal, will Java be crippled? Java will go on as it has been: successful in the enterprise, on servers, on handhelds. But not as successful as we would like, by any means, as a desktop development platform.

Microsoft Launches U.S. Smartphone Push

BY BOB BREWIN

Microsoft Corp. today plans to kick off a push into the U.S. market for software-equipped mobile phones, in a bid to eliminate a head start by similar devices that run PalmSource Inc.'s rival operating system.

Microsoft and two hardware partners will announce cell phones that use its Smartphone technology and are equipped to run on cellular networks operated by carriers such as Sprint PCS Group and Verizon Wireless. The U.S. rollout follows the October introduction of a Smartphone device by London-based Orange SA.

Orange's hardware operates on networks that support the Global System for Mobile Communications standard. In contrast, Microsoft officials said the phones being offered in the U.S. by Samsung Electronics Co. and Hitachi Ltd. were designed for use on networks built around Code Division Multiple Access (CDMA) technology.

The Smartphone software offers much of the same functionality as Microsoft's Pocket PC operating system for handheld devices, minus support for Excel and PowerPoint. Ed Suwanjindar, manager of mobile product devices at Microsoft, said the company is also adding built-in CDMA hooks to make it easier for phone makers and network operators to develop Smartphone hardware and services.

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A British maker of mobile phones is suing Microsoft after the collapse of a Smartphone-related partnership.

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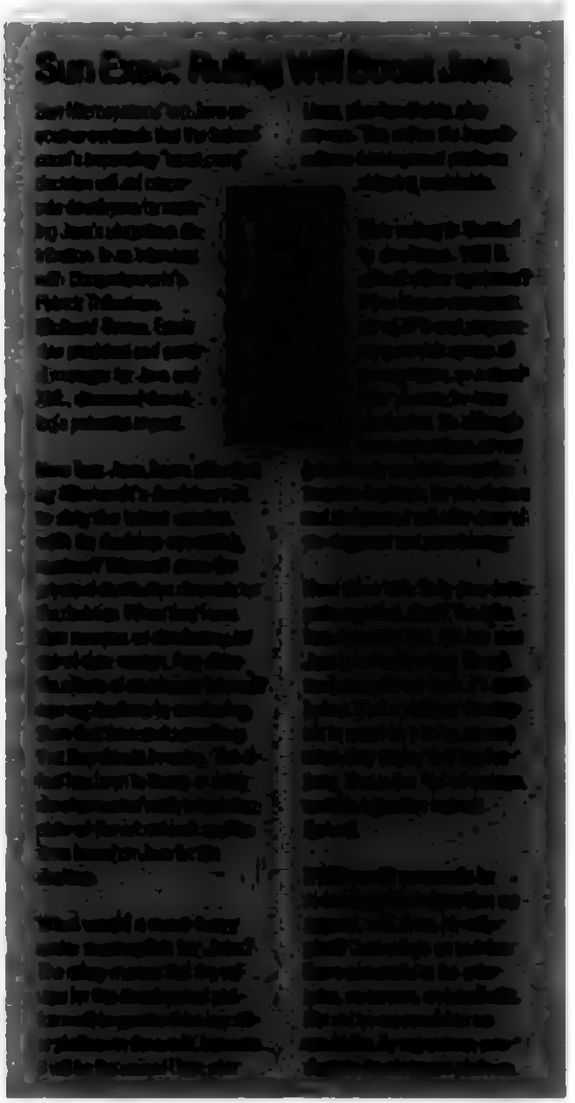

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BRIEFS

Sybase Combines Software Divisions

Sybase Inc. said it has set up an operating unit that combines its business intelligence, e-business and data management software divisions into a single group. The Dublin, Calif.-based company hired Thomas Volk, former vice president and general manager of Hewlett-Packard Co.'s manufacturing industry business unit, to run the new Infrastructure Platform Group.

ACS Wins IT Deal With Ingram Micro

Dallas-based Affiliated Computer Services Inc. (ACS) announced a deal to take over IT infrastructure management at Ingram Micro Inc., a computer products distributor in Santa Ana, Calif. About 200 IT workers will be transferred to ACS as part of the deal, which covers Ingram Micro's systems and networks, plus its internal help desk operations.

Ariba to Restate Fiscal 2001 Results

Sunnyvale, Calif.-based Ariba Inc. said it will restate its financial results for the fiscal year that ended in September 2001 to account for a $10 million payment made that year to an executive who no longer works for the company. Ariba, which makes online procurement software, noted that it's reviewing benefits given to "a limited number" of employees during fiscal years 2000 and 2001.

Short Takes

IBM and HITACHI LTD. completed a deal in which Tokyo-based Hitachi bought majority ownership of IBM's disk drive unit, which will be part of a new company called Hitachi Global Storage Technologies. . . . Seattle-based CRAY INC. said it has shipped the first production version of its Cray X1 supercomputer.

Cyberthreats Not to Be Dismissed, Warns Clarke

Says vulnerabilities still 'underappreciated' as threat to nation's critical infrastructure

BY DAN VERTON

THE U.S. has ignored warning signs before: two attempts by al-Qaeda in 1994 to use airplanes as weapons, as well as public statements in 2000 about terrorists being trained as pilots.

Now Richard Clarke, chairman of the President's Critical Infrastructure Protection Board, is trying to prevent new warning signs from being ignored — signs that al-Qaeda's brand of terrorism has a growing cyber element and that the nation's economy is at risk.

Before taking up his current post in October 2001, Clarke advised two presidents on cybersecurity and served as the country's first counterterrorism coordinator. Most of his time now is spent raising awareness of the changing nature of terrorism and the increasing relevance of cyberterrorism to the stated goals of groups such as al-Qaeda.

"Cyberspace still is underappreciated as a threat, and the solutions aren't as obvious as they are with physical security," said Clarke during an exclusive interview with *Computerworld* Dec. 20. "We have no clue as a country how to protect our cyberspace. It is a totally different kind of issue."

Unknown Security Holes

Clarke said vulnerabilities in the nation's critical infrastructure stem mainly from unknown security holes in widely deployed software and from the constant influx of new technologies that often have unintended consequences for security.

One of his biggest concerns is the growing use of wireless technologies, he said. There have already been cases in Spain and Japan in which PC-based worms have infected hundreds of next-generation cell phones, tricking them into dialing local 911 emergency systems, Clarke added.

"Now, if you're a terrorist, the first thing you might want to do before an attack is take down the 911 system," he said.

According to Clarke, the Sept. 11 terrorist attacks were a turning point for the national effort to protect cyberspace.

"Before Sept. 11, [al-Qaeda] was interested in killing as many people as possible," he said. "After Sept. 11, [Osama bin Laden] starts talking about destroying the American economy. And he starts to talk about going after the economic infrastructure of the United States. You could drive around a lot of truck bombs and really not do a lot of damage to the economic infrastructure because it's so diverse and dispersed. But if you do it in cyberspace, you might have the ability to hit the entire financial services network simultaneously."

> We have no clue as a country how to protect our cyberspace. It is a totally different kind of issue.

RICHARD CLARKE, CHAIRMAN, CRITICAL INFRASTRUCTURE PROTECTION BOARD

Clarke said he's aware that many people doubt the willingness and ability of terrorist organizations to carry out strategic cyberattacks against the U.S. But he said it's his job to think differently about the future — and to do what some officials failed to do in the months leading up to Sept. 11.

A Lot of Threats

"There are a lot of different people who can conduct cyberwarfare," Clarke said. "There are countries that are creating cyberwarfare units. There are criminal groups engaging in cybercrime. There are also some terrorist groups we know are looking at using cyberattack tools. But I don't spend a lot of time trying to figure out who's going to be the next attacker."

Eliminating al-Qaeda, for example, "won't end the threat to us from cyberspace," he said.

And therein lies the challenge, according to Clarke. The U.S. needs to take the target of cyberspace away from its enemies by eliminating vulnerabilities, he said. ▶

An Ongoing Debate

A research paper released last month by the Center for Strategic & International Studies (CSIS), a Washington-based think tank, argues that computer networks and critical infrastructures are distinct entities and that the threat from cyberterrorism is far less serious than the government and the media contend.

"The assumption of vulnerability is wrong," argues James A. Lewis, a CSIS analyst and author of "Assessing the Risks of Cyber Terrorism, Cyber War and Other Cyber Threats."

"While many computer networks remain very vulnerable to attack, few critical infrastructures are equally vulnerable," according to Lewis. "Computer network vulnerabilities are an increasingly serious business problem, but their threat to national security is overstated."

But Lewis offers few examples and technical details to support his claims, which stand in stark contrast to much of the new thinking by high-level national security experts on the issue of critical infrastructure protection and cybersecurity.

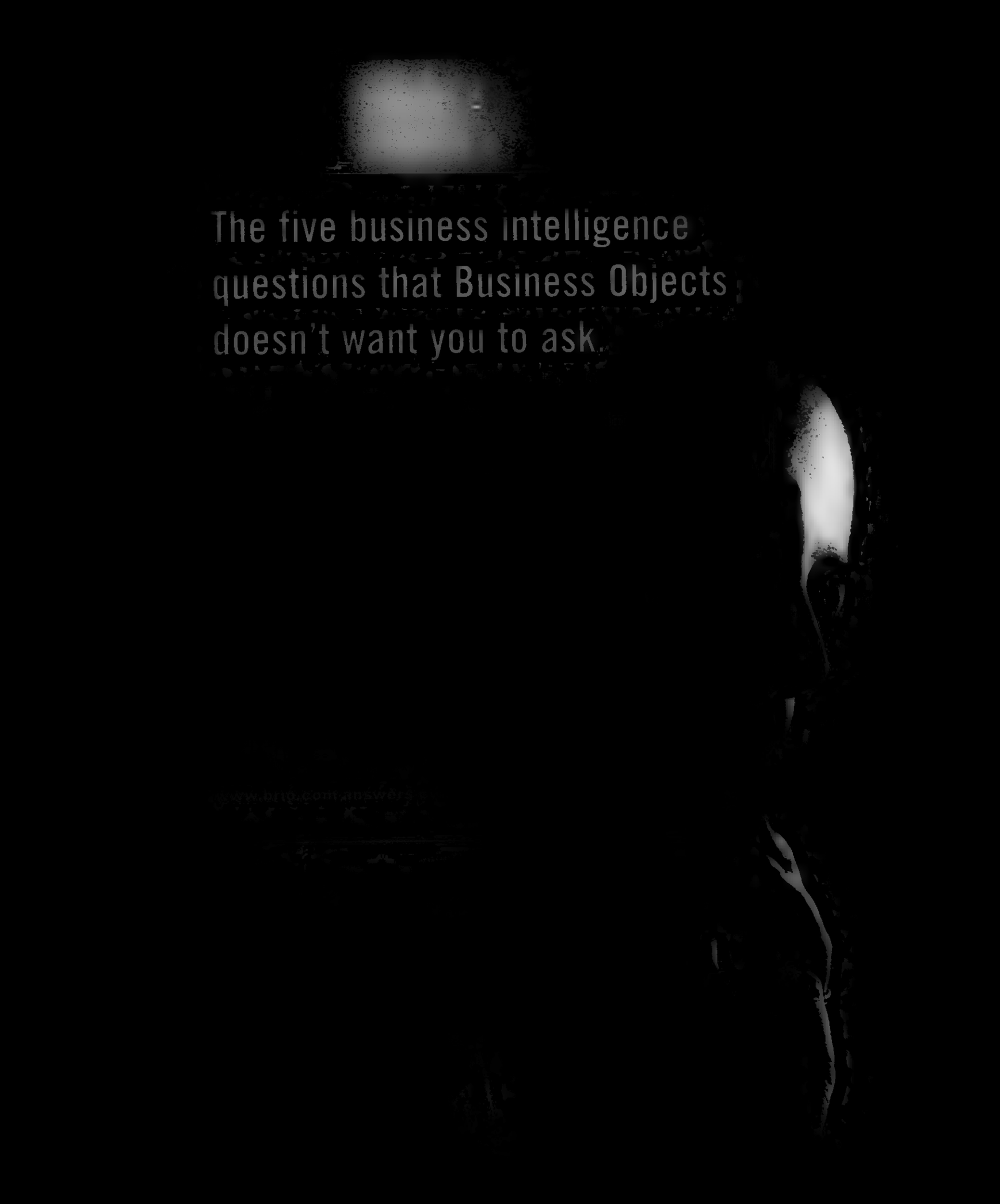
In a recent interview with *Computerworld*, for example, Brenton Greene, deputy director of the National Communications System, an executive-branch agency responsible for maintaining and restoring communications during times of national crisis, said the physical and cyber aspects of critical infrastructure protection can't be separated. Major physical events will have digital ramifications and vice versa, said Greene.

That's also the conclusion of the recently released annual report of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, led by former Virginia Gov. James S. Gilmore. "Cyberspace has been isolated and specialized, thus limiting its perceived relevance to day-to-day outcomes and even its relevance to what are viewed as clear and present homeland security threats," the commission stated.

In an interview, Gilmore said the commission's studies show that cyberterrorism is a clear and present danger to critical infrastructure.

"The information technology, Internet and computer world that we now live in is vulnerable, and it must be analyzed together with other physical parts of critical infrastructure in order to protect the nation," he said.

–Dan Verton


The five business intelligence questions that Business Objects doesn't want you to ask.

U.S. Tries to Restrict 5-GHz Wireless LANs

Worried about interference with military radar

BY BOB BREWIN

The U.S. Department of Defense is seeking to restrict the use of wireless LANs in the lower portion of the 5-GHz frequency band because of concerns about possible interference with military radar.

Portions of the 5-GHz band have already been assigned for unlicensed WLAN use in the U.S., Europe and Japan. But in a draft position paper submitted to the International Telecommunication Union (ITU), the U.S. government said it wants the 5-GHz band protected for radar systems that can pick "smaller and less reflective targets out of background clutter."

That phrase refers to small boats or planes that terrorists could use to attack U.S. forces, said John Pike, a defense analyst at GlobalSecurity.org in Washington. He added that the Defense Department is also concerned about its ability to detect stealth aircraft that can hide from most conventional radar systems.

High Stakes

Badri Younes, director of spectrum management at the Pentagon, acknowledged that the war on terrorism has raised the stakes for radar operations. Attackers "could be coming from anywhere," Younes said, adding that the military has to be able to ensure that its radar systems can work without interference from WLANs.

The government's position paper was prepared for a meeting of the ITU in Geneva on Nov. 11. The ITU, the United Nations body that oversees spectrum allocations worldwide, plans to decide on the 5-GHz matter and other issues at its quadrennial World Radio Conference (WRC) in Geneva in June.

In the draft proposal, a copy of which was obtained by *Computerworld*, the U.S. said it wants to restrict the use of Wi-Fi WLAN technology between 5.150 and 5.350 GHz. The government called for radar systems operating in that band to be protected by a technique known as dynamic frequency selection (DFS), which would shut down WLAN transmissions if a radar signal was detected.

Bill Calder, a spokesman for Intel Corp., declined to specify the DFS restrictions being sought by the Pentagon. But he said that IT vendors view them as too conservative and are trying to reach a compromise with the government before the WRC meeting.

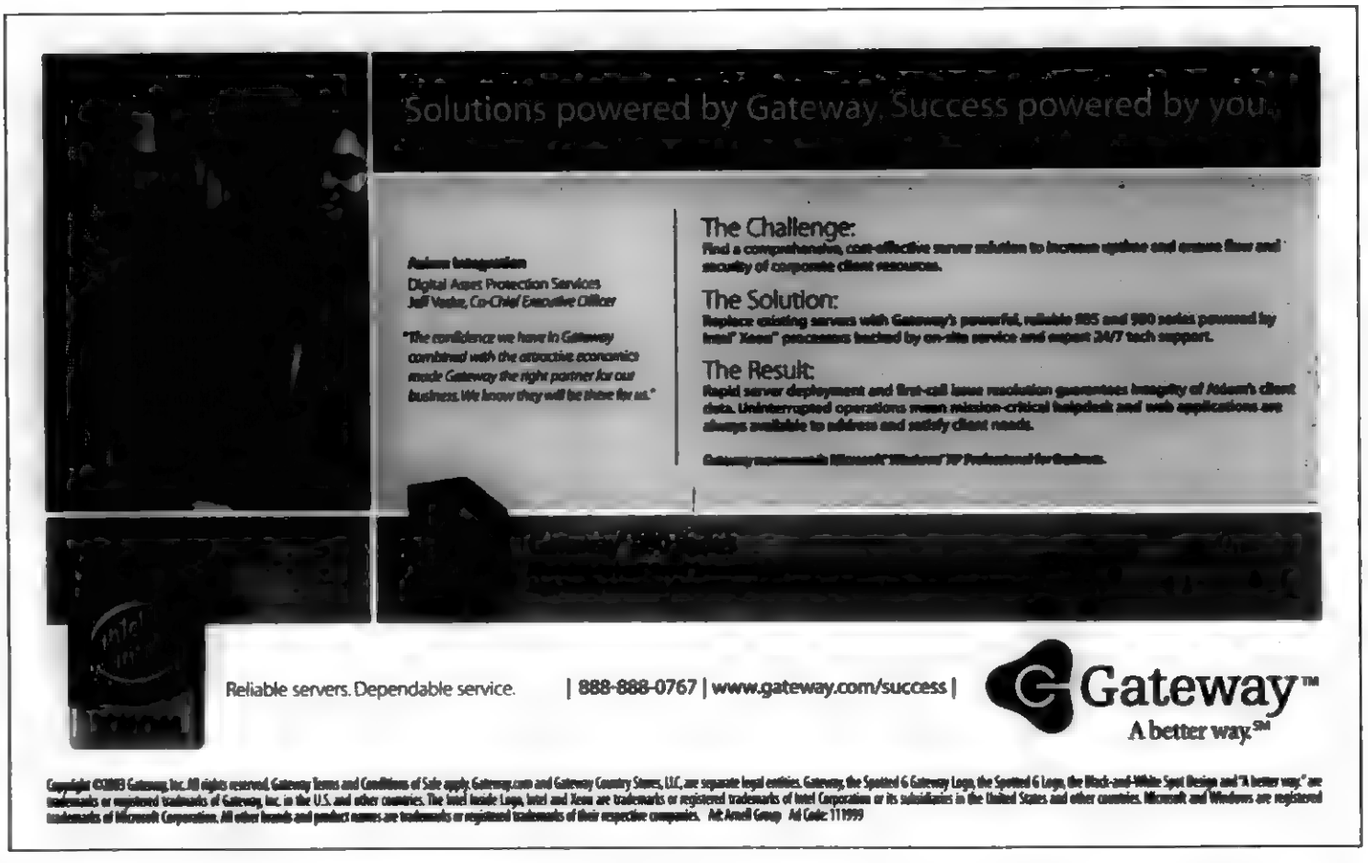
"We do not want to see that low band unduly restricted," Calder said.

Younes said Pentagon officials are willing to work with companies to devise a proposal that supports national security interests and the needs of WLAN vendors and users.

But Rich Redelfs, president and CEO of Atheros Communications Inc., a Sunnyvale, Calif.-based maker of chip sets for 5-GHz WLANs, described the attempt to limit use of the technology as "trying to put the genie back in the bottle."

Clyde Ensslin, a spokesman for the National Telecommunications and Information Administration, a division of the U.S. Department of Commerce, said the draft proposal represents the views of all federal agencies, including the Federal Communications Commission.

The radar section pertains to both military and commercial radars, including advanced systems that commercial pilots could use to detect small planes, Ensslin said.



MARYFRAN JOHNSON

Real-Time IT Leadership

I JUST SEARCHED FOR THE PHRASE "real-time IT leadership" on Google and came up with a big fat goose egg. Zip. Nada. No documents found. That led me to ask one of those tree-falling-in-the-forest questions: If it can't be Googled, does it really exist?

Damn right it does. And I submit as Exhibit A this issue of *Computerworld*, which is devoted to our Premier 100 IT Leaders for 2003. Real-time IT leadership is what the Premier 100s are all about. They show it on the job every day, across every industry. They use it to get projects done, budgets balanced, old applications integrated, new systems stabilized and customer issues resolved. They leverage it to keep businesses moving forward despite the drag of this drawn-out recession.

This is our fourth year of identifying and honoring the men and women who drive the IT leadership agenda. We built our stories this time on a series of tough questions, which the Premier 100s answer in detail throughout this issue. How are they managing vendors and suppliers? Automating and integrating technology with the enterprise? Connecting with customers?

But like real life, this issue isn't just a string of success stories. The Premier 100s also talk about their worst decisions and what they learned from them. One CIO regrets deploying a debit card system for international travelers that foundered on technology complications in Europe, and another rues the day she signed an enterprise software agreement that locked her company into lousy products.

Their challenges — and the myriad ways they handle them — will ring familiar bells with you. For starters, they watch the bottom line constantly and in concert with the business side.

"My CFO can make a vendor cry and a nickel scream," quips Henry Volkman, CIO at Del Taco. He's in the midst of upgrading 254 point-of-sale systems for the fast food chain, and he meets every week with his top financial executive to keep that real-time information flowing.

For Jerry McElhatton, senior executive vice president of global technology and operations at MasterCard International, real-time IT leadership means paying "exceptional attention to detail" while still giving his IT staff the latitude to make decisions. "You monitor the metrics and make sure you stay on track," he says.

Staying on track often hinges on the level of commitment IT leaders extract from their vendors. "Michael Dell promised me face to face it would work," says Damien Bean, vice president of corporate systems at Hilton Hotels, referring to the successful platform change involved in an ERP project.

Yet often, real-time IT leadership is as much about listening to customers and end users as it is about technology savvy or management skills. At Six Continents Hotels, CIO W. Douglas Lewis kept that in mind while revamping the central reservation system for 3,200 hotels. "Involving the people who leave fingerprints on the keyboards is critical, because they know what the hotels need," Lewis says. "If we approached this from an IT point of view, it's likely we would have built the wrong solution."

That last comment neatly sums up the balanced, open-minded, analytical worldview our Premier 100 IT Leaders bring to their work. I hope you'll enjoy reading their stories as much as we enjoyed writing them.

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"My CFO can make a vendor cry and a nickel scream," quips Henry Volkman, CIO at Del Taco. He's in the midst of upgrading 254 point-of-sale systems for the fast food chain, and he meets every week with his top financial executive to keep that real-time information flowing.

For Jerry McElhatton, senior executive vice president of global technology and operations at MasterCard International, real-time IT leadership means paying "exceptional attention to detail" while still giving his IT staff the latitude to make decisions. "You monitor the metrics and make sure you stay on track," he says.

Staying on track often hinges on the level of commitment IT leaders extract from their vendors. "Michael Dell promised me face to face it would work," says Damien Bean, vice president of corporate systems at Hilton Hotels, referring to the successful platform change involved in an ERP project.

Yet often, real-time IT leadership is as much about listening to customers and end users as it is about technology savvy or management skills. At Six Continents Hotels, CIO W. Douglas Lewis kept that in mind while revamping the central reservation system for 3,200 hotels. "Involving the people who leave fingerprints on the keyboards is critical, because they know what the hotels need," Lewis says. "If we approached this from an IT point of view, it's likely we would have built the wrong solution."

That last comment neatly sums up the balanced, open-minded, analytical worldview our Premier 100 IT Leaders bring to their work. I hope you'll enjoy reading their stories as much as we enjoyed writing them. ▶

PREMIER 100 IT LEADERS 2003

Learn From The Best

THINK OF THEM AS YOUR VERY own panel of business-savvy, technology-smart consultants. They offer advice, instruct you on how to perform better and warn you of hidden traps, all at no charge.

They are this year's Premier 100 IT Leaders, and they have a few stories to tell. Today more than ever before, flat budgets and a desperate need to cut costs are challenging these technologists to develop IT innovations, prop up sagging staff morale and improve productivity. They are unique because their skilled leadership has placed them at the top of the corporate ladder. What's more, they remain at the top of their games as they refuse to let a shaky economy slow their drives to use technology as a tool that accomplishes extraordinary things.

For the past four years, *Computerworld* has set out to identify each year's top 100 IT executives. The goal: to recognize men and women who are leading change in their companies and their industries through technology. Each spring, we put out a call for nominations. This year, as in the past, we were buoyed by the response. We received more than 600 nominations of IT executives across a wide variety of industries. After surveying those nominees on topics ranging from management styles to project successes, we looked to *Computerworld*'s Leadership Index – a list of attributes found in IT leaders – and then evaluated the surveys and selected the year's 100 honorees.

The information we received from the honorees' surveys is a treasure trove of tips and tactics about how to be an IT leader in these trying times. These IT executives talk about their career triumphs, their challenges, even the decisions they regret making. They describe their priorities for the year ahead, identify the projects they plan to work on, and discuss their strategies for managing staffs and vendors.

Their challenges for the coming year map well to what many of you are facing in 2003. They're being asked to do more IT projects with less money, prove value to their executive boards for each and every project they undertake, optimize their existing technology infrastructures and secure corporate data. Sound familiar?

We think you'll find their stories valuable. In fact, the following pages may help you develop your own agenda for the coming year. With any luck, the knowledge and experience of this elite corps of IT strategists will help you avoid pitfalls you might otherwise stumble upon in 2003.

– Ellen Finnie, special projects editor

HOW WILL YOU Invest Your IT Dollars?

There's precious little money for IT investments this year, but the cash Premier 100 leaders do have to spend will go toward projects with minimal risk and surefire payoff. By Steve Ulfelder

THE YEAR IS BRAND NEW, but the budget challenges are old news: very little money to spend and plenty of projects competing.

Among this year's Premier 100 IT Leaders, spending plans vary widely. As expected, some IT shops face budget cuts driven by lower-than-anticipated revenue. Even many CIOs in healthy industries will rein in spending voluntarily as a preemptive defense against a possible slowdown. Still others are already accustomed to spending less than 1% of revenue on IT — a tight budget to begin with. Perhaps most surprisingly, at least one past Premier 100 IT Leader is increasing his IT spending by 25%.

In other words, technology spending in 2003 will depend heavily on industry and business needs. Some of the Premier 100 leaders will invest to meet federal regulations; others will double their IT training budgets because they have recently rolled out several applications. Many enterprises, having spent years trying to increase revenue through customer-facing technology initiatives, will turn their focus inward, where returns are more assured.

There's a common thread among this year's IT leaders, however. In forward-thinking enterprises, technology spending is now clearly and closely tied to corporate strategy.

It's a perennial challenge: In a recent Gartner Inc. survey of 1,500 CIOs, "strategizing for IT/business linkage" was listed as the No. 1 IT management priority, and it has topped other surveys for a decade or more. In leading organizations, IT is no longer viewed as a wild card or black box; its budget is scrutinized by an executive committee. Projects that get the green light are expected to produce results.

Taking a Deep Breath

Daniel W. Garrow, senior vice president of information systems and CIO at Mohegan Sun Casino in Uncasville, Conn., has spent the past two and a half years presiding over a $1 billion property expansion and simultaneous infrastructure upgrade. He plans to focus on fine-tuning a host of new systems and applications. "We completely redid our network," he says, which included bringing broadband Internet connections to a new 1,200-room hotel for the $787 million casino operation.

"A lot of the infrastructure expenses are behind us," Garrow says. "In 2003, our focus is on cleaning up what we call logical construction debris. There are loose ends to tie up, interfaces that need to be tweaked. . . . We're taking this year to settle into our new systems."

Among those loose ends is Mohegan Sun's first suite of hotel management software from Lawrenceville, Ga.-based Inter-American Data. The hotel has Inter-American's Lodging Management System 1.5 up and running, but Garrow is still fine-tuning the system and integrating it with a proprietary Mohegan Sun loyalty-card program that lets guests earn points when they gamble and then redeem them anywhere on casino property.

Even businesses with improving market shares, outstanding brand recognition and sound business plans have been affected by the slow economy, and Premier 100 leaders are adjusting accordingly.

"The North American region is targeted to deliver operating income at near double-digit growth rates in an

industry that's growing at only 3%, so we want to leverage every dollar spent on technology," says Doug Watson, a vice president and director of IT for the Americas at Miami-based distiller Bacardi USA. "We have an IT governance model in place that ensures we're spending dollars that directly tie back to our strategic drivers."

As a result, Watson will spend heavily this year on a program that rationalizes Bacardi's supply chain software. The company long ago standardized on tools from Denver-based J.D. Edwards & Co., but its four implementations — one in Jacksonville, Fla., two in Puerto Rico and one in Miami — "grew up separately" and use different data models that make information-sharing difficult, Watson says. Driven by business pressures, his IT team will create a single data model this year aimed at "complete data transparency" that spans the company's supply chain across geographic regions, he says.

Like Watson, Premier 100 IT Leader Linda Roubinek is focused on helping her company achieve its strategic goals. As systems officer at Nationwide Mutual Insurance Co., Roubinek was instrumental in realigning the Columbus, Ohio-based company's IT spending model. Last year, Nationwide launched a group of cross-functional strategy and technology councils that are in charge of setting the company's IT agenda and making sure all major projects contribute to that agenda.

As a result of council decisions, Roubinek will focus this year on creating Web-enabled tools for Nationwide's agents. "We've invested in CRM in the past," she says, "but we're doubling that investment in 2003." The goal is to speed time to market for new rates and regulatory changes. That's a stiff challenge, in part because Nationwide does business in 46 states, each of which has its own insurance commission that must approve proposed offerings. Nationwide spent much of 2002 holding focus groups for insurance agents, and it's now ready to create the proprietary tool.

Inside the Firewall

It's appealing to spend money on customer- and partner-facing systems that can potentially enhance revenue. And indeed, "the bulk of IT expenditures going forward will focus on customer-facing stuff," says Tom Pohlmann, an analyst at Cambridge, Mass.-based Forrester Research Inc. But that's a long-term trend; in the near future, many CIOs and business executives, having been burned by expensive enterprise resource planning (ERP) and customer relationship management (CRM) implementations that delivered desultory returns, are focusing on internal upgrades with relatively certain payoff.

For example, Glen Allen, Va.-based Owens & Minor Inc. has ambitious strategic IT plans, but at the same time, "we've got to modernize our legacy business apps in 2003," says David R. Guzman, senior vice president and CIO. The $3.9 billion health care distribution and logistics company has a range of legacy applications written in what Guzman calls "mid-'80s alphabet soup" — MVS, Cobol, CICS and the like. The six-member IT governance team considered a major ERP implementation but rejected it as risky and likely to waste much of the company's existing data.

As an alternative, Owens & Minor will spend much of 2003 using RescueWare, a product from Cary, N.C.-based Relativity Technologies Inc. that converts legacy code into Java,

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Results of a recent report from Aberdeen Group Inc. in Boston show a wait-and-see approach among IT executives at U.S. companies – at least through the first half of 2003.

47% of respondents said they plan to delay IT purchases at least until the second quarter of 2003.

21% said they won't buy any applications at all in the first half of the year.

84% cited "budget constraints" as the major reason for their delayed spending.

37% cited perceived lack of business value as the reason they plan to hold off on spending.

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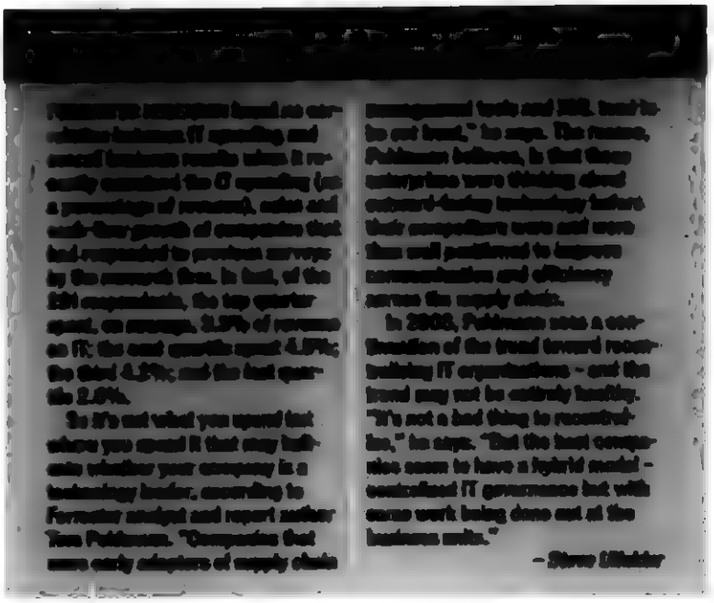

HTML and Visual Basic.

Guzman says he will also spend much of his time overseeing Owens & Minor's IT outsourcing deal with Dallas-based Perot Systems Corp. In July 2002, the companies expanded and extended their existing relationship into a comprehensive seven-year, $229 million services agreement. Previously, Perot Systems handled application development and network operations, while mainframe operations were outsourced to IBM. "We just gave Perot the whole pie," Guzman says, because projections for return on investment showed a savings of 35% over the seven-year contract.

What Guzman likes most about the Perot Systems deal is the agility it affords Owens & Minor. When operations are well in hand, Perot shifts its personnel to development tasks. Howard Rubin, an analyst at Stamford, Conn.-based Meta Group Inc., says such agility is a growing need for corporate IT. "Right now, even IT departments that have cut their budgets are too inflexible," he says, calling heavy upfront expenditures for infrastructure "the equivalent of buying an investment that you can't cash in for 20 years." Rubin says turning fixed costs into variable costs will be a major trend among IT leaders this year.

"We may have to control spending over the next 12 to 18 months, and I'm prepping my budget accordingly."

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Telecom Jitters

Another health care firm, TriWest Healthcare Alliance, is also planning internally focused projects for 2003. Premier 100 IT Leader James D. Gibson, director of IT at the Phoenix-based company, which offers health care for Department of Defense employees, says TriWest will upgrade its 800 desktops from Windows NT to Windows 2000 this year.

In addition, TriWest is studying requests for proposals for voice over IP (VOIP) telephone service. "We've not yet made the final decision to go ahead with that," Gibson says, "but we've done a cost-benefit analysis, and we think it'll pay for itself in two years."

TriWest is understandably nervous about the health of its telecommunications suppliers: Its local service is provided by Qwest Communications International Inc. and its long distance by WorldCom Inc. Gibson says the uncertainty surrounding these companies played a factor in his decision to invest in VOIP this year.

Getting Out Front

Leaders must anticipate change, and some Premier 100 IT Leaders are doing just that by adjusting their IT spending — before anybody tells them to. Emcor Group Inc., a global $3.7 billion construction firm in Norwalk, Conn., has enjoyed robust fiscal health throughout the economic downturn. But because construction lags the general economy, group CIO Joseph A. Puglisi is tightening his organization's belt in the budget proposal he's now developing. "We may have to control spending over the next 12 to 18 months, and I'm prepping my budget accordingly."

Puglisi has told IT managers to present their budget needs in three columns: committed costs, money needed to sustain the level of services Emcor's IT provided in 2002 and money the company would need to spend in order to improve services. Puglisi says "highfalutin wanna-haves" are unlikely to make the cut in 2003.

Improved security is a must-have, though, and it's an area Emcor will stress in 2003. Puglisi says he's particularly concerned about the company's Lotus Notes system. Emcor has 67 far-flung operating units and often grows through acquisition (it bought 16 companies in 2002 alone).

Often, an employee of one Emcor unit is asked to perform duties for other units in his geographic region. This causes secure-access problems. "Notes has very good security mechanisms, but they're rigidly defined," Puglisi says. "If you tell Notes, 'The data within an app is unique to a company,' then a worker for Company A can only see Company A data. That's a good thing, generally — but we need to let him see data for Companies B and C."

Naturally, though, any access must be secure. So in 2003, Emcor is "underwriting a significant investment in strong walls with good tunnels," Puglisi says.

Upping the Ante

Given the generally tight budgets this year, one of 2002's Premier 100 leaders may be the envy of the class of 2003. Steve Matheys, CIO at Schneider National Inc., will see his budget grow 20% to 25% this year. The $2.4 billion shipping and logistics company in Green Bay, Wis., "spent the last couple of years putting our business in order," Matheys says.

Schneider's eight-member IT steering committee sifts expenditures into three categories — run the business, grow the business and transform the business — and tries to spend 75% of all discretionary dollars on the third category. The company believes it can use technology to squeeze more expenses out of its supply chain, and much of the increased 2003 budget will go toward this goal. Matheys' team wants to integrate two homegrown applications that have heretofore stood alone: a proprietary decision-support system that weighs thousands of factors before recommending a shipping method and the CRM-type program that customer service representatives use when quoting rates over the phone.

Follow the Leaders

Although IT leaders' spending plans for this year depend heavily on industry demands and company needs, there's one important constant: In leading enterprises, IT budgets are driven by business strategy. This seemingly straightforward linkage has eluded CIOs ever since the data processing department became the MIS department.

Difficult fiscal times, return on investment disappointments following the tech spending spree of 1995-2000 and the maturation of the CIO's role have prompted businesses to allocate their IT budgets just as they do in other departments. The Premier 100 class of 2003 welcomes this shift — and as a result are helping their enterprises succeed.

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FRUGALITY RULES

An analysis shows that companies with the best-performing IT investments are often the most frugal spenders.

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WHAT ARE YOUR Top Projects?

IT leaders will pick and choose their projects this year, aligning each closely with business goals. Here are the top five projects the Premier 100 IT Leaders for 2003 will tackle in the year ahead.

MANUELLO PAGANELLI

HOW WILL YOU Automate Your Enterprise?

IT WAS A CALCULATED RISK, upgrading a 1,200-user PeopleSoft system from HP 9000s to less expensive servers from Dell Computer Corp. and from a Sybase Inc. database to Microsoft Corp.'s SQL Server.

But Damien Bean, vice president of corporate systems at Hilton Hotels Corp. in Beverly Hills, Calif., came out on top, getting the lower cost and higher performance he wanted. To do it, Bean says he had to convince his end users and vendors that "they could not afford to let a global brand name like ours fail."

Corporate IT managers are struggling with lengthy and expensive supply chain management projects that rely heavily on enterprise resource planning (ERP), says Jennifer Chew, an analyst at Forrester Research Inc. in Cambridge, Mass. A Forrester survey of 124 senior executives at North American companies that was conducted in August and September 2002 showed that they are spending an average of $6.8 million and 1.6 years to complete such projects.

To speed ERP installations, Chew suggests that customers follow process road maps provided by the vendors, use

HOW WILL YOU Connect With Customers?

2 FOR BLUE CROSS AND BLUE Shield of Minnesota, building self-service Web capabilities meant the difference between winning and losing several major clients, including retailer Target, Northwest Airlines and General Mills.

"Without it, they would not do business with us," explains John Ounjian, CIO and senior vice president of information systems [redacted] and corporate adjudication services at the $5 billion insurance provider.

So when Ounjian explained to executives that the customer relationship management (CRM) project would cost $15 million for the first two phases, they didn't blink.

Companies worldwide will spend $15.4 billion on CRM initiatives this year, according to research firm Aberdeen Group Inc. in Boston.

Computerworld's Premier 100 IT Leaders will also spend big on CRM, enough to rank such projects second on their priority lists for 2003. Here, some of the Premier 100 honorees offer their advice for making these initiatives work.

Clarify Project Goals

Not all IT executives are having money thrown at them for CRM projects. But many say the best way to win allies and manage expectations is by sitting at the boardroom table.

At Cardinal Health Inc., a $7 billion maker of medical, surgical and laboratory products in McGaw Park, Ill., Richard Gius, senior vice president of IT, is on the company's capital review and operating committees, where IT projects are approved and funded. "That way, there are no surprises," he says.

Too often, business units approve projects and then confusion sets in when the IT staff is asked to deliver on something that's unclear. At Cardinal Health, "all of that is resolved before approval," Gius explains. His IT team is using CRM service tools to improve product returns, pricing and availability, and order fulfillment.

Dr. John Halamka, CIO at CareGroup Healthcare System, wanted to Web-enable medical records so that patients could access their own lab results, X-rays and doctor's notes, as well as make appointments and refill prescriptions. But he needed to take a creative approach to funding at CareGroup, a network of 17 hospitals associated with Harvard Medical School.

In the mid-1990s, academic health care faced rampant communication problems between doctors and patients, Halamka explains. The ability to solve this problem via the Web created "an incredible marketing value. So the board took a portion of the marketing budget [$250,000 for rollout and $500,000 annually] to fund the project," he says.

Involve the Business Side

CRM projects can redefine a company's entire operational infrastructure, so cooperation among executives and business units is critical to CRM project success. "Even the CEO must say customer service is Job 1," says Halamka.

St. Paul-based Blue Cross and Blue Shield of Minnesota learned the importance of communicating with business units during the design phase of its Web self-service screens. Ounjian and his technical team designed drop-down boxes that they thought were logical, but a focus group of end users found the feature cumbersome and the wording hard to understand. "We had to adjust our logic," he says.

Data integrity issues can also involve business units. At LexisNexis, a legal research provider in Dayton, Ohio, the IT staff added telesales and campaign management capabilities to its call

center. But during that time, the end users changed from law firm librarians to the lawyers themselves, which affected customer data. Allan McLaughlin, senior vice president and chief technology officer, recommended to the marketing group that it hold off rolling out a $6 million CRM system because data was unreliable.

"They didn't want to hear that. But we showed them that ROI would go negative," McLaughlin explains. Today, both marketing and IT are working to clean up contact information.

Overall, CIOs agree that disruption to the organization is inevitable with CRM projects and that the entire company should be prepared. "Management must understand that pots and pans are going to fall off the shelf," Ounjian says. "These transformations are disruptive and need an initiative right at the heel to add quality improvements, which will bring stability."

Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com.

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industry templates that spell out how to configure ERP systems for vertical markets and use those templates to develop proof-of-concept applications to gain buy-in from business users.

Whatever the problems, a report last year from Boston-based AMR Research Inc. predicted that ERP spending will remain steady at about $16 billion per year between now and 2006, and *Computerworld*'s Premier 100 IT Leaders ranked ERP systems as their top project for 2003. Here, several Premier 100 honorees who have survived these implementations offer their advice for success.

Get Early Buy-In

At the time of the Hilton upgrade in late 2001, no company had run such a large application on such comparatively modest platforms. Rather than using contracts to force the vendors to perform, Bean says he stressed how good it would be for them to prove that their products could handle the needs of a $3 billion global company.

"Michael Dell promised me face to face it would work," and Dell Computer provided $100,000 in funds to help get the project going, says Bean. He says he sold users on the project by explaining how the "replatforming" could save the company money while boosting performance.

When users feel that they're being forced to comply, Bean says, "you've got to drag everybody behind you," which creates friction. But if you get everyone on board upfront, "you've eliminated most of the friction points," he explains.

The result? Hilton cut $4.5 million to $5 million from its IT budget while boosting performance and adding "enormous" functionality, Bean says.

Take It Slow and Steady

Patience and prototyping helped Fredrick R. Pond, director of information services at Portland, Ore.-based Schnitzer Group, which includes real estate, steel and recycling companies, get 80% of the way through a complex, five-year ERP implementation.

The project involves a transition from a legacy Digital VAX to J.D. Edwards & Co.'s OneWorld software for financial, distribution and manufacturing, plus software from PeopleSoft Inc. for human resources and payroll. So far, the work has come in on schedule, or close to it, and under budget; the final work will wait until the economy improves.

Pond says he broke the project — which has cost $4.3 million so far — into manageable chunks, listened to users' concerns, compromised when he could and used prototypes to prove that ERP wasn't the end of the world.

Pond says he got agreement on most changes by working with management and demonstrating the new features and lower support costs the system would bring. The changes he made were mostly to reports generated by the system, rather than to the core database. "Over the three- or four-month period, we had acceptance — but maybe not excitement — for how things would change," he says.

"Listening is the No. 1 thing," says Pond. "You've got to gain an understanding" of users' fears and concerns

Continued on page 20

HOW WILL YOU Connect With Customers?

BY STACY COLLETT

FOR BLUE CROSS AND BLUE Shield of Minnesota, building self-service Web capabilities meant the difference between winning and losing several major clients, including retailer Target, Northwest Airlines and General Mills.

"Without it, they would not do business with us," explains John Ounjian, CIO and senior vice president of information systems and corporate adjudication services at the $5 billion insurance provider.

So when Ounjian explained to executives that the customer relationship management (CRM) project would cost $15 million for the first two phases, they didn't blink.

Companies worldwide will spend $15.4 billion on CRM initiatives this year, according to research firm Aberdeen Group Inc. in Boston.

Computerworld's Premier 100 IT Leaders will also spend big on CRM, enough to rank such projects second on their priority lists for 2003. Here, some of the Premier 100 honorees offer their advice for making these initiatives work.

Clarify Project Goals

Not all IT executives are having money thrown at them for CRM projects. But many say the best way to win allies and manage expectations is by sitting at the boardroom table.

At Cardinal Health Inc., a $7 billion maker of medical, surgical and laboratory products in McGaw Park, Ill., Richard Gius, senior vice president of IT, is on the company's capital review and operating committees, where IT projects are approved and funded. "That way, there are no surprises," he says.

Too often, business units approve projects and then confusion sets in when the IT staff is asked to deliver on something that's unclear. At Cardinal Health, "all of that is resolved before approval," Gius explains. His IT team is using CRM service tools to improve product returns, pricing and availability, and order fulfillment.

Dr. John Halamka, CIO at CareGroup Healthcare System, wanted to Web-enable medical records so that patients could access their own lab results, X-rays and doctor's notes, as well as make appointments and refill prescriptions. But he needed to take a creative approach to funding at CareGroup, a network of 17 hospitals associated with Harvard Medical School.

In the mid-1990s, academic health care faced rampant communication problems between doctors and patients, Halamka explains. The ability to solve this problem via the Web created "an incredible marketing value. So the board took a portion of the marketing budget [$250,000 for rollout and $500,000 annually] to fund the project," he says.

Involve the Business Side

CRM projects can redefine a company's entire operational infrastructure, so cooperation among executives and business units is critical to CRM project success. "Even the CEO must say customer service is Job 1," says Halamka.

St. Paul-based Blue Cross and Blue Shield of Minnesota learned the importance of communicating with business units during the design phase of its Web self-service screens. Ounjian and his technical team designed drop-down boxes that they thought were logical, but a focus group of end users found the feature cumbersome and the wording hard to understand. "We had to adjust our logic," he says.

Data integrity issues can also involve business units. At LexisNexis, a legal research provider in Dayton, Ohio, the IT staff added telesales and campaign management capabilities to its call center. But during that time, the end users changed from law firm librarians to the lawyers themselves, which affected customer data. Allan McLaughlin, senior vice president and chief technology officer, recommended to the marketing group that it hold off rolling out a $6 million CRM system because data was unreliable.

"They didn't want to hear that. But we showed them that ROI would go negative," McLaughlin explains. Today, both marketing and IT are working to clean up contact information.

Overall, CIOs agree that disruption to the organization is inevitable with CRM projects and that the entire company should be prepared. "Management must understand that pots and pans are going to fall off the shelf," Ounjian says. "These transformations are disruptive and need an initiative right at the heel to add quality improvements, which will bring stability."

- Minimize customization of off-the-shelf software.
- Don't add technical features just because they're available.
- Manage data movement, and insist on data integrity.

Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com.

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industry templates that spell out how to configure ERP systems for vertical markets and use those templates to develop proof-of-concept applications to gain buy-in from business users.

Whatever the problems, a report last year from Boston-based AMR Research Inc. predicted that ERP spending will remain steady at about $16 billion per year between now and 2006, and *Computerworld*'s Premier 100 IT Leaders ranked ERP systems as their top project for 2003. Here, several Premier 100 honorees who have survived these implementations offer their advice for success.

Get Early Buy-In

At the time of the Hilton upgrade in late 2001, no company had run such a large application on such comparatively modest platforms. Rather than using contracts to force the vendors to perform, Bean says he stressed how good it would be for them to prove that their products could handle the needs of a $3 billion global company.

"Michael Dell promised me face to face it would work," and Dell Computer provided $100,000 in funds to help get the project going, says Bean. He says he sold users on the project by explaining how the "replatforming" could save the company money while boosting performance.

- Make sure end users are willing to pay for the project. That way, they too have "skin in the game" and an incentive to make the project work.
- Deliver bad news early – don't wait for a formal meeting. No one likes to be surprised.
- Minimize the amount of data you convert to the format and data descriptions required by the new system, because not all the data will be converted properly.

When users feel that they're being forced to comply, Bean says, "you've got to drag everybody behind you," which creates friction. But if you get everyone on board upfront, "you've eliminated most of the friction points," he explains.

The result? Hilton cut $4.5 million to $5 million from its IT budget while boosting performance and adding "enormous" functionality, Bean says.

Take It Slow and Steady

Patience and prototyping helped Fredrick R. Pond, director of information services at Portland, Ore.-based Schnitzer Group, which includes real estate, steel and recycling companies, get 80% of the way through a complex, five-year ERP implementation.

The project involves a transition from a legacy Digital VAX to J.D. Edwards & Co.'s OneWorld software for financial, distribution and manufacturing, plus software from PeopleSoft Inc. for human resources and payroll. So far, the work has come in on schedule, or close to it, and under budget; the final work will wait until the economy improves.

Pond says he broke the project — which has cost $4.3 million so far — into manageable chunks, listened to users' concerns, compromised when he could and used prototypes to prove that ERP wasn't the end of the world.

Pond says he got agreement on most changes by working with management and demonstrating the new features and lower support costs the system would bring. The changes he made were mostly to reports generated by the system, rather than to the core database. "Over the three- or four-month period, we had acceptance — but maybe not excitement — for how things would change," he says.

"Listening is the No. 1 thing," says Pond. "You've got to gain an understanding" of users' fears and concerns

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and then demonstrate how ERP can make their lives better, Pond advises.

Schnitzer now closes its quarterly books in 11 days rather than 26 and can instantly update labor costs.

Delegate and Conquer

At George Washington University, CIO David Swartz's goal was to improve services for students, staff and suppliers by transitioning off mainframe applications. The new environment uses SCT Banner from SCT Corp. in Malvern, Pa., for student, financial aid and human resources data, and Oracle Corp.'s Financials suite for general accounting and financial tracking.

Swartz says his success is the result of an early plan to split responsibility for the ERP implementation among several departments at the 19,000-student Washington-based campus. Each department got control over its data and the interfaces its users would see, as well as a data warehouse so users could create their own reports without customizing the core ERP system. The IT organization keeps the system up and running and provides security and the corporate help desk.

The Oracle and SCT Banner systems, which together cost about $27 million, haven't saved the university money, but they've made life easier. Travel reimbursement times have dropped from weeks or months to days, and students can register for courses and order books online. With users creating their own reports, IT's backlog has been cut from as long as two years to "almost nothing," Swartz says. The ERP system also paves the way for new applications to track potential donors.

Swartz says he agreed to a "handful" of customizations. But he adds that he was usually able to win compliance with the new ERP workflow by communicating "the advantage of moving towards the enterprise model . . . keeping the lines of communication open and keeping [users] involved in the project, not just dumping it down on them."

Backing from top university leadership was sometimes needed to make the most drastic changes in workflow stick. But, says Swartz, "I think it's well worth it if you can get through it."

Scheier is a freelance writer in Boylston, Mass. Contact him at rscheier@charter.net.

HOW WILL YOU

Integrate Technology With Business?

BY BOB VIOLINO

WHEN BAXTER INTERNATIONAL Inc. began exploring an enterprise application integration (EAI) project in 2001, its plan was to improve the exchange of information with others in the health care industry, including suppliers, manufacturers, care providers, insurance companies and patients.

EAI "will allow us to be more agile, to react more quickly to changes," says CIO

MARC NEHLOW

"The health care industry traditionally has been very fragmented, with the various constituents using many different types of systems and all having different needs," says John C. Moon, CIO at the Deerfield, Ill.-based provider of health care equipment and supplies. "We see EAI as a way to help us connect our systems to those of suppliers, physicians, insurance companies and others. That will allow us to be more agile, to react more quickly to changes in the marketplace."

EAI involves using software to connect a variety of applications into a cohesive unit and thereby helps enterprises align systems more closely with business processes. It's become a critical part of the IT strategy at many organizations looking to meld disparate systems and quickly deliver data to employees, customers and partners.

Mark Ehr, an analyst at Enterprise Management Associates in Boulder, Colo., expects the EAI market to grow as companies continue to integrate front- and back-office applications, Web services and legacy applications. Some analysts say companies can expect to spend $200,000 to $400,000 on an EAI project, including software and installation costs.

EAI was the third most-cited project Premier 100 IT Leaders said they plan to undertake in 2003. And while IT managers who have completed or launched EAI projects say there can be significant benefits, they also point out that such efforts require specific skills and extensive coordination among multiple departments. Here, they offer advice for successful EAI projects.

Measure Expected Benefits

Baxter will launch the first phase of its EAI project this month, using an integration platform from Fairfax, Va.-based webMethods Inc. to link a Web-based customer service application to its enterprise resource planning (ERP) system. This will allow customers to place orders, check order status and delivery schedules, and conduct other transactions electronically. Most customers are now able to conduct business with Baxter only by phone, Moon says.

Baxter plans to expand its EAI to supplier systems so it can make its supply chain operations more efficient through inventory reductions and faster electronic ordering. The company is also considering using EAI software to connect medical devices to its ERP systems so, for example, patients using home kidney dialysis machines could order supplies using intelligent agents installed on the machines.

When it came to getting funding for the project, Moon says Baxter evaluated the need for EAI based on the number of systems it would affect, the costs and the potential business benefits. Planners presented a cost-benefit analysis to senior managers for each system that could benefit, Moon says. "We made the case that there would be increased speed [of transactions], fewer people to do interfaces and cost reductions," Moon says. It took about five months to build the business case, gather information on available EAI products and get approval for the overall effort, which began as a pilot in the fall of 2001.

EAI isn't without hurdles. "It's both costly and complex," Moon says. "There are a lot of proprietary architectures [among systems to be connected], and you need to put your technical staff through a great deal of training." Baxter has relied on outside EAI consultants to work not only with

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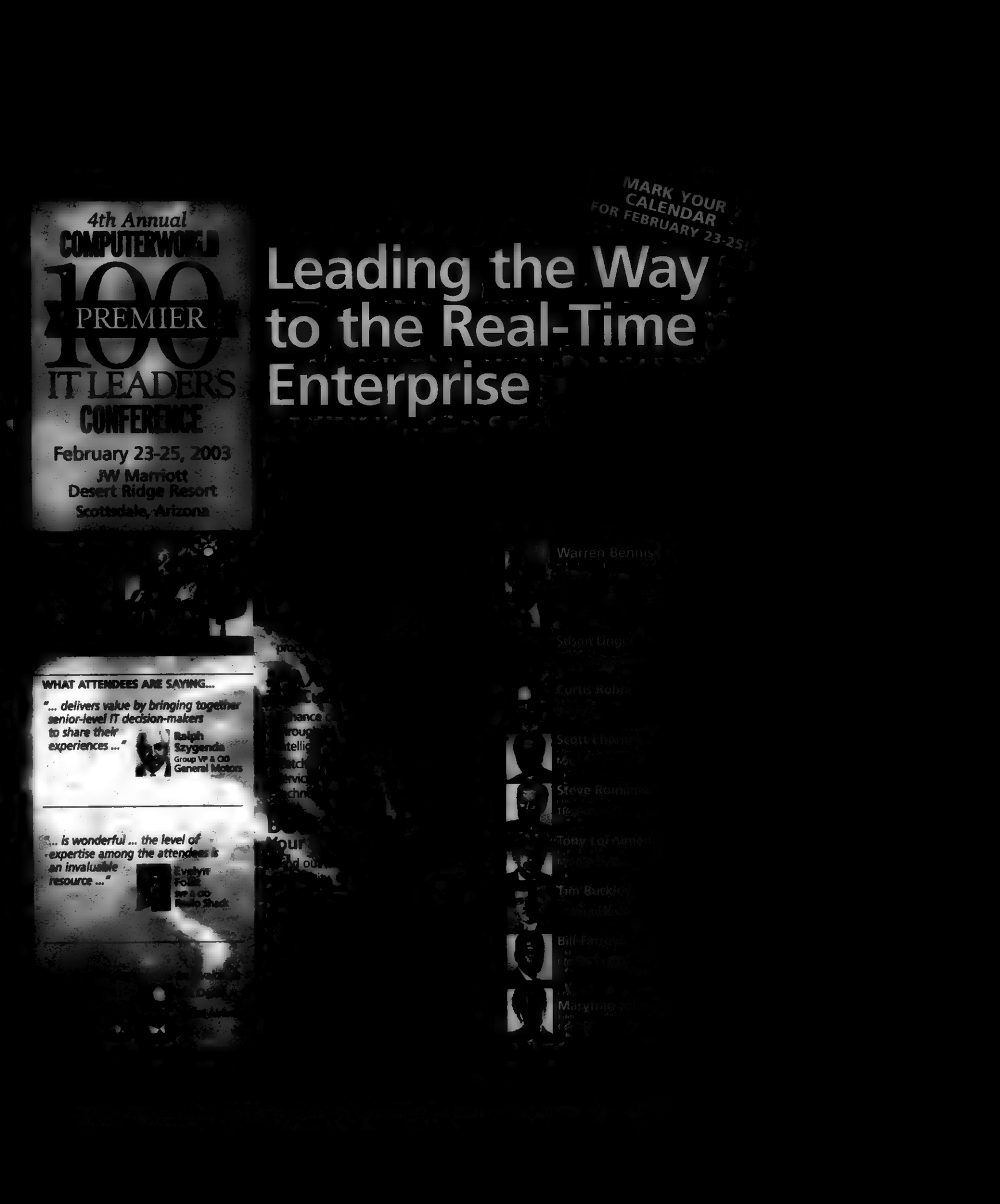
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Evelyn Follit
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Radio Shack
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Scott Cha
Steve Ro
Tony Lo
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February 23-25, 2003

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Need to lead your [illegible] and company to the real-time enterprise? Want to exchange innovative ideas and strategies with other top IT executives? Then attend Computerworld's Premier 100 IT Leaders Conference, the ONLY conference where you can hear from — and network with — Computerworld's Premier 100 IT Leaders.

Who Are the Premier 100?

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What is Unique?

Crafted by Computerworld editors, this conference offers a radical departure from the standard IT event. With a focus on great ideas, best practices and real applications of IT solutions, you'll gain insight that [illegible]

Maryfran Johnson

CONFERENCE AGENDA

SUNDAY, FEBRUARY 23

Noon to 5:00pm
Pre-conference Golf Outing

7:00pm to 8:00pm
Pre-conference Networking Reception

MONDAY, FEBRUARY 24

7:00am to 8:00am
Buffet Breakfast

8:00am to 8:15am
Welcome and Opening Remarks
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

8:15am to 8:45am

Opening Keynote
Driving the Digital Factory: DaimlerChrysler's Design Automation Push
SUSAN UNGER, SVP & CIO, DAIMLERCHRYSLER AG

Escalating its use of IT in car design and factory automation, the world's third-largest automaker has embarked on a massive "Digital Factory" project aimed at reducing production costs by up to 30%. CIO Susan Unger will detail how the use of manufacturing simulation and visualization tools is enabling DaimlerChrysler to push IT beyond its traditional roles in the car manufacturing process, but more importantly, how the project is changing the way technology is leveraged for business benefit.

8:45am to 9:30am

Blueprint for Tomorrow's Infrastructure
PANEL MODERATOR: DON TENNANT, NEWS EDITOR, COMPUTERWORLD

With up to 80% of IT budgets [illegible]

9:30am to 10:15am
[illegible] Business Value Out of Real-Time Information
[illegible], CIO, DELTA AIR LINES

[illegible] businesses must [illegible] and [illegible]

through its self-service kiosks and gate information display screens; to forecasting and optimizing fleets, routes, pricing and inventory; the Delta Nervous System has transformed the business by delivering up-to-date information through a "publish and subscribe" architecture.

10:15am to 10:30am
Break

10:30am to 11:30am

Vanguard Financial: Leveraging the Web Across Multiple Business Channels
TIM BUCKLEY, CIO, THE VANGUARD GROUP

Technological excellence can be a means of helping clients to meet their goals, but the race to embrace new technologies must always make business channels the priority. At Vanguard, IT resources for Web development play a dual role on the business side, improving quality and realizing savings for clients. In this session, Vanguard CIO Tim Buckley will examine how the $600 billion financial services firm has leveraged its website technology to integrate systems across multiple business channels, with results that include streamlined business processes, reduced [illegible]-related legacy systems, and most importantly, seamless service for clients no matter how complex their relationship with Vanguard.

11:30am to 11:35am
Concurrent Sessions
IT User/Customer Case Studies

11:35am to [illegible]
Concurrent Sessions
IT User/Customer Case Studies

Noon to 12:30pm
Concurrent Sessions
IT User/Customer Case Studies

12:30pm to 1:30pm
Interactive Luncheon

[illegible] to 2:00pm

Featured Presentation
[illegible]LEY, CIO, MERRILL LYNCH

2:[illegible]

Great brands are often [illegible] and in the last few years [illegible] some of the world's most [illegible] relationship between the [illegible] remains one of the least [illegible] tation, technology and co[illegible] will share stories of compa[illegible] motion technology, and [illegible] amplify each other's value [illegible]

CONFERENCE AGENDA

4:00pm to 4:45pm

IT Sourcing Faceoff: The View From Both Sides of the Fence

LEVERAGE PARTNERS

How your organization buys and delivers technology speaks volumes about the effectiveness of your overall IT strategy. With the marked shift from the sellers' market of the late '90s to today's buyers' market, the game has changed dramatically on both sides of the fence. Former CIO Bart Perkins specializes in assisting CIOs how to more effectively manage their suppliers, and how to apply the same rigor to sourcing decisions as IT applies to building applications. In this point/counterpoint discussion, he will initiate a frank, knowledge-sharing dialogue between technology leaders from both vendor and user companies.

4:45 to 5:15pm

The New Language of Leadership

3:15pm to 3:30pm

Break

3:30pm to 4:00pm

Featured Presentation

STEVE SCHUCKENBROCK, MANAGING PARTNER FOR CLIENT SERVICES, THE HAY GROUP

4:00pm to 4:45pm

Leadership Keynote

WARREN BENNIS, DISTINGUISHED PROFESSOR OF MANAGEMENT, USC

4:45pm to 5:00pm

Final Remarks and Conference Summary

7:00pm to 7:30pm

Cocktail Reception

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and check the Housing Reservations page, or visit
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Non-Sponsoring Vendor**	$5,000	$5,000

* See IT End-User description on the registration application on reverse.
** See Non-Sponsoring Vendor description on the registration application on reverse.

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Application for Conference Registration

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- **Or register online at www.premier100.com/west**
- **You will receive a confirmation via email**

QUESTIONS?
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- **Email: p100reg@computerworld.com**

CODE WEST

OPTIONS:

All dollar amounts are in U.S. funds; registrations include full access to all sessions, the Expo, meals and receptions. Transportation and hotel accommodations are your responsibility and can be reserved by visiting www.etcentral.com, calling 1-800-340-2262, or emailing eventhousing@idg.com

	Earlybird Registration (through January 17, 2003)	Full/On-Site Registration (on or after January 17, 2003)
IT End-User:*	❑ $1,495	❑ $1,795
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*IT End-Users are defined as those who are attending Computerworld's Premier 100 IT Leaders Conference with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

**Vendors are encouraged to participate in Computerworld's Premier 100 IT Leaders Conference through sponsorship. (Details are available by calling Leo Leger at 1-508-820-8212.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld) may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Sunday, February 23rd (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

Your Organization's Business / Industry? (Check Only One)
- ❑ Transportation / Utilities
- ❑ Mining / Oil / Gas
- ❑ Non-Profit / Trade Association
- ❑ Media / Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale / Retail (non-computer)
- ❑ Computer Service Provider
- ❑ Advertising / Marketing / Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Food Industry
- ❑ Government / Military
- ❑ Healthcare / Medical Services
- ❑ Travel /Hospitality / Recreation
- ❑ Manufacturing (non-IT)
- ❑ Automobile
- ❑ Transportation / Utilities / Energy
- ❑ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ❑ Agriculture / Forestry / Fisheries
- ❑ Other

Your Primary Job Title / Function? (Check Only One)
- ❑ CIO, CTO
- ❑ Vice President of IT
- ❑ Director, Manager, Supervisor of IT
- ❑ Other IS / IT Manager
- ❑ Chairman, CEO, President, COO
- ❑ CFO, Controller, Treasurer
- ❑ GM, VP, Director
- ❑ Other Corporate / Business Manager
- ❑ Corporate / Business Staff
- ❑ Consultant

Your Personal IT/IS Spending Authority?
- ❑ $5 million+
- ❑ $1 million - $4.9 million
- ❑ $500,000 - $999,999
- ❑ $100,000 - $499,999
- ❑ Under $100,000
- ❑ None

Number of Employees (ALL Locations)?
- ❑ 5,000+
- ❑ 1,000- 4,999
- ❑ 500 - 999
- ❑ Under 500

What is your Company IT/IS Budget?
- ❑ Over $1 billion
- ❑ $100 million - $999.9 million
- ❑ $10 million - $99.9 million
- ❑ $1 million - 9.9 million
- ❑ Less than $1 million
- ❑ None

What is Your Organization's Primary Vendor for Servers?
- ❑ Dell
- ❑ Hewlett-Packard / Compaq
- ❑ Hitachi
- ❑ IBM
- ❑ Sun
- ❑ Other

Your Organization's Enterprise Standard for Mobile Device Management Software?
- ❑ Aether Systems
- ❑ Altiris
- ❑ Computer Associates
- ❑ Extended Systems
- ❑ Hewlett-Packard / Compaq
- ❑ IBM Tivoli
- ❑ Landesk Software
- ❑ Management
- ❑ Marimba
- ❑ mFormation
- ❑ Microsoft
- ❑ Mobile Automation
- ❑ Novadigm
- ❑ Novell
- ❑ ON Technology
- ❑ Pumatech
- ❑ Starfish
- ❑ Synchrologic
- ❑ Wavelink
- ❑ XcelleNet
- ❑ Other
- ❑ No Standard Yet Established

Payment Method

❑ Check Enclosed (checks must be received by February 17, 2003 payable to: Computerworld)
Mail to: Computerworld, Attn: Pam Malingowski, 500 Old Connecticut Path, Framingham, MA 01701

❑ American Express ❑ VISA ❑ MasterCard
Account Number:

_____

Expiration Date: _____

Card Holder Name:

_____

Signature of Card Holder:

_____

Cancellation Policy *(All of the below options require written notification.)*
In the event of cancellation, the registrant has three options:
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Share Costs With Units

Another company attempting EAI, GE Power Systems in Atlanta, began a project three years ago and is now reaping the benefits. The subsidiary of General Electric Co. had "a collection of business units running as independent operations, with the majority of their systems not interconnected," says Alan Boehme, former e-technology CIO at GE Power who recently left to join Best Software Inc. as executive vice president and CIO.

GE Power uses the webMethods platform to share data among its disparate legacy systems, ERP software and Web-based applications. The benefits have included the ability to send data in real time from one system to another, and improved quality and accuracy of the data.

GE Power set up a project management office to implement EAI and track its benefits to the company, Boehme says. Although it's centrally managed, EAI is funded by individual projects run by various functional units within the business divisions. "That's where the benefit accrues, so we pushed the cost and the actual physical work into the functional units," Boehme says.

The decision on whether to invest in EAI was determined by each functional unit based on the estimated cost of implementing EAI adapters compared with the perceived benefits.

"A lot of IT departments held off on investing in EAI because they were waiting for a maturation in the technology, and they were waiting for the market to shake out and a few clear leaders to emerge," Enterprise Management's Ehr says. "EAI products have reached a maturation level in the past couple of years that make them considerably easier to implement, resulting in a more rapid ROI than was possible before."

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HOW WILL YOU Build Business On the Web?

4 BURIED UNDER AN AVALANCHE of paper requests for insurance bids, Providence Washington Insurance Co. sometimes took weeks to reply — a delay that proved costly.

"We felt that we lost business in the past because we were too slow to get price quotations out," says Edward N. Leveille, vice president of systems and CIO at the East Providence, R.I., insurance firm.

The solution was a Web-based price quotation system — an extranet portal for third-party independent insurance agents — that has sped up the accurate delivery of bids for custom business insurance contracts. The project automated the sales process and saved money on internal paper-shuffling.

In a tight budget year, e-commerce IT projects haven't lost their appeal. *Computerworld*'s Premier 100 IT Leaders ranked e-commerce projects fourth on their list of top priorities for 2003. But the rules have changed. Required payback times are shorter, often no more than a year. E-business initiatives tend to focus on improving order or sales-lead management, tuning the sales channel or creating business partner self-service portals.

"The goal of e-commerce these days is to increase your sales volume with the same number of employees in order to bring down the cost per transaction," says Gene Alvarez, vice president of electronic-business strategies at Meta Group Inc. in Stamford, Conn. "If you can take phone or fax transactions and do them via the Web, you can save money."

New York-based e-business research firm eMarketer Inc. projects that 2003 worldwide e-business IT expenditures will be $245 billion, up 49% from $164 billion in 2002. Premier 100 IT Leaders who have reaped the benefits of e-business projects share some tips for success.

Build in Buffer Time

With Providence Washington's extranet portal, independent insurance agents no longer need to submit paper bid requests to the company via fax or conventional mail. The portal also replaces the time-consuming process of keying information into the computer system. Once the portal is complete, Providence Washington will be able to make bids in minutes, vs. taking up to three weeks with the paper-based system.

In a test, agents in two states are now using the extranet portal to submit requests for bids; the goal is to expand the portal's use to agents in 10 additional states by midyear. The 18-month project cost about $3 million and is expected to reap a return on investment within three years, Leveille says. Payback should come from a combination of improved internal productivity and additional insurance revenue through the agents, he says.

The e-business project taught Leveille to carefully check out the financial status of vendors and to leave extra time for project completion. "[You must] accommodate problems that shouldn't happen but will when you are interfacing multiple systems together," he says.

Get the Word Out

At Tharco Inc. in San Lorenzo, Calif., a similar project allows customers to check on the availability of different types of packaging materials, create and track orders and verify order delivery on the Web.

Tharco — which makes corrugated and foam packaging materials for customers such as electronics firms, grocery stores and wineries — was looking for an interactive e-business approach that would both engage customers and cut Tharco's internal costs. It chose a Web front end from Raleigh, N.C.-based Haht Commerce Inc. for its own SAP system. Obtaining orders over the Web reduced the company's reliance on the customer service representatives, who typically receive orders by phone or fax and then key the orders into the computer system, says Bill Picton, Tharco's MIS director.

"It saves money for us, and for the customers, it means one less chance for error in the order. And because it's linked to our SAP system, customers get specific, real-time pricing on every order," Picton says.

The Web-based ordering succeeded where earlier e-business attempts had failed. One unsuccessful approach involved a noninteractive catalog that didn't include prices; another failure was a third-party hosting arrangement that didn't eliminate enough paperwork, Picton says.

Tharco's Web ordering method has proved popular with customers since it went live in March 2001, and it now accounts for about 10% of the firm's off-the-shelf packaging materials business, or about 6.5% of total revenue, Picton says. That success came partly because Tharco aggressively marketed the project to its customers.

"We had to reach out to them and show the people who do the daily ordering how it works," Picton says. "We sent our people to the customers' facilities to train them in using it. Then we had to let customers try it out for free for a week. That was the only way that customers got into it."

Tharco's three-month Web project cost less than $1 million and has already paid for itself, Picton says. "We're waiting to show a profit," he says. "But as the economy picks up, we will be able to support several times our current revenue with the combination of our existing customer service staff and this Web type of business approach."

Agribusiness firm J.R. Simplot Co. in Boise, Idaho, has a similar goal. It will launch a customer self-service Web portal early this year that will allow customers to order products or check order status. The company expects the portal to increase revenue and reduce costs, allowing it to recoup its initial investment of about $100,000 in less than a year.

"We want to differentiate ourselves in the marketplace by making it easier for customers to do business with us," says Roger W. Parks, Simplot's vice president of IT and CIO. "We also think this eventually will allow us to do more business with fewer employees in order entry and customer service."

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- Check out the financial status of vendors, and leave extra time for project completion.
- Market your e-business project to customers, and follow up with training.

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HOW WILL YOU Improve Your Core Systems?

"Involving the people who leave fingerprints on the keyboards is critical," says

BY AMY HELEN JOHNSON

THERE ARE FEW IT PROJECTS more fraught with danger than upgrading core systems. If you do things wrong, you've crippled the workhorse that carries the business.

On the other hand, the benefits of such a project can be enormous, says W. Douglas Lewis, executive vice president and CIO at Six Continents Hotels Inc., an international hotel management company, in Atlanta. Lewis is in the midst of installing a revamped central reservation system and local operations management systems for 3,200 hotels.

To make the project succeed, Six Continents partnered with end users from the start, says Lewis.

"Involving the people who leave fingerprints on the keyboards is critical, because they know what the hotels need," says Lewis. "If we had approached this from an IT point of view, it's likely we would have built the wrong solution."

Upgrades of core systems are among the top five projects the Premier 100 IT Leaders said they'll tackle this year. Getting things right is important because core system upgrades aren't cheap. Lewis and other Premier 100 IT Leaders share strategies for improving the odds of succeeding at these large, critical projects.

Test Your Powers Of Persuasion

Although Steve Scott, vice president of information systems division at Vision Service Plan (VSP) in Rancho Cordova, Calif., says he expects that upgrading the nonprofit organization's claims system will lower its cost structure, the more compelling rationale for his project is increased functionality.

Scott says he envisions the network's 20,000 optical businesses being able to do more self-service tasks, such as checking patient eligibility online. The new system also opens up the possibility of VSP's 36 million consumers being able to use the Internet rather than the telephone to do things like check on a claim's status, he says.

This type of business case is common, according to Allison Bacon, an analyst at AMR Research Inc. in Boston. It's hard to pin down a return on investment for a core system upgrade, because you're spending money on something that already works. Selling the project to upper management often requires making a compelling argument in favor of hard-to-measure benefits and new features.

Rent the Necessary Brains

If it's not a core competency, then outsource it, say IT leaders. Six Continents hired subcontractors to deploy the new systems in the hotels and conduct training. "It doesn't make sense to build that capability internally for a one-time activity," says Lewis. But he relies on his staff to do the application programming because they know the business better than an outsider would.

Henry Volkman, director of IT and CIO at Del Taco Inc. in Lake Forest, Calif., says his company will make use of outside help to upgrade its 254 point-of-sale systems. The fast-food chain is using an outsourcer to install the hardware in its restaurants, rather than stressing its busy internal staff with that chore. It's also working with Microsoft Corp. to design a SQL Server inventory database.

The vendor of an application always knows its ins and outs better than you do, says Volkman, so it only makes sense to marry its expertise with your business knowledge.

Bacon says that having a mix of internal and external development teams gets you the most skills at the lowest cost. Using your own people means spending less and moving faster. But you need to lean judiciously on experienced vendors and outsourcers in order to gain the greatest benefits out of something that is new to your team, she says.

Make Sure Your CFO Says No

"My CFO can make a vendor cry and a nickel scream," says Volkman, who meets with his company's top financial executive weekly. He's the reason the upgrade project is on budget, Volkman says. If the project runs into a snag, IT has to find a way to fix it with what money is on hand. "You'll never get him to agree it was right to spend more money than budgeted," he says.

Volkman adds that it pays to hire only the best project managers. "You can take a good manager with a mediocre crew and run rings around a poor manager with a high-quality crew," he says.

Lewis also lays the credit for keeping his project on track at the feet of talented managers. "I can't brag about anything unique we did," he says. "We just managed the heck out of it."

Lewis adds, "I have a premise that big-bang projects blow up CIOs." So he stops every few steps to evaluate the results of the latest "little bang." For example, he says, putting the new system in a few hotels for beta testing revealed a problem with the communication systems. It was easier to change course at that point than after several hundred hotels were involved, he says.

Scott echoes that strategy. Interim checkpoints are a must, he says, and their associated performance metrics must be put into the plan from the very beginning. But it's just as wrong to be a slave to metrics as it is to ignore them, he says. Sometimes you have to do a reality check and recognize that a metric isn't working — and then you find another one, Scott says.

- Involve the people "who leave fingerprints on the keyboards."
- Sell the project often by making a compelling argument in favor of "soft" benefits.
- A good manager with a mediocre crew can "run rings around a poor manager with a high-quality crew."
- Interim checkpoints are a must.

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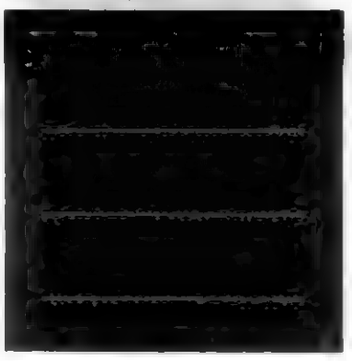

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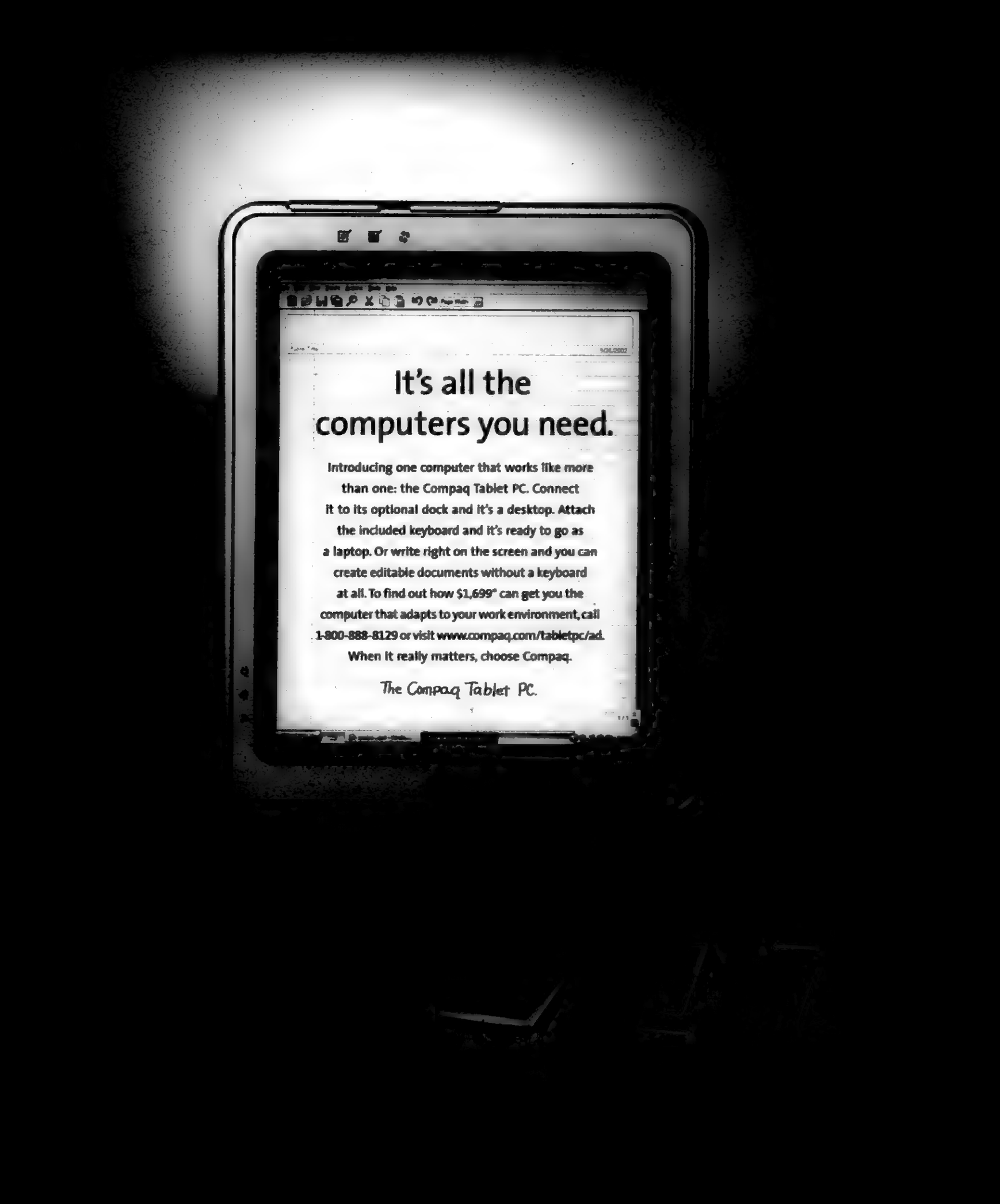
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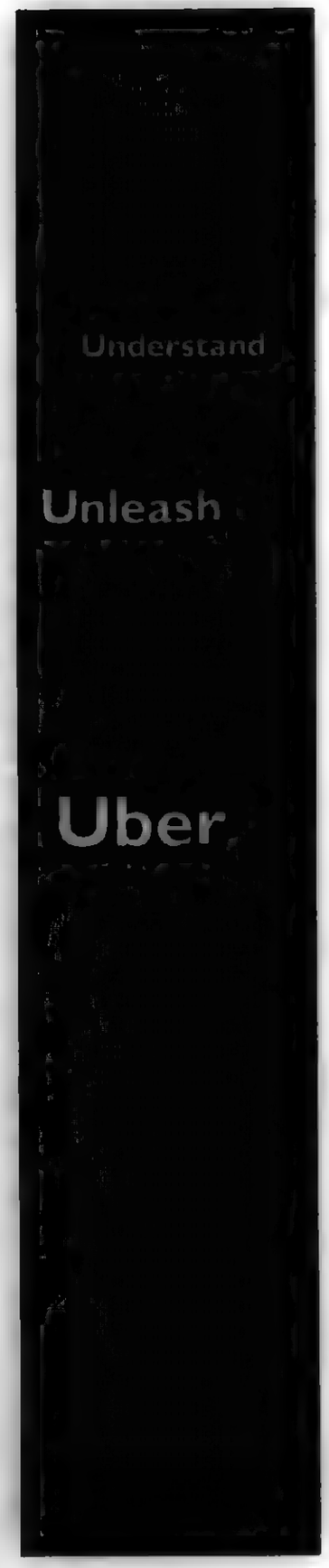

HOW WILL YOU Secure Your Company Data?

A stronger management commitment gives IT security more clout, but project funding, government regulation and ease of access to data still present big challenges. By Dan Verton

FOR IT SECURITY PROFESSIONALS, 2003 promises to be a year filled with old and new challenges. Whether balancing the needs of security with the push for greater access to data, coping with government mandates or planning for possible budget cuts, IT security managers have their hands full.

Frank M. Richards is already scrambling to deal with those challenges. As CIO at Geisinger Health System, a health care network in Danville, Pa., that serves more than 2 million people, he faces an April deadline for compliance with the federal Health Insurance Portability and Accountability Act (HIPAA). The law will require health care organizations to safeguard patient data from unauthorized access and disclosure.

But HIPAA sets goals without giving specifics on how to get there, so Richards must balance the legal requirements with a demand from health professionals for ease of access — a daunting challenge.

"This can be particularly problematic in the medical field, where care providers are under tremendous time pressures," he says. Understanding workflow, assessing risk and educating users are all key components of a security system that achieves the correct balance between access and control, he says.

Geisinger's Electronic Medical Record (EMR) program focuses on easing access to data. It lets physicians at 50 clinics use mobile devices to order medications, receive alerts, enter patient progress notes and communicate with patients. Another program, MyChart, lets patients access their medical information via the Internet.

Both programs raised security issues. For example, security needs dictated that the database that powers MyChart be installed on hardware separate from the EMR system. Richards' staff is also evaluating biometric and proximity devices as ways to streamline secure network access. And caregivers accessing patient information via the Internet will be required to use token identification in addition to a virtual private network or other encryption method, he says.

Richards says he expects 2003 to be the year when security technologies such as intrusion detection finally begin to deliver on their promises. "Inadequate analysis tools, incompatibility with existing network management software and inability to handle large volumes of data have combined to keep us from deploying these tools until very recently," he says.

Intrusion-detection system functionality will also begin to merge with firewalls in 2003, just as many organizations begin replacing first-generation appliances, according to analyst John Pescatore at Gartner Inc.

Strive for Better Recognition

This will also be the year when many organizations raise the profile of the IT security function. Geisinger's new security business plan calls for the creation of a chief information security officer position. "This will take the present IT system security officer position and elevate it to a more senior level, and will have it report [to corporate leadership] outside of IT," Richards says.

In Loudoun County, Va., the IT department recently hired its first information systems security administrator. Previously, IT security functions were delegated throughout the IT department, says IT director Eugene D. Troxell. "This position was recruited and filled at a time when the county government has a hiring freeze in place," which reflects a new understanding by management about the importance of IT security, he says.

At Geisinger, Richards also received support from the board of directors, which issued a statement last spring calling for a "a governance structure that supports the most effective and efficient provision of information security." This doesn't mean that funding is unlimited, but it does ensure that security will be given a higher priority than in years past, he says.

And most IT security budgets are reflecting this new emphasis. IT security's share of the IT budget was 4.3% in 2002 but will rise to 5.4% by 2005, says Pescatore.

Geisinger spends about $400,000 annually on IT security, including personnel, software and maintenance. Richards says he expects that to increase to about $600,000 by 2005, excluding any systems or assistance needed to respond to new threats.

But while security is a high priority, funding still doesn't come easily. The IT component of Loudoun County's 2002 annual independent financial audit included network security — another first. Among the audit's recommendations were performing an annual security vulnerability review and enhancing the security awareness program to ensure that all employees understand issues and policies, says Troxell. But in today's economy, funding an IT security program is unlikely because it would take dollars away from projects, such as new schools, roads and health care.

Geisinger has also had its share of economic challenges. Nonetheless, "investment in IT has been supported consistently by senior management and the board of directors," Richards says. "As a 20-year veteran of IT, I can honestly say that security concerns are more a part of people's consciousness than at any time in the past."

SECURING THE MAIL

Robert L. Otto, vice president of IT at the U.S. Postal Service and a Premier 100 IT Leader, describes a three-year plan to secure the service's infrastructure through sleet, rain, snow – and hacker attacks.

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HOW WILL YOU Optimize Your Infrastructure?

In their quest to improve efficiencies and cut costs, IT leaders will work to prime their existing technology through hardware consolidation, performance monitoring and application tuning. By Jaikumar Vijayan

AS VICE PRESIDENT OF MIS at Circuit City Stores Inc., William E. McCorey Jr. expects to spend a lot of time this year kicking the tires on his company's technology infrastructure.

Circuit City is very close to achieving a formal Six Sigma quality certification. Key to obtaining the certification is ensuring that Circuit City's hardware and software infrastructure is optimized for maximum system availability and service levels, McCorey says.

The Richmond, Va.-based electronics retailer isn't alone.

"Enterprises are being asked to do more with less. Their budgets are decreasing [and] their skill sets are decreasing, while what they're being asked to do is getting increasingly complex," says Theresa Lanovitz, an analyst at Gartner Inc.

As a result, expect to see IT efforts targeted increasingly at improving the use of existing technology through projects such as hardware consolidation, performance monitoring and application tuning, she says.

One of the big projects Circuit City is considering for 2003 is a Unix server consolidation. The company is exploring the possibility of reducing its 240 Hewlett-Packard Co. Unix servers into Superdome and RP class servers from HP. It has similar plans to consolidate its 13 IBM AS/400 midrange systems into a significantly lower number of large AS/400 boxes.

Circuit City is also using VMware Inc.'s virtualization software to boost usage rates on its Wintel servers. So far, it has deployed VMware on about 80 of its more than 230 Intel boxes.

The goal of these efforts is to reduce infrastructure and administrative costs by up to 15%, says McCorey. The use of Palo Alto, Calif.-based VMware's virtualization technology on Wintel servers has already pushed utilization rates from 20% to nearly 60%. At the same time, Unix server utilization rates, which now hover around 60%, are expected to be pushed to more than 80% as a result of the planned consolidation.

"We look to be a service utility," McCorey says. "Our goal is to keep the systems up and running as much as possible and to improve our performance."

Keep Tabs on Performance

Performance monitoring is a key component of infrastructure optimization, says Suzanne Gordon, vice president of IT at SAS Institute Inc. in Cary, N.C.

SAS monitors network performance and key server performance statistics using resource measures from Simple Network Management Protocol and Windows Management Instrumentation collectors, Gordon says.

Over the past year, SAS has also been using a homegrown system to consolidate all of its change management and resource-monitoring data. The system features automated alerts that notify administrators when a performance metric "falls outside of normal boundaries," Gordon says.

The technology has allowed SAS to identify underused systems "to see if we can retire or reallocate them," she explains.

For instance, a special conference-room scheduling system is being replaced by Microsoft Outlook's scheduler, and several related specialized reporting systems are being retired. Users will then be asked to find that same scheduling information in the company's customer relationship management system, Gordon says.

As part of its technology optimization, SAS also recently switched from a frame-relay network to an Internet-based virtual private network (VPN) to capitalize on the VPN's lower costs and faster speed, Gordon says. Server and storage consolidation projects are also in the works. To reduce maintenance, SAS is consolidating 45 Unix servers that host some of its internal applications into 10 to 15 servers.

Centralize IT Resources

Integrating and centralizing the operations and management of IT infrastructure is also a good way to optimize it, says Mario C. Carlos, head of IT at Manila Electric Co. in Pasig, Philippines.

Centralization maximizes the sharing of resources, makes it easier to develop and implement a disaster recovery plan, minimizes spare capacity, and provides for a less complicated data communications infrastructure, Carlos says. It also makes it easier to secure the infrastructure and provides for easier backup, recovery and disk storage management, he adds.

The utility company has moved from a highly distributed, decentralized environment to a "centralized and partially meshed architecture," Carlos says. Technologies key to the transition were storage arrays from EMC Corp. for data sharing across mainframe and open systems, Storage Technology Corp. applications for remote backup and synchronization of local and remote data, and IBM's Parallel Sysplex system to share mainframe resources across the organization.

Understanding business and service-level requirements is key to right-sizing the infrastructure, says McCorey. "You can't design a system unless you really understand what the application is going to do for the business and what the impact of either a downtime or poor performance is going to be," says McCorey, who uses usage histories and information gleaned from running similar applications to forecast needs for a new application.

AMD

HOW WILL YOU Prove IT Value?

Most Premier 100 honorees rely on traditional ROI calculations, such as net present value and internal rate of return, to help demonstrate IT's business value. By Thomas Hoffman

THE PREMIER 100 IT LEADERS didn't reach the top of their professions by being softies. Indeed, a vast majority of them regularly rely upon hard-dollar metrics such as net present value (NPV) and internal rate of return (IRR) to consistently demonstrate to top brass the business value IT investments are expected to yield.

That's what sets them apart from so many of their colleagues. "Good business-case methodology leads to good project management, but it's amazing how many companies fall short here, primarily due to politics around this," says Stephen J. Andriole, a professor of business technology at Villanova University in Villanova, Pa., and a senior consultant at Arlington, Mass.-based Cutter Consortium.

But many of *Computerworld*'s Premier 100 honorees appear to have the discipline needed to prove the value of their organizations' IT investments.

"We apply all of the analytical rigor and financial ROI tools against each of our IT projects as well as other business projects," says Harriet Edelman, senior vice president and CIO at Avon Products Inc. in New York. Those tools include payback, NPV and IRR calculations, as well as risk analyses on every investment, she says.

The $6 billion cosmetics giant also monitors each IT project to gauge its efficiency and effectiveness during the course of development and applies a red/yellow/green coding system to reflect the current health of a project, says Edelman. A monthly report about the status of projects that are valued at more than $250,000 and deal with important strategic content is presented to senior line managers, the CEO and the chief operating officer.

In addition, Avon uses an investment-tracking database for every IT project to monitor project costs on a rolling basis. The approach makes it easier for the company's IT and business managers to quickly determine whether a project should be accelerated, delayed or canceled and assists the finance organization in forecasting requirements.

Tally Soft Costs

Dennis S. Callahan says he, too, has "put a strong emphasis on governance" since becoming CIO at The Guardian Life Insurance Company of America two years ago. Callahan has done so, in part, by applying NPV and IRR calculations to all IT projects with a five-year cash flow.

"The potential [fallout] from inaction could result in loss of market share," says Callahan, who was promoted to executive vice president Jan. 1. So Guardian's approach to IT investments "is very hard-dollar- and metrics-oriented, with a bias toward action," he says.

Still, Callahan and his team do have a process for incorporating "soft" costs and benefits into their calculations. They do that, Callahan says, by encouraging their business peers "to discuss how an investment can impact market share and estimate how those numbers are going to change. Same thing with cost avoidance — if we invest in a project, [that's] expected to help us avoid hiring 10 operations staffers to handle growing business-transaction volumes."

Like Avon's Edelman, Callahan also keeps close tabs on capital spending throughout the course of a project. New York-based Guardian has a project management office that has access to its general ledger system so it can continually monitor the scope, time and costs of each project valued at more than $100,0000, according to Callahan.

Guardian also has monthly reviews of variances of scope, time and costs on all projects costing more than $100,000. "If one of those [variables] is off, we can review the business case and determine whether it warrants a change in game plan," he says.

Using return-on-investment calculations to cost-justify and demonstrate the value of IT investments to senior management is only one of the techniques *Computerworld*'s top IT leaders use to win project approvals, say Callahan and others.

"We approach everything that we do in terms of payback," says Callahan, who reports directly to Guardian President and CEO Dennis Manning. Manning and other board members "really relate to that kind of justification," Callahan says. "So we turn that into hard-dollar returns and benefits for application development and infrastructure investments."

"One of the biggest things we do in demonstrating value to the CEO and the board is showing that everything we do reflects the company's business strategy," says Rick Omartian, chief financial officer for Guardian's IT department.

Divide and Conquer

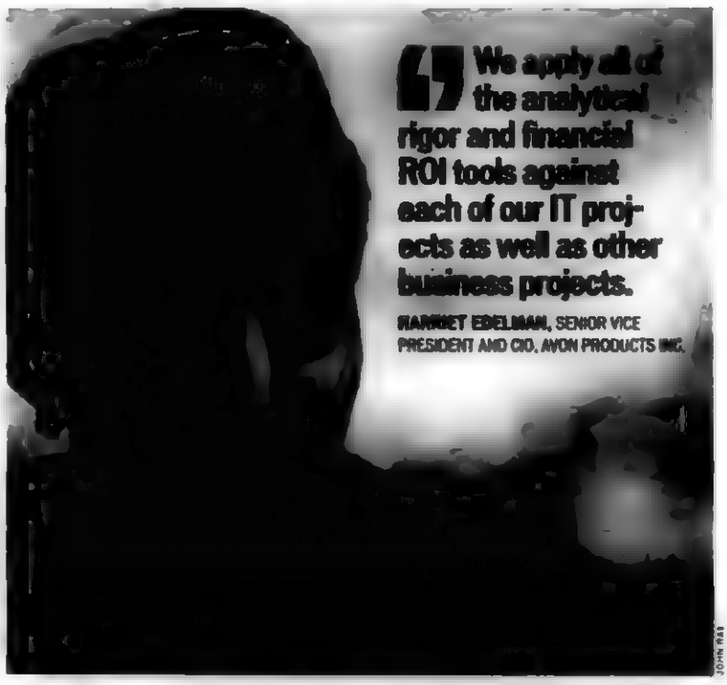
Corning Inc. uses a "division strategy," which calls for its IT and business-unit leaders to get together every six to eight weeks to determine "where we're going and how we're going to get there," says Howard Piggee Jr., director of IT and CIO at Corning's Life Sciences division in Acton, Mass. That way, the IT investment needed to support a business initiative "is not set apart" but instead is included in the business division's integrated strategy, says Piggee.

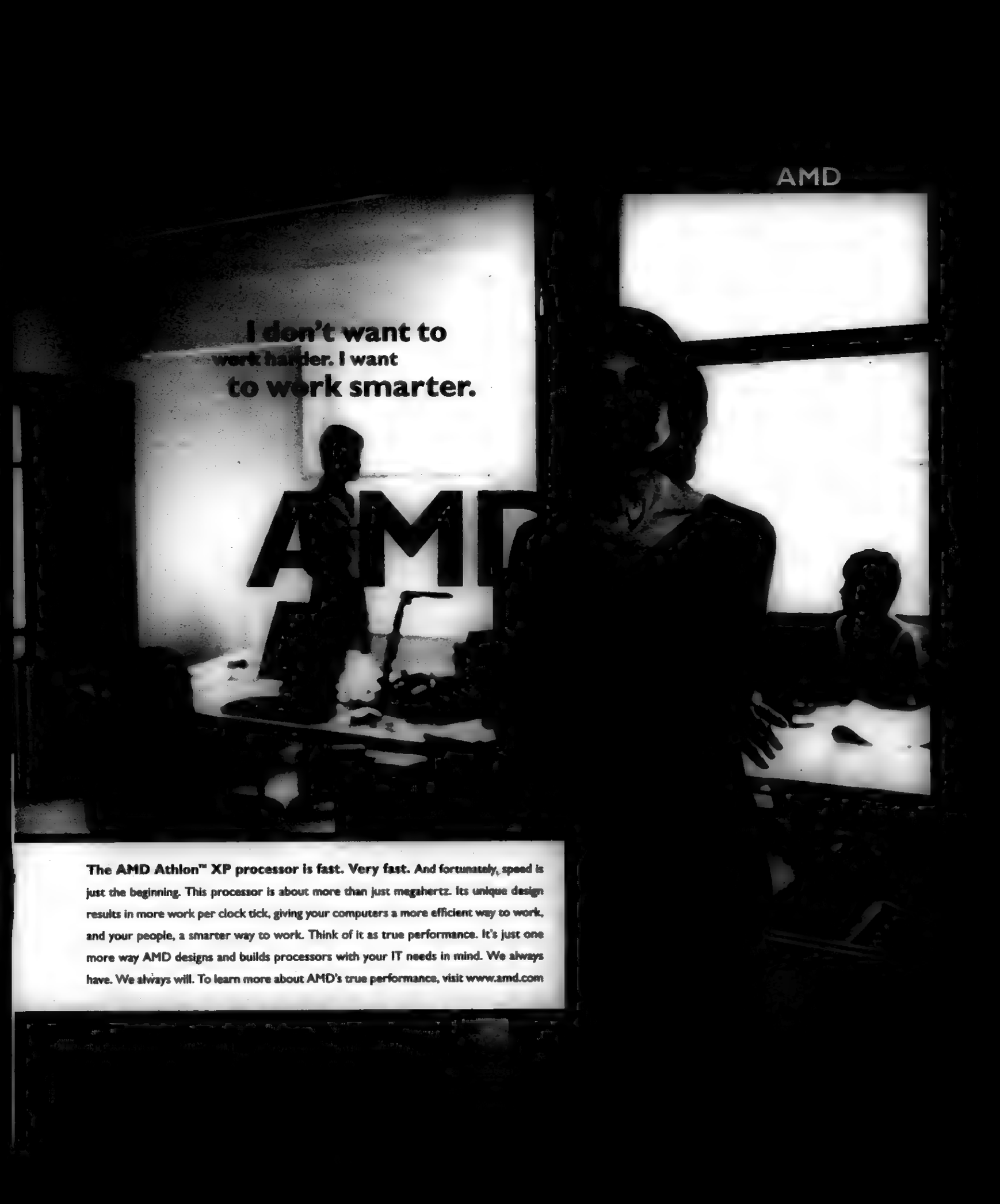
Within the Life Sciences division, Piggee is one of nine executives, including the business unit leader and the department heads for sales, human resources, finance and new product development. Together, they weigh the total resource requirements of various IT investments and then decide as a group how to prioritize them, he says.

Of course, there are exceptions to these approaches. At Muscatine, Iowa-based HON Industries Inc., the manufacturer's board of directors "typically don't ask us" to prove the value of IT, says CIO Malcolm Fields. "Instead, they ask if we're spending enough."

That's because HON typically doesn't spend as much on IT as a percentage of revenue as other companies do, claims Fields. "We negotiate prices very, very hard and try to focus on the 20% of activities that give us 80% of the value."

Even that approach has a decidedly mathematical ring to it. ■

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Staff layoffs and budget cuts have put IT leaders' management skills to the test. Here's how some have picked up the pieces and helped workers left behind feel informed and valued. By Rick Saia

HOW WILL YOU Manage Your Labor Force?

THE IT WORKFORCE, once lavished with high salaries, large sign-on bonuses and generous perks, learned the meaning of austerity with the dot-com bust of the late 1990s.

For some IT managers, the subsequent recession has offered up high-quality workers at bargain salaries. But for others, budget cuts and staffing reductions have stalled or stopped IT projects.

At the start of this new year, some of the 2003 Premier 100 IT Leaders are putting last year in their rearview mirrors and hoping that better times lie ahead. Take Bernard Gay, vice president of enterprise technology and operations at Royal Caribbean Cruises Ltd. in Miami, a company hit hard in the aftermath of Sept. 11. Within a few weeks of the attacks, Royal Caribbean had cut about half of its 400 IT workers — nearly all of its contractors and a third of its permanent staff.

But while the organization was leaner in 2002, Gay says it was more efficient as well. The remaining staffers were trained to fill gaps after the layoffs. Some took on roles that contractors had filled; others were trained to fill technical support and development jobs. "We found ourselves actually managing much more efficiently than we've done in the past," Gay says. "It's been a great year, and going into 2003, we hope to take that energy with us."

Gay foresees incremental growth in Royal Caribbean's IT staff this year and hopes to do more projects focused on customers. "We want to have a simpler view of the customer" — that is, tourists and travel agents, he says. "And we want the customer to have a simpler view of us." That includes upgrading the company Web site, integrating more enterprisewide applications and simplifying the way Royal Caribbean compiles analytical data.

Retrain to Retain

Bill Thomas, a senior vice president at Providian Financial Corp., a $5.8 billion credit card provider and financial services company, has also dealt with layoffs recently. San Francisco-based Providian cut approximately a third of its IT staff, or about 250 people, starting last spring. Meanwhile, the IT organization launched a major strategic shift from building systems to integrating systems in an effort to improve efficiency, which changed much of the needed skill sets. At the same time, Providian reorganized IT from a decentralized to a centralized structure, Thomas says.

The layoffs hurt morale, he says, but the effect was less severe than he had expected. And although he believes morale has since improved, he acknowledges that it's not as high as it was in the late 1990s, when Providian had three straight years of double-digit profit growth.

This year, Providian will have a flat or declining IT budget of about $450 million, according to Thomas, with a promise to management that projects will have a clear return on the bottom line. To that end, the IT department has dumped some of its application development work and outsourced other functions. It will also redeploy personnel into other, higher-value roles and boost their training.

Grab Hiring Opportunities

For some cost-conscious IT leaders at growing businesses, the recession's effect on salaries has been a help.

Greg Schueman, vice president and chief technology officer at Mercury Insurance Group in Brea, Calif., has increased his IT department by 10% since 2001, to about 130 workers.

"It's actually very easy to find people, because there's such a pool available," he says. These seasoned workers have the appropriate certifications and are willing to work for less than what they could earn in a booming economy, Schueman says.

For example, he recently hired an Oracle DB2 database administrator, whom he calls "one of the best on the West

Coast," for less than what he would have earned two years ago. Schueman says such talent commanded annual salaries of about $160,000 then; today, they're earning about a third less.

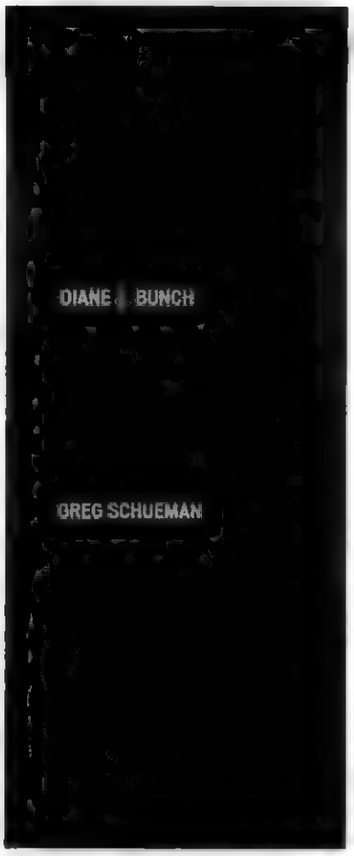
The recession has also brought good news for John A. Bielec, vice president and CIO at Drexel University in Philadelphia. With the higher-education industry growing, he says, Drexel is finding it easier to fill IT positions at wages that are in line with candidates' expectations.

Bielec says his IT organization is lean, which in boom times can hamper efforts to find — and keep — qualified people. Whereas his annual turnover rate was about 20% to 30% two years ago, he estimates it to be 5% today. And, he says, "I don't see anybody leaving in the next six months."

Maria Schafer, an analyst at Meta Group Inc., says she doesn't anticipate that IT spending will rebound anytime soon, at least not until around midyear. "There's going to come a point where something is going to have to give," she says. For now, IT demand is in a lull, and some IT shops are "selectively hiring" experienced help where it's needed, such as in network, security and database administration, Schafer says.

Take a Skills Inventory

The recession has taught some companies a hard lesson about budgeting and the difficult task of reducing staff, according to Craig Symons, an analyst at Giga Information Group Inc. in Norwell, Mass.



To prepare for an economic rebound, IT organizations will be more "aggressive and proactive" in taking a skills inventory and deciding what they need for the future, he says.

So, how much will they rely on existing staff as opposed to contractors, outsourcing or hiring new full-time employees? The primary factor, says Symons, is availability.

"If you can grow them in-house, then you're ahead of the game," he says. "Typically, contract employees are more expensive."

That's where training looms as a critical factor.

Because Mercury Insurance is moving from a Cobol-centric to a Java-centric environment, its IT professionals are being retrained, says Schueman. He adds that Mercury is also trying to provide career paths for employees to keep pace with those technological changes.

Gay says Royal Caribbean's IT organization will continue to grow staff through training, although the company will be looking at more efficient online training opportunities.

At the Tennessee Valley Authority in Chattanooga, the nation's largest public power supplier, retraining is a cornerstone of its human resources strategy, says Diane J. Bunch, senior vice president of information services. She says her training priorities for this year are security, Web-enablement and project management.

Communicate About Changes

A tough economic climate can inflict pain on many organizations. If ignored, that pain can spread to the point where it affects even the most content workers. That's why some IT managers continue to stress the importance of treating people fairly and with candor and honesty.

At Royal Caribbean, morale after its IT layoffs in late 2001 was "abysmal," Gay says. But CIO Tom Murphy gave an impassioned speech and vowed to stay with his staffers during the changes they were facing. That, plus ongoing communication with the staff, helped boost morale, he says.

And despite the recession, IT management scored high in a survey of staffers, Gay says. But rather than being complacent, he adds, Royal Caribbean managers want to build on that momentum.

When Providian's IT staff was told about the organizational changes that would result in layoffs, "we overcommunicated to [them about] why this was being done," Thomas recalls. "That made all the difference in the world" and kept them focused on their work, he says. And because those who lost their jobs were treated with respect and given good severance packages, he adds, that also had a positive effect on those who were left, though "it didn't mean it was easy."

Little things like those go a long way for IT leaders like Thomas. "IT people are different from everybody else," he says. Being able to focus on important, interesting work that can help advance their careers is often more important than money, he notes.

And something quite simple is just as important: "We say thank you when [they] do good work," Thomas says, "and that's the most important thing you can do that [acts as a] magic wand for IT people."

Saia is a freelance editor and writer in Shrewsbury, Mass. Contact him at ricksaia@townisp.com.

WHO MOVED MY IT JOB?

Two key forces are fueling a perceptible shift in IT jobs, as IT-savvy business users pick up more of the work that used to be done strictly by IT workers.

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JERRY FERRIS

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"You can't let business partners bring vendors to the table saying, 'This is what we have to have.' That puts you in a box, and many times, it's a more expensive box," says ... CTO at Allstate Insurance.

DAVID JOEL

CATHY BRUNE REMEMBERS planning a retirement party for a 26-year IT veteran several years ago, before she became chief technology officer at Allstate Insurance Co. She also recalls her surprise when she discovered that he wasn't an employee of Allstate; he was a contractor.

In those days, Brune says, it was hard to tell an employee from a vendor contractor without a program. Allstate had quite a few vendors, and she knew that managing them all drained staff time and energy away from focusing on the really strategic vendors. She needed to get vendor management under control.

Since then, Brune has pared the consulting cadre at the Northbrook, Ill.-based insurer from 50 firms to five strategic partners. She has formalized Allstate's supplier program, developed a vendor management process and learned to trust her procurement people.

"We've learned a company our size has to have a very formalized program, or we'll spend way too much time with suppliers, and it may not be around the things that are very strategic to us," she says.

Today's IT leaders juggle many dozens of vendors, from commodity to strategic, products to services, internal to outsourced. Managing that portfolio is a new core competency in IT, often more akin to general contracting than technology. No wonder vendor management tops many IT to-do lists for 2003.

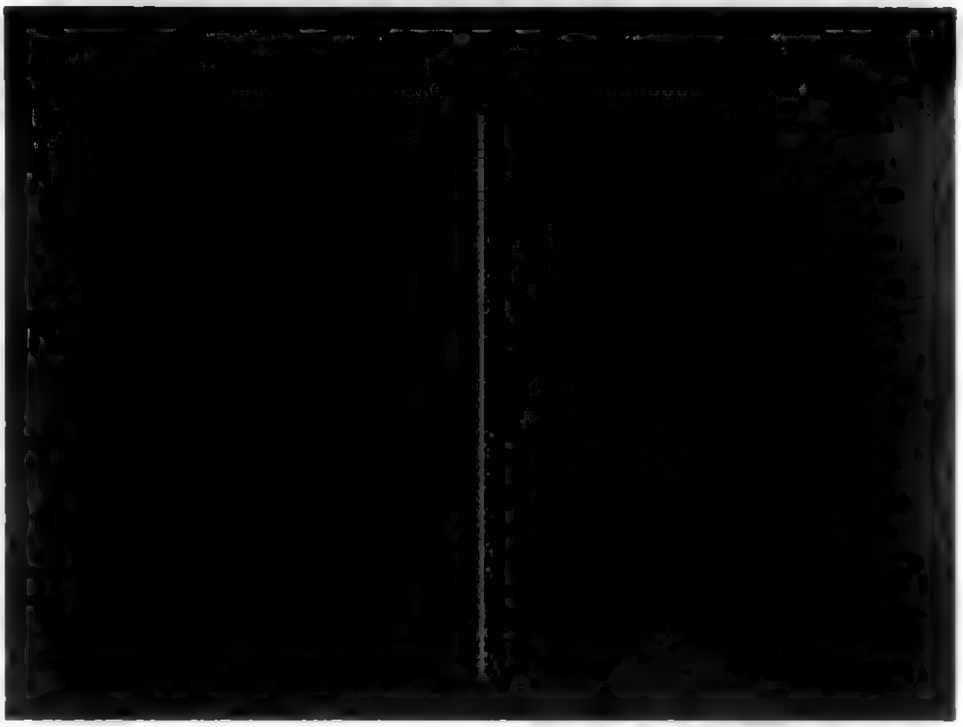
Premier 100 IT leaders are tightening up how they deal with vendors, separating strategic partners from commodity suppliers, and improving policies, processes and controls. And many are finding partners to help. They are learning to share responsibility for vendor selection, contract negotiations, vendor policies and procedures, and even vendor relationship management.

HOW WILL YOU Manage Y Vendors?

Your

IT vendor management is a new core competency requiring new skills and partnerships. Here's how Premier 100 IT Leaders will meet the challenge.

By Kathleen Melymuka



Form Vendor Selection Teams

It all starts with the business users, who need to be taken seriously as procurement partners, Brune says. In the past, her IT group might have pushed hard for a technology that delivered 80% of the functions the business people needed and was cheaper and easier to integrate than other options. But Brune says she has learned to listen more carefully. "Many times, that 20% is what will give them a real competitive edge," she explains. "Sometimes we missed that."

This business/IT partnership is more important than ever, because vendors today are likely to pitch directly to business users. Without a strong partnership, IT could be the last to know about technology purchase plans. "The power in an enterprise to select a technology is shifting from IT to the business unit," says George Lin, CIO at Documentum Inc., a Pleasanton, Calif.-based maker of enterprise content management software that often approaches users first.

The best approach to vendor selection is one that includes partners across the company, says Bart Perkins, a founder of Leverage Partners Inc., a consulting firm in Louisville, Ky., that specializes in vendor management. Perkins, a *Computerworld* columnist, suggests that the vendor selection team should include representatives of legal, training, human resources, procurement, technical architecture, finance, and infrastructure or application development areas, as well as business users.

Let Deal-Makers Negotiate

"We partner with our internal procurement function when it comes to negotiating," says Marty Chuck, vice president and CIO at Agilent Technologies Inc., a maker of communications, electronics and life sciences products in Palo Alto, Calif. "The procurement specialists work on big deals every day. They can look across the company globally and see additional opportunities for negotiating leverage."

At Allstate, procurement partners are aligned with each strategic vendor, so procurement and IT are at the table together from the start in any new product discussion. Later, when it comes time to negotiate the details, procurement takes charge. "I feel very comfortable handing that off," Brune says. "I know it will be a good deal and a great contract. Building that trust has added a few years to my life."

But be careful, cautions Eileen Birge, an analyst who specializes in vendor management at The Concours Group in Kingwood, Texas. "I've seen examples where procurement has had heavy control, and it's almost always been disastrous," she says.

Birge says procurement groups are great at very specific tasks, such as delivery of bulk chemicals. But if such groups don't understand total cost of ownership and make a deal for desktop hardware based on the cheapest price tag, it could result in major problems. Or they may not understand that a more expensive outsourcer's database administrator is 10 times more productive than a cheaper competitor's, for example, because judging technical skills isn't part of the procurement job description.

Procurement has much to teach IT and should be on the team, Birge concludes. "But IT can't throw specs over the wall as users used to do," she says. "IT has to have the lead role in talking about IT vendor services."

When venturing into complex territory such as outsourcing, don't hesitate to enlist help from outside the company as well, Chuck says. "There are consultants that specialize in the sourcing process that can help you and the supplier reach a mutually beneficial deal," he explains. "Their experience with previous engagements and independent benchmarking and negotiation can provide valuable advice with all phases of the procurement cycle."

Share Vendor Management Duties

At Coast Capital Savings, a financial institution in Vancouver, British Columbia, once the vendor is chosen, other internal partnerships kick in. The senior business people or business project managers who use the technology manage the vendor. "They are front and center in that relationship," says CIO Joel J. Rosenberg.

At Allstate, Brune or one of her directors personally handles strategic IT vendors, such as infrastructure or hardware suppliers with whom the company spends $10 million or more. But for other suppliers, business division heads or project managers take the lead.

Regardless of who manages the vendor, the relationship should go more smoothly with very specific vendor policies and procedures in place. At J.D. Edwards & Co. in Denver, an interdepartmental group that included the IT, human resources, legal and purchasing departments developed policies controlling vendor access to buildings and systems, says Senior Vice President and CIO Mark Endry, a 2002 Premier 100 leader.

Sharing vendor management duties with partners around the company doesn't mean abdicating your responsibility, but it does mean that your responsibilities will change. As you hammer out the details and shared responsibilities of vendor management, remember that the key partnership — the one with the vendor — is determined by the contract.

"You have to put the stuff that really matters in contracts," Brune says. "After a few battles, I've learned that the people in here working from the vendors are great human beings, but their lawyers may not be quite there yet, so it's better to be covered."

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.

Your

IT vendor management is a new core competency requiring new skills and partnerships. Here's how Premier 100 IT Leaders will meet the challenge.
By Kathleen Melymuka

Form Vendor Selection Teams

It all starts with the business users, who need to be taken seriously as procurement partners, Brune says. In the past, her IT group might have pushed hard for a technology that delivered 80% of the functions the business people needed and was cheaper and easier to integrate than other options. But Brune says she has learned to listen more carefully. "Many times, that 20% is what will give them a real competitive edge," she explains. "Sometimes we missed that."

This business/IT partnership is more important than ever, because vendors today are likely to pitch directly to business users. Without a strong partnership, IT could be the last to know about technology purchase plans. "The power in an enterprise to select a technology is shifting from IT to the business unit," says George Lin, CIO at Documentum Inc., a Pleasanton, Calif.-based maker of enterprise content management software that often approaches users first.

The best approach to vendor selection is one that includes partners across the company, says Bart Perkins, a founder of Leverage Partners Inc., a consulting firm in Louisville, Ky., that specializes in vendor management. Perkins, a *Computerworld* columnist, suggests that the vendor selection team should include representatives of legal, training, human resources, procurement, technical architecture, finance, and infrastructure or application development areas, as well as business users.

Let Deal-Makers Negotiate

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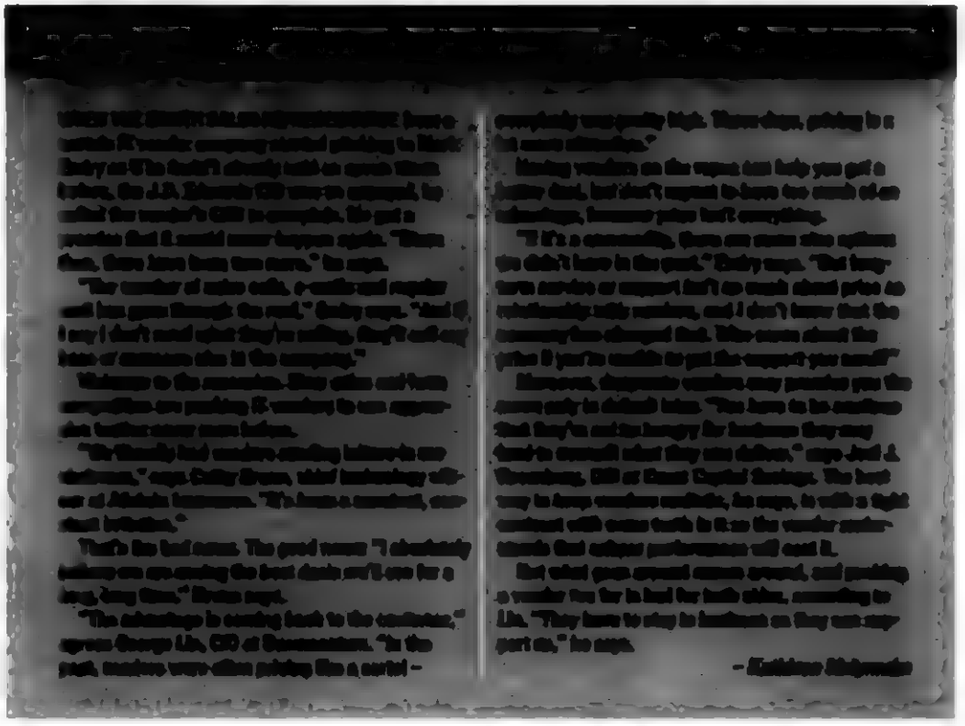

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HOW THEY HAVE Learned To Lead

Some of this year's Premier 100 talk about their career challenges and triumphs, and the leadership lessons they've learned along the way.

PERQUIN & KAUFMAN

Jerry McElhatton

He steered the largest system upgrade in MasterCard's history. By Marc L. Songini

JERRY MCELHATTON IS PUTTING the finishing touches on what could be called the magnum opus of his career — a five-year, $160 million upgrade of MasterCard International Inc.'s global processing system, which is now unified on a single messaging standard.

McElhatton, senior executive vice president of global technology and operations at the company in O'Fallon, Mo., says the task included rewriting the core systems that handle the authorization, clearing and settlement processes for financial institutions and merchants. It was no mean feat: The systems support 15,000 customers worldwide, handle 40 million transactions per day totaling approximately $1 trillion annually and are linked to 800,000 ATMs globally.

Delivering the project on time and on budget was a colossal undertaking and a constant challenge, McElhatton says. The implementation involved changing software systems and interfaces and keeping internal users, customers and vendors on schedule. The system was made to be flexible enough so that new types of payment processes could be added on the fly while International Standards Organization service levels were maintained.

The project is now 97% complete and will wrap up in April. The revamped processing system already permits business customers to clear transactions six times daily instead of just once a day. It also allows MasterCard to consolidate transaction authorization and clearing messages. Users can customize data to meet specific business needs, and they can route transaction data to multiple business partners simultaneously. McElhatton says the project is the biggest systems-development undertaking in the company's history.

As part of the enterprise upgrade, McElhatton oversaw the opening in 2001 of a new 52-acre campus for the company's primary IT team that includes a state-of-the-art data center that was custom-designed for MasterCard. "During the move," he says, "we didn't experience even one second of downtime."

McElhatton explains his technique: "I think I pay exceptional attention to detail and give people responsibility and latitude to make decisions. In a project, you get what you inspect, not what you expect. You monitor the metrics and make sure you stay on track."

His work hasn't gone unnoticed by colleagues. "Jerry ensured that the project was always at the top of the priority list within his organization and throughout MasterCard," says Rob Reeg, senior vice president, MasterCard systems development. "Through his own attention to detail, [he] ensured that those of us responsible for delivering the system had the same level of commitment to the project."

Joan Dunn

She led a risky storage project that paid off with lower costs and better performance. By Marc L. Songini

FOR JOAN DUNN, being out on the front lines of IT is just part of the job.

In her role as manager of enterprise computing at Anadarko Petroleum Corp. in The Woodlands, Texas, Dunn says, she's encouraged to take risks and demonstrate leadership. Witness the energy firm's willingness to create a massive infrastructure to handle the storage and modeling of 2-D and 3-D seismic data related to oil and gas exploration.

AGE: 48

TITLE: Manager of enterprise computing

EMPLOYER: Anadarko Petroleum Corp., The Woodlands, Texas

Anadarko acquires huge amounts of data for its geologists, geophysicists and engineers to interpret. The decision was made to put all that data in one central repository — a move in keeping with the company's desire to consolidate its IT infrastructure as much as possible to save money, says Dunn.

The project had its risks. It required rolling out network-attached storage (NAS) units from Network Appliance Inc. that replaced machines from various vendors. The project took approximately 20 months, and the system went live two years ago.

"At the time, the move to NAS was very risky," says Dunn. "But it paid off very well, providing improved performance and reduced administration and maintenance costs." The NAS units, along with a storage-area network built around EMC Corp. Symmetrix boxes, handle 110TB of capacity for Anadarko.

Dunn says one of the most challenging aspects of the project involved the IT staffers themselves, because they were accustomed to handling only their own types of systems — either dedicated data storage or transaction processing systems. To make the project succeed, the IT team had to work hard on communication, planning and change management, she says.

But the rewards have been great: The NAS model has become standard for the petroleum and gas industry, and Anadarko is ahead of its competitors and is already getting payback from the implementation, says Dunn.

One of the keys to success, she says, is making sure the technology is closely wedded to business strategy. "There are always more technical options out there than make sense for any company," she says. "We take business opportunities and technical opportunities and match them to be successful."

Morris Helbach, CIO at Anadarko, says Dunn's across-the-board leadership has been crucial to the firm. "An exploration and production company lives and dies by the way it acquires, manages and provides access to data," he says. Dunn's role was integral to creating the storage system, Helbach adds. ●

PREMIER 100 IT LEADERS 2003

In June and July 2003, Computerworld polled its readers to nominate IT professionals whom they considered to be exceptional leaders. We received more than 600 nominations. These candidates were asked to complete a survey that addressed topics such as their backgrounds, their experiences and the work environments they have created.

This list represents those who most closely matched Computerworld's definition of an IT leader. They are presented here alphabetically, with data collected in August and September 2003.

– Mari Keefe, research manager

- **RIZWAN AHMED,** 46, CIO, Louisiana Office of Group Benefits, Department of Natural Resources, Baton Rouge
- **ROBERTA AMBUR,** 49, CIO, University of South Dakota, Vermillion
- **STEVE ATTIAS,** 49, vice president, chief information security officer, New York Life Insurance Co.
- **WARREN AXELROD,** director, global information security, Pershing, Jersey City, N.J.
- **DAMIEN BEAN,** 38, vice president of corporate systems, Hilton Hotels Corp., Beverly Hills, Calif.
- **JOHN A. BIELEC,** 60, vice president, CIO, Drexel University, Philadelphia
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Leader's Almanac

What Was Your Worst Decision?

IT leaders candidly reveal the technology decisions they wouldn't make again.

I MADE THE DECISION to deploy a debit card system that I regret. The idea was to sell a prepaid card that would carry room credits for travelers not carrying a credit card. The project required us to provide a debit card reader for every hotel. Our tests were successful. The problem was that the tests were all in North America. We didn't account for some technology complications in Europe. The lesson I learned was to widen the scope of early testing and require greater involvement from the in-country tech people.

– BILL DOUGLAS LEWIS, EXECUTIVE VICE PRESIDENT, CIO, SEI CORPORATIONS HOTELS INC., ATLANTA

I WOULDN'T ENDORSE the signing of an enterprise software agreement, because it binds you to all of the products the vendor supplies in the agreement — whether the products work well for you or not. This kind of agreement is supposed to be cost-effective, but it often requires a lot more effort to derive value from the investment. In the end, you may not get the technologies best suited to your needs.

– CATHY BRUNE, SENIOR VICE PRESIDENT, CHIEF TECHNOLOGY OFFICER, ALLSTATE INSURANCE CO., NORTHBROOK, ILL.

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Mary Odson

By promoting the power of technology, she quelled users' concerns and increased productivity. By Ellen Fanning

LAWYERS ARE KNOWN for making compelling arguments, but it's an IT leader who can make a business case based entirely on the merits of technology.

Mary Odson, CIO at Paul, Hastings, Janofsky & Walker LLP in Los Angeles, had made the decision to move the law firm to a unified messaging system tying together voice, fax and e-mail communications in a single interface. Because she had worked in IT at law firms her entire career, Odson was keenly aware of the unique technology requirements of the legal community.

"I have a strong appreciation of how attorneys use and don't use technology," says Odson. For example, they need word processing capabilities to handle the reams of legal documents that pass through the office each day. But even more important are the client services the firm provides from its international offices. The IT department supports 2,000 users, including 850 attorneys doing business in the U.S., Asia and the U.K.

But the idea of a single repository for all communications worried some users, she says. "There was a lot of resistance to the concept from the attorneys," says Odson. "There was a concern that important voice mails would be buried in the user's in-box."

Derek Smith, a partner and chairman of the technology committee at the firm, says Odson was instrumental in overcoming that concern. "It was a matter of changing how we do things," he says. "The IT staff educated people regarding the benefits [of the system]. Mary played an enormous role in that."

To win them over, Odson says she "leveraged one technology to sell another," promoting the strengths of the Research In Motion Ltd. BlackBerry handheld device in order to calm fears about lost communications and show the benefits of round-the-clock, real-time dialogue with clients. Now users see pending voice-mail and fax messages on their BlackBerry devices in addition to e-mail notifications, and Odson says one attorney has estimated that it saves him a half hour per day.

Odson began her career at a small law firm in the 1980s as a database administrator and assumed the CIO role at Paul, Hastings, Janofsky & Walker in 1999. Since then, her IT staff has grown from 42 in 1999, when all development and high-level systems support was outsourced, to the current 90-person staff, which supports and develops all of the firm's systems.

Odson says her decision to hire highly motivated staffers who aspire to attain the top IT post she now holds might be perceived as risky, but it's one she feels quite comfortable with. By surrounding herself with competent people, Odson explains, she has ensured that the IT department will remain strong into the future. ◗

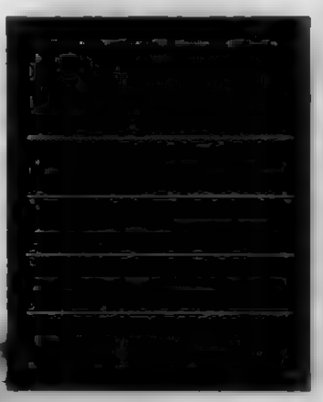
■ **SCOTT L. CARCILLO**, 35, CIO, vice president of IT and services, Digex Inc., Laurel, Md.

■ **MARIO C. CARLOS**, 42, head of IT, Manila Electric Co., Pasig, Philippines

■ **RICHARD CATALANO**, 44, vice president of IT, Progress Software Corp., Bedford, Mass.

■ **DANIEL J. CAVANAGH**, 62, executive vice president, operations and technology, Metropolitan Life Insurance Co., New York

■ **SUCHINDRAN S. CHATTERJEE**, 51, chairman, CIO, Cum Laude Academy of Learning, Scottsdale, Ariz. (formerly CIO at Salt River Pima-Maricopa Indian Community, Scottsdale)



■ **MIKE CHILDRESS**, 36, senior vice president of development, Delta Technology Inc., Atlanta

■ **MARTY CHUCK**, 42, CIO, Agilent Technologies Inc., Santa Clara, Calif.

■ **MARTY COLE**, 46, global managing partner, outsourcing and infrastructure delivery, Accenture Ltd., Hartford, Conn.

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Advertisement

IT Accountability Requirements on the Rise

Can You Answer the Tough Questions?

By Dean J. Hager

Could you answer these questions quickly and accurately?

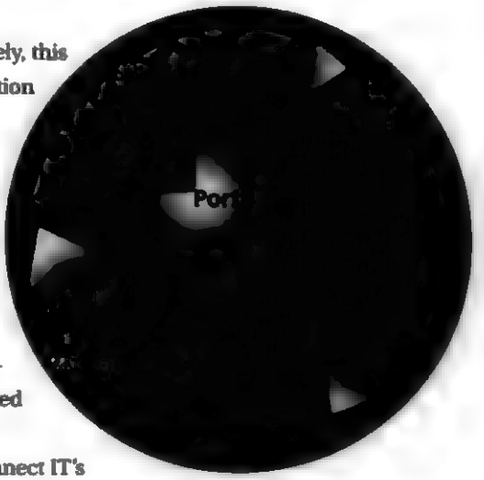
- What were your 10 largest IT projects last quarter based on total cost?
- What is the ROI for each of those projects?
- How are your resources deployed and what is their utilization?
- What's in your project portfolio and how would a new high-potential project affect the mix?

If you could, you would be in the minority. Surprisingly few senior IT executives are able to easily demonstrate the level of accountability that CEOs and CFOs expect in today's tough business environment.

Robert Frances Group analyst Maria DeGiglio noted in a recent report that IT budgets and projects are under greater scrutiny from business unit executives after so many IT projects over the last decade fell short of their promised benefits. "Multiple surveys indicate that less than 30 percent of U.S. corporations that executed IT projects were successful, while the majority of projects were cancelled before implementation, late, or over budget," she said.

Fortunately, a new concept called "Service Process Optimization" has emerged to help IT executives set project priorities while at the same time helping the IT staff complete those projects on time and under budget.

SPO works because it streamlines all stages of the work process, from demand management to delivery management to financial management. It helps manage work requests, estimate costs better, assign the right people to projects, manage them effectively and then manage the costs of those projects, including chargebacks.



If integrated effectively, this critical process information can feed into portfolio and performance management systems to enable CIOs to answer the tough questions. How do I strategically manage a budget cut? How do I prioritize projects given my constrained human and financial resources? How do I connect IT's priorities with those of the overall enterprise?

If these are the daunting questions you want to be able to answer, the time may be right for effective portfolio management through SPO.

To obtain a complementary META Group report on Portfolio Management and learn about how Lawson can help with SPO, visit us at www.lawson.com/mwp3.

Dean J. Hager is executive vice president for Service Process Optimization at Lawson Software. He is responsible for corporate-wide product strategy, development and marketing. In addition, Hager is responsible for the SPO market, including sales, services, marketing, alliances and product strategy and execution.

Lawson SPO Solution's Bottom-Line Impact

Lawson's Service Process Optimization solution helps IT organizations lower and stabilize costs to achieve a greater, more rapid ROI. In addition, Lawson improves your responsiveness by automating work request submission, approval, delegation and status reporting.

Components of Lawson's SPO solution can be implemented individually or comprehensively for end-to-end management of IT projects.

Portfolio Management is integrated with Services Automation to help IT decision-makers determine which IT initiatives will deliver the greatest ROI while also enabling you to evaluate risk.

Services Automation provides a broad range of capabilities for demand, delivery and financial management and integrates with back-office systems. Services Automation improves forecasting and helps match the demands on your IT organization to the supply of internal and external resources, allowing you to more effectively meet your service level commitments.

Enterprise Performance Management combines analytics with Lawson's Smart Notification technology. The analytics functionality enables the executive team to evaluate resource capacity and IT costs in real time. Smart Notification allows the enterprise to define critical information thresholds and then push information to those who need it, using email, PDA, fax or phone.

Enterprise Knowledge Management makes it easy to share crucial information across the organization. It provides the ability to drill from transactional data through to the unstructured information, such as emails and plans, that provides the critical context for fast, effective decision-making.

To learn more about Lawson's SPO solution, contact us at 1-800-477-1357.

LAWSON™

Leader's Almanac

What Was Your Worst Decision?

Continued from page 35

IN EARLY-ADOPTER MODE, we piloted thin-client hardware and software four years ago, thinking the thin-client model had the potential for significant operational and financial benefits. During the pilot, it became obvious that some elements of the thin-client technology were stable, but some weren't. After a rather lengthy pilot effort involving many users, we concluded that the technology wasn't ready for deployment in our environment. In retrospect, I would have begun with a smaller-scale test with less investment and less potential user disruption. I now try to tailor pilot projects to minimize upfront resource commitments or scale our investment.

■ **JOAN BUNN, MANAGER OF ENTERPRISE COMPUTING, ANADARKO PETROLEUM CORP., THE WOODLANDS, TEXAS**

ONE TIME I WORKED on the implementation of a new installment loan system for a large financial institution. The technology group worked with the user department to identify business requirements, but once the system was installed, they didn't use the new features. Instead, the new system was modified to perform the exact functions like the old system. The moral to that story is that when technology causes major changes, you have to work to change the culture so your business unit colleagues can leverage technology to achieve business benefit.

■ **JERRY McELHATTON, SENIOR EXECUTIVE VICE PRESIDENT OF GLOBAL TECHNOLOGY AND OPERATIONS, MASTERCARD INTERNATIONAL INC., O'FALLON, MO.**

Continued on page 38

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LAWYERS ARE KNOWN for making compelling arguments, but it's an IT leader who can make a business case based entirely on the merits of technology.

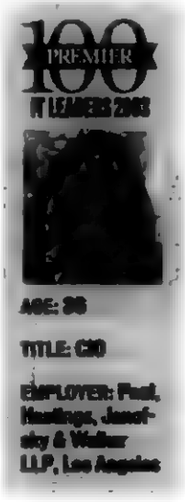
Mary Odson, CIO at Paul, Hastings, Janofsky & Walker LLP in Los Angeles, had made the decision to move the law firm to a unified messaging system tying together voice, fax and e-mail communications in a single interface. Because she had worked in IT at law firms her entire career, Odson was keenly aware of the unique technology requirements of the legal community.

"I have a strong appreciation of how attorneys use and don't use technology," says Odson. For example, they need word processing capabilities to handle the reams of legal documents that pass through the office each day. But even more important are the client services the firm provides from its international offices. The IT department supports 2,000 users, including 850 attorneys doing business in the U.S., Asia and the U.K.

But the idea of a single repository for all communications worried some users, she says. "There was a lot of resistance to the concept from the attorneys," says Odson. "There was a concern that important voice mails would be buried in the user's in-box."

Derek Smith, a partner and chairman of the technology committee at the firm, says Odson was instrumental in overcoming that concern. "It was a matter of changing how we do things," he says. "The IT staff educated people regarding the benefits [of the system]. Mary played an enormous role in that."

To win them over, Odson says she "leveraged one technology to sell another," promoting the strengths of the Research In Motion Ltd. BlackBerry handheld device in order to calm fears about lost communications and show the benefits of round-the-clock, real-time dialogue with clients. Now users see pending voice-mail and fax messages on their BlackBerry devices in addition to e-mail notifications, and Odson says one attorney has estimated that it saves him a half hour per day.



AGE: 38

TITLE: CIO

EMPLOYER: Paul, Hastings, Janofsky & Walker LLP, Los Angeles

Odson began her career at a small law firm in the 1980s as a database administrator and assumed the CIO role at Paul, Hastings, Janofsky & Walker in 1999. Since then, her IT staff has grown from 42 in 1999, when all development and high-level systems support was outsourced, to the current 90-person staff, which supports and develops all of the firm's systems.

Odson says her decision to hire highly motivated staffers who aspire to attain the top IT post she now holds might be perceived as risky, but it's one she feels quite comfortable with. By surrounding herself with competent people, Odson explains, she has ensured that the IT department will remain strong into the future. ◗

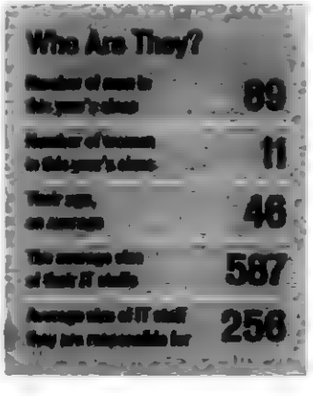
■ **SCOTT L. CARCILLO,** 35, CIO, vice president of IT and services, Digex Inc., Laurel, Md.

■ **MARIO C. CARLOS,** 42, head of IT, Manila Electric Co., Pasig, Philippines

■ **RICHARD CATALANO,** 44, vice president of IT, Progress Software Corp., Bedford, Mass.

■ **DANIEL J. CAVANAGH,** 62, executive vice president, operations and technology, Metropolitan Life Insurance Co., New York

■ **SUCHINDRAN S. CHATTERJEE,** 51, chairman, CIO, Cum Laude Academy of Learning, Scottsdale, Ariz. (formerly CIO at Salt River Pima-Maricopa Indian Community, Scottsdale)



■ **MIKE CHILDRESS,** 36, senior vice president of development, Delta Technology Inc., Atlanta

■ **MARTY CHUCK,** 42, CIO, Agilent Technologies Inc., Santa Clara, Calif.

■ **MARTY COLE,** 46, global managing partner, outsourcing and infrastructure delivery, Accenture Ltd., Hartford, Conn.

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Advertisement

IT Accountability Requirements on the Rise

Can You Answer the Tough Questions?

By Dean J. Hager

Could you answer these questions quickly and accurately?

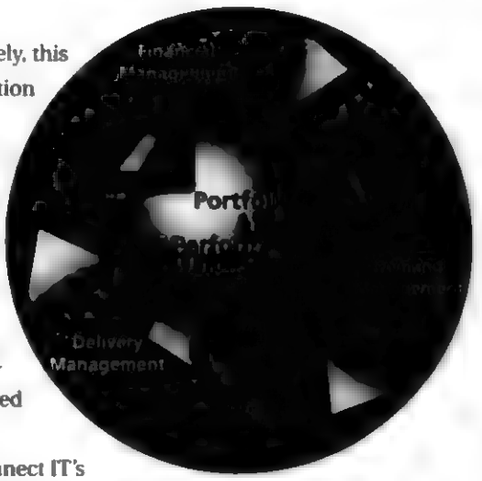
- What were your 10 largest IT projects last quarter based on total cost?
- What is the ROI for each of those projects?
- How are your resources deployed and what is their utilization?
- What's in your project portfolio and how would a new high-potential project affect the mix?

If you could, you would be in the minority. Surprisingly few senior IT executives are able to easily demonstrate the level of accountability that CEOs and CFOs expect in today's tough business environment.

Robert Frances Group analyst Maria DeGiglio noted in a recent report that IT budgets and projects are under greater scrutiny from business unit executives after so many IT projects over the last decade fell short of their promised benefits. "Multiple surveys indicate that less than 30 percent of U.S. corporations that executed IT projects were successful, while the majority of projects were cancelled before implementation, late, or over budget," she said.

Fortunately, a new concept called "Service Process Optimization" has emerged to help IT executives set project priorities while at the same time helping the IT staff complete those projects on time and under budget.

SPO works because it streamlines all stages of the work process, from demand management to delivery management to financial management. It helps manage work requests, estimate costs better, assign the right people to projects, manage them effectively and then manage the costs of those projects, including chargebacks.



If integrated effectively, this critical process information can feed into portfolio and performance management systems to enable CIOs to answer the tough questions. How do I strategically manage a budget cut? How do I prioritize projects given my constrained human and financial resources? How do I connect IT's priorities with those of the overall enterprise?

If these are the daunting questions you want to be able to answer, the time may be right for effective portfolio management through SPO.

To obtain a complementary META Group report on Portfolio Management and learn about how Lawson can help with SPO, visit us at www.lawson.com/mwp3.

Dean J. Hager is executive vice president for Service Process Optimization at Lawson Software. He is responsible for corporate-wide product strategy, development and marketing. In addition, Hager is responsible for the SPO market, including sales, services, marketing, alliances and product strategy and execution.

Lawson SPO Solution's Bottom-Line Impact

Lawson's Service Process Optimization solution helps IT organizations lower and stabilize costs to achieve a greater, more rapid ROI. In addition, Lawson improves your responsiveness by automating work request submission, approval, delegation and status reporting.

Components of Lawson's SPO solution can be implemented individually or comprehensively for end-to-end management of IT projects.

Portfolio Management is integrated with Services Automation to help IT decision-makers determine which IT initiatives will deliver the greatest ROI while also enabling you to evaluate risk.

Services Automation provides a broad range of capabilities for demand, delivery and financial management and integrates with back-office systems. Services Automation improves forecasting and helps match the demands on your IT organization to the supply of internal and external resources, allowing you to more effectively meet your service level commitments.

Enterprise Performance Management combines analytics with Lawson's Smart Notification technology. The analytics functionality enables the executive team to evaluate resource capacity and IT costs in real time. Smart Notification allows the enterprise to define critical information thresholds and then push information to those who need it, using email, PDA, fax or phone.

Enterprise Knowledge Management makes it easy to share crucial information across the organization. It provides the ability to drill from transactional data through to the unstructured information, such as emails and plans, that provides the critical context for fast, effective decision-making.

To learn more about Lawson's SPO solution, contact us at 1-800-477-1357.

LAWSON

Leader's Almanac

What Was Your Worst Decision?

Continued from page 36

MANY YEARS AGO in another company, I awarded a multimillion-dollar contract to an outside service to operate and manage my data center. I thought I hadn't given up any control, but I learned that I had outsourced my lifeblood. The experience taught me that managing my own IT resources enables me to assimilate advances in technology better than those companies that go to an outsourcer or ASP. Without a place to stand in the organization, IT loses its value.

■ **ERIC GOLDFARB, EXECUTIVE VICE PRESIDENT, CIO, PRO-SCHULTZ INC., ATLANTA**

OUR INITIAL ENTRY INTO imaging of paper documents was premature. I found technology that we could afford, but the systems were disparate and unable to smoothly integrate. The various vendors couldn't effectively communicate and were unwilling to truly partner for the customer's benefit. If I were faced with the same decision in that same time frame, I would postpone the purchase until a more mature product was available for our use.

■ **NORMAN A. THOMAS, SENIOR VICE PRESIDENT, CHIEF TECHNOLOGY OFFICER, U.S. XPRESS ENTERPRISES INC., CHATTANOOGA, TENN.**

WE CHOSE TO IMPLEMENT videoconferencing, which was supposed to save on the travel budget. We elected to keep costs low by using our existing network and not Primary Rate Interface or outside services. This proved to be more trouble than we anticipated, and although we eventually made it work well, I wouldn't go this route again.

■ **JOSEPH A. PUGLISI, GROUP CIO, EMSOR GROUP INC., NORWALK, CONN.**

Continued on page 40

Robert Galletta

He finds the hidden benefits of each project at the Federal Reserve Bank of New York. By Lucas Mearian

WHILE ANY IT PROJECT has its challenges, leading an initiative you don't believe in can be anguishing for the best of managers. But as Robert Galletta has learned, if you look hard enough, you can find a silver lining in what you might think is the worst of technology projects.

"Working as a project director or working on anything I don't fully believe in is the single biggest challenge I face," says Galletta, a staff director at the Federal Reserve Bank of New York. "I can't fake it. I have to find one aspect of an initiative to believe in."

Galletta was once asked to lead an effort to move from a technology platform he helped build and implement that had added a tremendous amount of value to the corporation. He says he felt that it still had a great deal of value left in it.

The new technology, Galletta says, "was clearly not as robust and had little immediate promise for enhancement." On top of that, his staff would have to be retrained to use it.

"After a frustrating few months of trying to find some value in it . . . I realized it was a no-win situation. So I focused on the fact that the implementation would allow my staff to enhance their careers by being a part of this strategic initiative within this organization," he says.

Melanie Heintz, also a staff director at the Federal Reserve Bank, says Galletta taught her that same glass-half-full leadership style.

"What's unique about him is he has this way of managing people based on their abilities, but at the same time treating everybody the same. There's no variance there," Heintz says.

It was another frustrating situation in Galletta's career that led him to form the Storage Management Council of New York last April, joining forces with the New York Software Industry Association in order to gather IT decision-makers and storage vendor executives in a forum setting.

AGE: 38

TITLE: Staff director

EMPLOYER: Federal Reserve Bank of New York

About five years ago, when storage-area networks were in their infancy, Galletta says, he was looking to consolidate his infrastructure but found that storage vendors didn't want to acknowledge that certain applications — namely Novell Inc.'s NetWare operating system — needed to interoperate with the storage systems.

"I didn't like how storage vendors didn't like to listen. I would write the agenda before the meeting, about what I'd like to talk to them about, and they'd come in and be appalled by it," Galletta says, adding, "Who's the customer?" The Storage Management Council now hosts conferences and produces a newsletter on storage issues.

"That's the kind of thing I do. I get involved, whether it's an internal issue or an industry issue," Galletta says. ◗

■ **RICK DEVENUTI,** corporate vice president, CIO, Microsoft Corp., Redmond, Wash.

■ **SCOTT DIETZEN,** 40, chief technology officer, BEA Systems Inc., San Jose

■ **CHRIS DUNCAN,** 40, global leader, e-communications technology, The Dow Chemical Co., Midland, Mich.

■ **JOAN DUNN,** 42, manager of enterprise computing, Anadarko Petroleum Corp., The Woodlands, Texas

■ **ROBERT DUTILE,** 42, executive vice president of key technology services, KeyCorp, Cleveland

What's Their Budget Situation?

60% said they were no change in their IT budget in the past 12 months.

33% said their IT budget had increased, by 10.4% on average.

7% said their IT budget had decreased. The average decrease was 8.9%.

■ **HARRIET EDELMAN,** 46, senior vice president, CIO, Avon Products Inc., New York

■ **WILLARD S. EVANS JR.,** 46, vice president, Peoples Energy Corp., Chicago

■ **BRUCE FADEM,** 57, vice president, CIO, Wyeth, Paoli, Pa.

■ **GREGG FARRIS,** 48, vice president of IT, Oceaneering International Inc., Houston

■ **WILLIAM F. FINEFIELD,** 61, CIO, Navy Exchange Service Command, Virginia Beach, Va.

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Today, if I'm lucky,

I'll be totally ignored.

That means systems are humming

and data is flowing.

If not, I have to fix it.

Preferably, before anyone notices.

Save the day.

L5500

Keep bad things from reaching users and you'll get noticed for all the good you do. One way is to use an L5500 automated tape library with Tape Mirroring software for foolproof backup and restore. Or a D280 disk system with Remote Volume Mirroring software so systems rebound fast. Whatever your solution, we'll make sure you only get noticed when you want. Learn more about this story and other ways we can help you at **www.savetheday.com**

STORAGETEK® Save the Day.™

Leader's Almanac

What Was Your Worst Decision?

Continued from page 38

I'VE LEARNED TO STAY CLEAR of in-house development of software, whenever possible. While in-house development can often result in a system that's customized to the needs of the operation, the long-run costs and limitations often outweigh the short-run gains. This includes custom modifications to ERP systems that aren't strongly supported by a business case but are done out of habit or personal preference.

■ **DAVID SWARTZ, CIO, GEORGE WASHINGTON UNIVERSITY, WASHINGTON**

AT MY PREVIOUS EMPLOYER, before my IT organization was fully up to speed, a business unit cut a deal with a vendor for collaboration software. This was during the Web's heyday. After a quick review and lots of pressure from the business unit, we in IT blessed the initial product based on the vendor's commitment to move to a J2EE-compliant platform within 12 months. Twelve months later, 24 months later, 36 months later, the vendor still hadn't completed its work, and they were facing serious financial pressures. So we were looking at trying to support undocumented code for an application that saved the company $12 million to $15 million annually. Looking back, I would have pushed back harder on the business and — although I'll continue to use small vendors to push forward with leading-edge technology — I will never again trust a small vendor without obtaining access to their source code and complete documentation upfront.

■ **ALAN BOEHME, EXECUTIVE VICE PRESIDENT, CIO, BEST SOFTWARE INC., ATLANTA**

Compiled and edited by Mitch Betts, Knowledge Center director.

Patricia Graham

Using her power of persuasion, she won cooperation for a data standards project. By Jean Consilvio

PATRICIA GRAHAM KNOWS that the most effective way to sell a project is to form relationships with end users and explain what's in it for them.

As director of information systems at Prudential Financial in Roseland, N.J., Graham's latest challenge is pitching the strategic benefits of data modeling, XML support and metadata management to the 80 or so business units that she and her department of 16 people support.

"I'm always in a selling mode. Sometimes I feel like I'm the Willy Loman of IT," she says. Over the past two years, Graham has been convincing business units of the time savings and quality improvements that can be gained from using industry and XML standards.

"Her strength is making them aware of all the things they can gain holistically," says Curtis Mitchell, vice president of IS and Graham's boss. "She provides a lot of feedback and information that they don't already have."

For example, Graham's role in a metadata management project might be to make sure that all life insurance data is available to business units and to foster communication between business and systems groups by providing a more precise and business-friendly language.

The ultimate goal is to free the business units so they can spend more time running the business and serving customers and less time deciphering technical specifications or reports.

During her 19 years at Prudential — the past 12 in data architecture — Graham has used her innate talent as part marketer, part social worker to win the cooperation of developers, project managers and analysts. And that has been a difficult task at times, as business units must now pay for her department's IT services by the project.

"It's hard for people to see the business value of a data architect project right away," Graham says. "They could be working on the next project before realizing the benefits from the first one." And Graham knows firsthand the expense of not building to standard. Without a blueprint to guide design and development, the project team could start to see incorrect information, increased maintenance costs and the same data analysis repeated over and over, she says.

"The criticism that the creation of data models and metadata directories are bottlenecks or unnecessary overhead quickly dissipate when key people on project teams start to see the benefit in adhering to standards," she says.

Graham recently demonstrated the return on investment from a project when, after building an XML interface with an outside company, she was able to send the interface and data exchange to a second customer — without additional development work.

"When you work in data architecture, it's just a series of challenges you have to get through," says Graham.

■ **CHARLES D. FLETCHER JR.,** 55, assistant provost for technology and IS, CIO, Delaware State University, Dover

■ **ROBERT GALLETTA,** 36, staff director, Federal Reserve Bank of New York

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■ **DANIEL W. GARROW,** 52, senior vice president of IS, CIO, Mohegan Sun Casino, Uncasville, Conn.

■ **BERNARD GAY,** 34, vice president of enterprise technology and operations, Royal Caribbean Cruises Ltd., Miami

■ **JAMES D. GIBSON,** 43, director of IT, TriWest Healthcare Alliance, Phoenix

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CONTINUED ON PAGE 42

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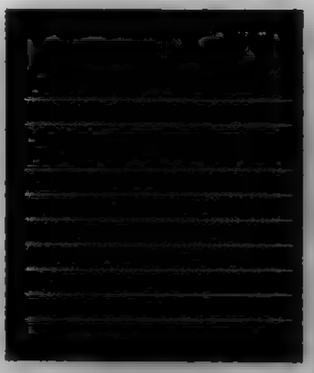

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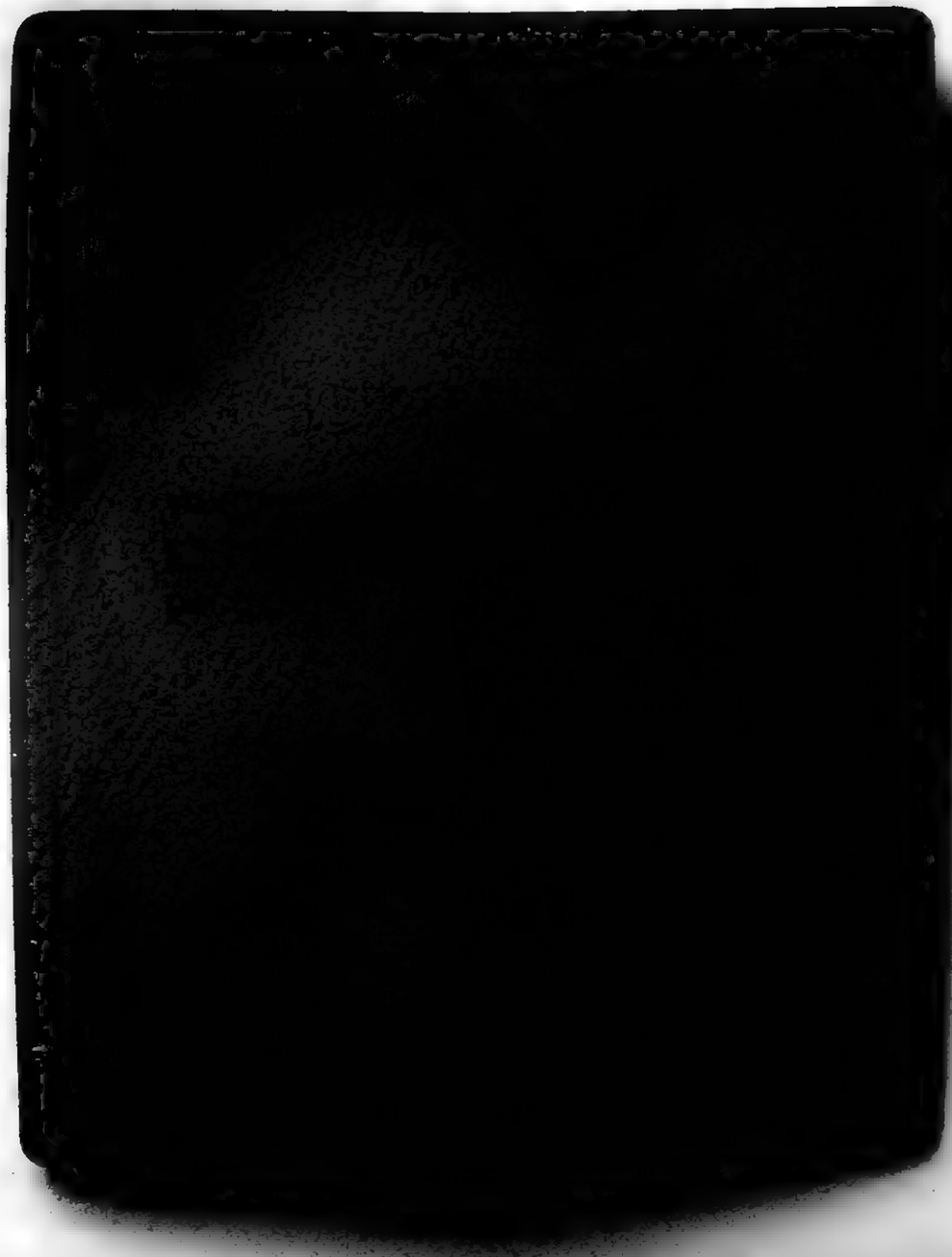

It may also be news to you that VeriSign handles e-commerce payments for some 80,000 different businesses and protects more than 400,000 websites. You see, VeriSign has spent the last seven years building a secure infrastructure for the Internet. We'd like to do the same for your business. VeriSign can help you deploy a trusted infrastructure so you can conduct secure communications and transactions. So no matter how many e-commerce payments your company handles, you'll know every last one of them is secure.

Learn all you need to know about infrastructure security – and how VeriSign's managed network and security solutions can help you – by downloading our new white paper: Cyber Security in the Age of Action. Visit www.verisign.com/security

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Leader's Almanac

What Was Your First Job in IT?

Premier 100 IT Leaders tell us about the jobs that launched their careers.

MY FIRST JOB IN IT was as a mainframe computer operator for a retail chain. I'll never forget the paper tape! We fed lawn bags full of this stuff into a reader, often by hand. The tape had this horrible tendency to snap. Our first inclination was to get rid of it; however, this tape contained valuable information from cash registers, and we needed to make sure that all the stores were accounted for. So out came the scissors, tape, glue and small carving knife. To this day, I get a little anxious when I see a lawn bag!
■ RICHARD CATALANO, VICE PRESIDENT OF IT, PROGRESS SOFTWARE CORP., BEDFORD, MASS.

MY FIRST JOB WAS at a data center for a bank in 1979. I was the graveyard supervisor of the product distribution unit. This group microfilmed financial printouts produced during the nightly batch cycle and prepared them for distribution to the branch locations. Initially, it was simply a job to pay my way through postgraduate studies. I had no idea that I would look back on this as the first job in a career.
■ STEVE SCOTT, VICE PRESIDENT OF INFORMATION SYSTEMS DIVISION, VISION SERVICE PLAN, RANCHO CORDOVA, CALIF.

I WAS A PROGRAMMER in a research and design area of Chemical Bank, developing a novel ATM with interactive video, touch screen and proximity detector. This required device-level coding and interaction with emerging technologies. We also contracted with a military hardware de-

Continued on page 44

John Andrew Brown

He drew on the skills of a cross-departmental team to refurbish a vineyard's ERP system.
By Linda Rosencrance

A **SUCCESSFUL VINEYARD** owner must have the skills to harvest the best grapes, employ the most talented winemakers and sell customers on the product.

When John Andrew Brown took over as CIO at Brown Brothers Milawa Vineyard Pty. in 1997, one of his first tasks drew on similar skills. The Australian company, founded in 1889 in Milawa, Victoria, had outgrown its legacy enterprise resource planning (ERP) system, which had been designed specifically for the wine industry.

The goal was to move the vineyard's supply chain onto a more flexible platform to ensure excellent customer service, offer back-office functionality and communicate with existing and future systems, says Brown, who is a fourth-generation employee of the family-owned business.

His first challenge was to select an implementation team made up of key people from various departments, including IT, marketing, operations and finance.

The next challenge unfolded over the ensuing six months, as Brown's team presented its plans to all of the knowledge workers in the company, explaining that implementing a new ERP system was a business decision and not just an IT decision.

"We said that although we didn't know what the new system would look like, things were going to change, and we asked them to come along for the ride. We had a pretty good acceptance rate," says Brown, who headed up the leadership team. Brown and his team explained that the winemaker had to get rid of the risk and stagnation inherent in its legacy ERP system and invest in one that would allow the vineyard to become much more efficient.

After conducting a lot of research, Brown Brothers chose Denver-based J.D. Edwards & Co.'s OneWorld ERP package, running on an IBM Netfinity server. Implementation of the new system began early in 1999, and the financial component went live in July 1999. The distribution model was implemented that October.

The new system allowed the winemaker to cut the time it took to process credit card orders by 80%, improved collections and consolidated budget information. The project also put Brown's management abilities to the test. Along the way, Brown says, he learned that leadership means providing the right framework for your people to do great things.

"I believe that a significant part of the leadership role is simply to get the environment right so my people can do what they do," he says. "However, when a leader makes a decision, it must be respected and adopted by all, regardless of their opinions, because that is part of the leader's role in the team."

Brown's boss, general manager Roland Wahlquist, says he has proved to be a very effective CIO for the vineyard, guiding it through a complete upgrade of its IT systems in just five years.

"He and his team have been very successful at striking the right balance between affordable systems and laying the foundations for growth with a long-term solution," Wahlquist says. "He has been able to clearly articulate to senior management his proposed solutions and gain their support." ◗

AGE: 34

TITLE: CIO

EMPLOYER: Brown Brothers Milawa Vineyard Pty., Milawa, Victoria, Australia

■ **ERIC GOLDFARB,** 38, executive vice president, CIO, PRG-Schultz Inc., Atlanta (formerly CIO at Global Knowledge, Cary, N.C.)

■ **ROSS GOOD,** 38, vice president, director of IS, Sundt Construction Inc., San Diego

■ **SUZANNE GORDON,** 49, vice president of IT, SAS Institute Inc., Cary, N.C.

■ **PATRICIA GRAHAM,** 53, director of information systems, Prudential Financial, Roseland, N.J.

■ **DAVID R. GUZMAN,** 46, senior vice president, CIO, Owens & Minor Inc., Glen Allen, Va.

■ **DR. JOHN HALAMKA,** 40, CIO, CareGroup Healthcare System, and associate dean for educational technology, Harvard Medical School, Boston

■ **ROBERT HARLAN,** 37, director, Motorola Inc., Northbrook, Ill.

■ **JONATHAN HARWOOD,** 43, CIO, founder, OpenReach Inc., Woburn, Mass.

■ **NEIL A. HASTIE,** 54, CIO, senior vice president of e-business and retail systems, TruServ Corp., Chicago

■ **CLAUS HOHMANN,** 57, chief technology officer, Volkswagen AG, Wolfsburg, Germany

CONTINUED ON PAGE 44

John Andrew Brown

He drew on the skills of a cross-departmental team to refurbish a vineyard's ERP system. By Linda Rosencrance

A SUCCESSFUL VINEYARD owner must have the skills to harvest the best grapes, employ the most talented winemakers and sell customers on the product.

When John Andrew Brown took over as CIO at Brown Brothers Milawa Vineyard Pty. in 1997, one of his first tasks drew on similar skills. The Australian company, founded in 1889 in Milawa, Victoria, had outgrown its legacy enterprise resource planning (ERP) system, which had been designed specifically for the wine industry.

The goal was to move the vineyard's supply chain onto a more flexible platform to ensure excellent customer service, offer back-office functionality and communicate with existing and future systems, says Brown, who is a fourth-generation employee of the family-owned business.

His first challenge was to select an implementation team made up of key people from various departments, including IT, marketing, operations and finance.

The next challenge unfolded over the ensuing six months, as Brown's team presented its plans to all of the knowledge workers in the company, explaining that implementing a new ERP system was a business decision and not just an IT decision.

"We said that although we didn't know what the new system would look like, things were going to change, and we asked them to come along for the ride. We had a pretty good acceptance rate," says Brown, who headed up the leadership team. Brown and his team explained that the winemaker had to get rid of the risk and stagnation inherent in its legacy ERP system and invest in one that would allow the vineyard to become much more efficient.

After conducting a lot of research, Brown Brothers chose Denver-based J.D. Edwards & Co.'s OneWorld ERP package, running on an IBM Netfinity server. Implementation of the new system began early in 1999, and the financial component went live in July 1999. The distribution model was implemented that October.

The new system allowed the winemaker to cut the time it took to process credit card orders by 80%, improved collections and consolidated budget information. The project also put Brown's management abilities to the test. Along the way, Brown says, he learned that leadership means providing the right framework for your people to do great things.

"I believe that a significant part of the leadership role is simply to get the environment right so my people can do what they do," he says. "However, when a leader makes a decision, it must be respected and adopted by all, regardless of their opinions, because that is part of the leader's role in the team."

Brown's boss, general manager Roland Wahlquist, says he has proved to be a very effective CIO for the vineyard, guiding it through a complete upgrade of its IT systems in just five years.

"He and his team have been very successful at striking the right balance between affordable systems and laying the foundations for growth with a long-term solution," Wahlquist says. "He has been able to clearly articulate to senior management his proposed solutions and gain their support."

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Roberta Ambur

Challenged to connect students and faculty, she orchestrated a rollout of PDAs at the University of South Dakota. By Jean Consilvio

IT WAS THE SPRING OF 2001, and Roberta Ambur, CIO at the University of South Dakota, was about to undertake a technological advancement that no other institution of higher learning had attempted: a rollout of more than 1,500 personal digital assistants (PDA) to full-time freshmen, first-year law and medical students, and faculty — without adding IT staff.

"Anytime you try something new, it's not going to go smoothly," says Ambur. One initial worry was getting each of the participants in the program to pay $250 for their Palm devices. But they did.

"In the beginning, faculty and our IT staff expressed some trepidation about managing and disseminating course materials and other academic information in a mobile environment," she says, but that concern was resolved within the first year.

One reason for the change of heart is that Ambur has moved quickly to address problems as they have arisen, says Don Dahlin, vice president for academic affairs and Ambur's boss.

"For example, one major issue was moving content so faculty members could easily get class content from the classroom onto the PDA," says Dahlin. "Roberta took the lead to find a server solution and was successful on that endeavor."

Another snag in the PDA pilot program was that students who didn't have laptops weren't able to back up their PDAs. To get around that problem, the university installed Extended Systems Inc.'s XTNDConnect Server software over the summer. The biggest challenge, says Ambur, was adding the software on top of the existing IT architecture in order to improve integration with infrared ports, PDAs and file-sharing applications. "It was and remains a very complex project, and without her leadership, we would not have moved as far and as fast as we have," Dahlin says.

Ambur was hired for the new position of CIO about a year and a half ago and directs a staff of 127, including part-timers from the student lab, Dahlin says.

Ambur and her staff support the Palm m500 and m515 devices and software that connect to the university network via cradles and infrared ports that students use to receive e-mail, turn in assignments, schedule appointments with faculty and access the Web.

Ambur considers this rollout — only one project among many — to be a big step forward for the university. "I foresee a time when you have the PDA and telephone all in one, and you're on a street corner looking up your e-mail, talking on the phone," she says. "Anytime, anywhere activity — that's what the future holds."

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■ **JOHN A. MARSHALL,** 45, enterprise systems director, Office of Naval Intelligence, Washington

■ **WILLIAM E. McCOREY JR.,** 44, vice president of MIS, Circuit City Stores Inc., Richmond, Va.

John A. Marshall

Stung by an unexpected user backlash, he learned a lesson in leadership. By Todd R. Weiss

BACK IN 1997, AS HE TOOK ON one of the biggest IT challenges of his career, John A. Marshall never imagined that the hardware and software he was about to deploy would be the least of his worries.

But that's what happened when Marshall, enterprise systems director at the Office of Naval Intelligence in Washington, decided to reconfigure the network in a way that would allow some 2,500 users to access their files from any machine, while simplifying maintenance and preparing for Y2k.

Instead of the hardware causing him grief, it was end users who did so. They had strenuous objections to his plans, and they had no qualms about sharing their displeasure with Marshall and his staff. The users saw the proposed move as a way for others to control how they used their computers.

"We wanted to treat our desktops like the telephone system," enabling users to log in anywhere to gain access to their data, says Marshall. To do that, the technical staff removed the hard drives from the machines and essentially created dumb terminals linked to centralized storage, which made data backups and systems maintenance easier.

"We took a lot of pain from our [users]," Marshall says. "[They] didn't believe in the concept of us locking down their desktops and taking away their C drives." Complaints continued throughout the project until its completion in late 1998 as part of a pre-Y2k program.

Marshall says he learned that he should have spent more time managing users' expectations so they could have clearly seen the project's payoff. "Now that they understand the benefits of it and how much we increased productivity, I think they're OK with it," he says.

The Office of Naval Intelligence supports users in the U.S. Navy who gather maritime intelligence for the armed services. More than 125 IT professionals working under Marshall support help desk and network operations as well as a wide range of technologies, including enterprise databases and application servers, and run mission-critical systems around the clock. Marshall, who served in the Navy from 1976 to 1979, has worked at the office for 26 years.

Capt. Mark Greer, CIO at the Office of Naval Intelligence, says Marshall made the project a success through his leadership. As the work began, Marshall made sure that everyone on the team understood what they were doing and why, he says. "He's able to get pretty good unity of effort," Greer says. "It's something that a lot of IT managers skip. He's a good leader, and he took the time to do that."

■ **STEVE McDOWELL**, 45, IS director, Holiday Retirement Corp., Salem, Ore.

■ **JERRY McELHATTON**, 53, senior executive vice president of global technology and operations, MasterCard International Inc., O'Fallon, Mo.

■ **ALLAN McLAUGHLIN**, 49, senior vice president, chief technology officer, LexisNexis, Miamisburg, Ohio

■ **STEVE MESSICK**, 48, senior vice president of technology, Business Wire, San Francisco

■ **JOHN C. MOOR**, 43, CIO, Baxter International Inc., Deerfield, Ill.

■ **MARY GORDON**, 38, CIO, Paul, Hastings, Janofsky & Walker LLP, Los Angeles

■ **ROBERT L. OTTO**, 50, vice president of IT, U.S. Postal Service, Washington

■ **JOHN OSMUNDI**, senior vice president of IS and corporate adjudication services, CIO, Blue Cross and Blue Shield of Minnesota, Eagan

■ **ROGER W. PARKS**, 59, vice president of IT, CIO, J.R. Simplot Co., Boise, Idaho

■ **BILL PICTON**, 57, MIS director, Thanco Inc., San Lorenzo, Calif.

■ **HOWARD PYLE JR.**, 50, director of IT, CIO, Life Sciences division, Corning Inc., Acton, Mass.

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Leader's Almanac

What Was Your First Job in IT?

Continued from page 42

signer for custom hardware and integrated a card reader, cash dispenser, paper cutter and drop box.
■ JOEL PLAUT, ASSISTANT VICE PRESIDENT, AMERICAN INTERNATIONAL GROUP INC., NEW YORK

I STARTED WORKING in IT when it was called data processing. I was 19 years old and worked second shift as a computer operator running an IBM System 3 Model 8 computer. We used cards back then, and there were two keypunch operators.
■ NORMAN A. THOMAS, SENIOR VICE PRESIDENT, CHIEF TECHNOLOGY OFFICER, U.S. XPRESS ENTERPRISES INC., CHATTANOOGA, TENN.

I WAS ANALYST and project manager for revenue optimization and reservation systems at Continental Computer Service, a hosted computer services provider for more than 30 airlines worldwide. We designed and implemented a large data warehouse based on VSAM technology and Information Builders Inc.'s Focus report tool for statistical analysis. We took nightly updates from a TPF airline reservation system, converted the data from hex into another format, and held 12 months' rolling history for every flight, both pre- and postdeparture.
■ ALAN BOEHME, EXECUTIVE VICE PRESIDENT, CIO, BEST SOFTWARE INC., ATLANTA

I WAS TAUGHT THE business of investment banking and went through intensive technology training at Morgan Stanley. A

Continued on page 45

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TITLE: CIO

EMPLOYER: University of South Dakota, Vermillion

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- **BILL PICTON,** 57, MIS director, Therco Inc., San Lorenzo, Calif.
- **HOWARD PIGGEE JR.,** 58, director of IT, CIO, Life Sciences division, Corning Inc., Acton, Mass.

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Leader's Almanac

What Was Your First Job in IT?

Continued from page 44

group of us built an automated trader using APL, an artificial intelligence language. It became the No. 1 income producer in the firm.

■ DAVID R. GUZMAN, SENIOR VICE PRESIDENT, CIO, OWENS & MINOR INC., GLEN ALLEN, VA.

I WAS AN ASSEMBLER LANGUAGE programmer at one of the now-failed savings-and-loan companies. I was responsible for the programs that ran all the savings/checking nightly processing systems for the daily transactions. This consisted of two programs, each containing more than 12,000 lines of assembler code. Job-control language streams and finalized programs were delivered via punch cards to the computer room. Testing was limited to one per day due to the number of removable disks that needed to be mounted for these programs, which required 16 of the 25 available disk drives and severely limited the capabilities of the other developers.

■ JAMES D. GIBSON, DIRECTOR OF IT, TRIWEST HEALTHCARE ALLIANCE, PHOENIX

I WAS A DATA CENTER MANAGER, leading a group of 400 employees. I led areas including policy operations, accounting, customer service and call center functions. After this assignment, my career transitioned to several key roles on the business side. This knowledge was invaluable to me when I returned to the engineering side of IT, as it gave me insight on how our applications needed to be structured in order to give our customers the extraordinary service they expect.

■ CATHY BRUNE, SENIOR VICE PRESIDENT, CHIEF TECHNOLOGY OFFICER, ALLSTATE INSURANCE CO., NORTHBROOK, ILL.

Continued on page 46

Leader's Almanac

What Was Your First Job in IT?

Continued from page 45

I WAS A SOFTWARE customer engineer for IBM. I supported IBM mainframe operating system and system software, and I was a specialist in SNA communications software (CICS, VTAM, Network Control Program and TSO).
■ RICHARD K. JONES, MANAGING DIRECTOR, CIO, COUNTRYWIDE HOME LOANS INC., CALABASAS, CALIF.

MY FIRST JOB IN IT was at Midwest Power Systems Inc. I was a member of the team that designed, developed and implemented the management information system in the early 1990s. The main objective was to revamp the company's management reports by providing tools for center managers, and a complete view of costs for each unit and project, minimizing costs by using direct charging when possible, and providing the ability to analyze business unit profitability at the lowest level, thus having more people involved in managing the company.
■ ROBERTA AMBUR, CIO, UNIVERSITY OF SOUTH DAKOTA, VERMILLION

I WAS A DEVELOPER for Allied Signal and was responsible for co-developing the Navy's air traffic control program. We converted it from assembler to C. We delivered on time, on budget, and most important, the software has never been associated with any air incident.
■ SCOTT L. CARCILLO, CIO, VICE PRESIDENT OF IT AND SERVICES, GREEK INC., LAUREL, MD.

Continued on page 47

Fred Kimball

He led a transformation that gave decision-making power to every IT worker. By Julia King

IMAGINE TRYING TO QUICKLY turn around an aircraft carrier under full power. That should give you some idea of what Freightliner LLC CIO Fred Kimball was up against in setting out to overhaul the Portland, Ore.-based truck manufacturer's 385-person IT department — in 90 days.

"The structure we had was 25 years old, and we had no defined processes of how to get things done. Everything was carried around in everyone's head," says Kimball. "People came in from outside and pretty much did their own thing. Project management was a major problem for us."

He decided to involve virtually every IT worker in the department's metamorphosis. Kimball laid out 25 transition teams, but rather than assigning people to teams that covered everything from application development to project management, he says he encouraged workers to "sign up for their passion."

Kimball, a Boy Scout troop leader in his spare time, also did something that at first glance may seem out of character for a member of a group whose motto is "Be prepared." He laid out only about 80% of the concepts on which the new IT organization was to be built.

"Clearly, the change was so dramatic that I needed to get buy-in, and this gave [the staff] the opportunity to be involved in making decisions on a day-to-day basis," he explains. "It also was an enabling process to find out who could help us reinvent ourselves and who was opposed to the reinvention process."

The move was "pure Fred," according to Chi-Chao Chen, Freightliner's director of infrastructure development and support and a colleague who has worked with Kimball for the better part of 20 years. "Even though he is a computer science graduate, he doesn't believe computers are everything. He believes in people and trusts his team," Chen says. "He says that one plus one doesn't equal two, but that when people work together, it's a multiplication of their potential.

AGE: 40

TITLE: CIO

EMPLOYER: Freightliner LLC, Portland, Ore.

"He's a visionary," Chen adds. "Rather than worry about day-to-day operations, he trusts his managers and keeps his eye on the big picture."

And, incidentally, the 80% strategy was something Kimball learned in the Boy Scouts, which he says is oriented toward adults never doing something for a boy that he can do for himself.

"You let boys cook their own food, burn it, wash their own dishes, put them away greasy and soapy and eat off them again and get sick," he says. "But they learn by doing." It's the same in business, Kimball says, adding, "People don't want to be micromanaged and told exactly what to do." ◗

■ JOEL PLAUT, 38, assistant vice president, American International Group Inc., New York

■ FREDRICK R. POND, 45, director of information services, Schnitzer Group, Portland, Ore.

■ JOSEPH A. PUGLISI, 47, group CIO, Emcor Group Inc., Norwalk, Conn.

■ FRANK M. RICHARDS, 48, CIO, Geisinger Health System, Danville, Pa.

■ RICHARD RICKS, 43, group president, Computer Sciences Corp., El Segundo, Calif. (previously senior vice president and CIO at Nortel Networks Ltd., Research Triangle Park, N.C.)

■ JOEL ROSENBERG, 41, CIO, Coast Capital Savings, Surrey, British Columbia

■ LINDA ROUSMEK, 34, systems officer, Nationwide Mutual Insurance Co., Columbus, Ohio

■ LINDA SANFORD, 49, senior vice president, enterprise on demand transformation, IBM Storage Systems Group, Armonk, N.Y.

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■ ALEX SHAPIRO, 48, CIO, American Student Assistance, Boston

■ WAYNE ST. JACQUES, 33, director of IT, Geographic Data Technology Inc., Lebanon, N.H.

Suchindran S. Chatterjee

Anticipating the industry's future, he led an early migration to Microsoft. By Linda Rosencrance

IN THE EARLY 1990s, when Suchindran S. Chatterjee was vice president of information systems at Mutual of Omaha Insurance Co., the IT world was largely controlled by IBM.

But Chatterjee had the foresight to anticipate Microsoft Corp.'s future dominance in the industry. His next step was to persuade executives at the insurance company to move to a standardized platform and, ultimately, sign an 8,000-user license with Microsoft. That was no easy task, says Chatterjee, now chairman and CIO at Cum Laude Academy of Learning in Scottsdale, Ariz.

"It was an uphill battle all the way, but people call me now to say what I did was visionary and the right thing to do," he says.

To convince Mutual of Omaha's board of executives that the move would pay off for shareholders, Chatterjee showed them that the company would save money by standardizing its systems.

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"Being a leader means you have to have the ability to sell an idea, not because it's snake oil, but because you can see the logic behind it," he says. "You can win over business people by showing them what's in it for them and also showing them it will make the company more marketable."

AGE: 51

TITLES: Chairman and CIO

EMPLOYER: Cum Laude Academy of Learning, Scottsdale, Ariz. (formerly CIO at Salt River Pima-Maricopa Indian Community)

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Huey Thomas worked for Chatterjee at Salt River Pima-Maricopa Indian Community in Scottsdale, where Chatterjee was CIO prior to joining Cum Laude Academy. As soon as Chatterjee arrived there, Thomas knew things were about to change — for the better.

"Dr. Chatterjee had endless enthusiasm to make the IS department better," Thomas says. "He had an open-door policy for all departments and was available at all times, and had the ability to network across all departmental boundaries."

Because of his leadership, the IS department was able to introduce process changes to restore accountability and efficiency to all of the community's departments, Thomas says. ◗

■ **STEVEN M. STONE,** 40, vice president of IT strategy, Lowe's Cos., North Wilkesboro, N.C.

■ **DAVID STREIT,** 46, former director, Deutsche Bank, New York

■ **DAVID SWARTZ,** 49, CIO, George Washington University, Washington

■ **BILL THOMAS,** 51, senior vice president, Providian Financial Corp., Oakland, Calif.

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■ **EUGENE D. TROXELL,** 59, director of IT, Loudoun County, Va., Leesburg

■ **TASOS TSOLAKIS,** 39, vice president of global technology operations, Global eXchange Services Inc., Gaithersburg, Md.

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■ **STEVE YATKO,** 33, chief technology officer, global application development, Credit Suisse First Boston Corp., New York

Leader's Almanac

What Was Your First Job in IT?

Continued from page 46

I WAS WORKING HERE at Geisinger as a clinical chemist. I was hired by MIS to help install a $2 million clinical laboratory system — because I understood lab operations, and I had some computer experience. I had a small operations and data-entry staff, which were totally new areas for me. Coming from a science background, I had a different idea about what computers were all about. To me, they were process-control or number-crunching machines, not the equivalent of large file cabinets. The implementation was a success, and the system was in use for about 15 years.

■ **FRANK M. RICHARDS, CIO, GEISINGER HEALTH SYSTEM, DANVILLE, PA.**

I WAS A COMPUTER OPERATOR for a transportation services company in Seattle in 1978. The computer took up a large room yet had only a small fraction of the power and capacities of today's PCs. Still, we were able to run two companies on it: the main company and a food distribution company. To exchange data with the food distribution company a couple of miles away, we used "key to tape" machines and very slow (300 bit/sec.!) modems. This was an incredible introduction to IT, because a computer operator had to know what the program was doing on the computer when mounting tapes and disks or suffer huge consequences, such as irrecoverable data loss. In less than a year, I was promoted to my first management job, which was computer operations manager.

■ **STEVE McDOWELL, IS DIRECTOR, HOLIDAY RETIREMENT CORP., SALEM, ORE.**

Compiled and edited by Jean Cunliffe, assistant management editor.

Fred Kimball

He led a transformation that gave decision-making power to every IT worker. By Julia King

IMAGINE TRYING TO QUICKLY turn around an aircraft carrier under full power. That should give you some idea of what Freightliner LLC CIO Fred Kimball was up against in setting out to overhaul the Portland, Ore.-based truck manufacturer's 385-person IT department — in 90 days.

"The structure we had was 25 years old, and we had no defined processes of how to get things done. Everything was carried around in everyone's head," says Kimball. "People came in from outside and pretty much did their own thing. Project management was a major problem for us."

He decided to involve virtually every IT worker in the department's metamorphosis. Kimball laid out 25 transition teams, but rather than assigning people to teams that covered everything from application development to project management, he says he encouraged workers to "sign up for their passion."

Kimball, a Boy Scout troop leader in his spare time, also did something that at first glance may seem out of character for a member of a group whose motto is "Be prepared." He laid out only about 80% of the concepts on which the new IT organization was to be built.

"Clearly, the change was so dramatic that I needed to get buy-in, and this gave [the staff] the opportunity to be involved in making decisions on a day-to-day basis," he explains. "It also was an enabling process to find out who could help us reinvent ourselves and who was opposed to the reinvention process."

The move was "pure Fred," according to Chi-Chao Chen, Freightliner's director of infrastructure development and support and a colleague who has worked with Kimball for the better part of 20 years. "Even though he is a computer science graduate, he doesn't believe computers are everything. He believes in people and trusts his team," Chen says. "He says that one plus one doesn't equal two, but that when people work together, it's a multiplication of their potential.

"He's a visionary," Chen adds. "Rather than worry about day-to-day operations, he trusts his managers and keeps his eye on the big picture."

And, incidentally, the 80% strategy was something Kimball learned in the Boy Scouts, which he says is oriented toward adults never doing something for a boy that he can do for himself.

"You let boys cook their own food, burn it, wash their own dishes, put them away greasy and soapy and eat off them again and get sick," he says. "But they learn by doing." It's the same in business, Kimball says, adding, "People don't want to be micromanaged and told exactly what to do." ▶

■ **JOEL PLAST**, 39, assistant vice president, American International Group Inc., New York

■ **FREDRICK R. POND**, 45, director of information services, Schnitzer Group, Portland, Ore.

■ **JOSEPH A. PUGLISI**, 47, group CIO, Emcor Group Inc., Norwalk, Conn.

■ **FRANK M. RICHARDS**, 48, CIO, Geisinger Health System, Danville, Pa.

■ **RICHARD RICKS**, 43, group president, Computer Sciences Corp., El Segundo, Calif. (previously senior vice president and CIO at Nortel Networks Ltd., Research Triangle Park, N.C.)

■ **JOEL ROSENBERG**, 41, CIO, Coast Capital Savings, Surrey, British Columbia

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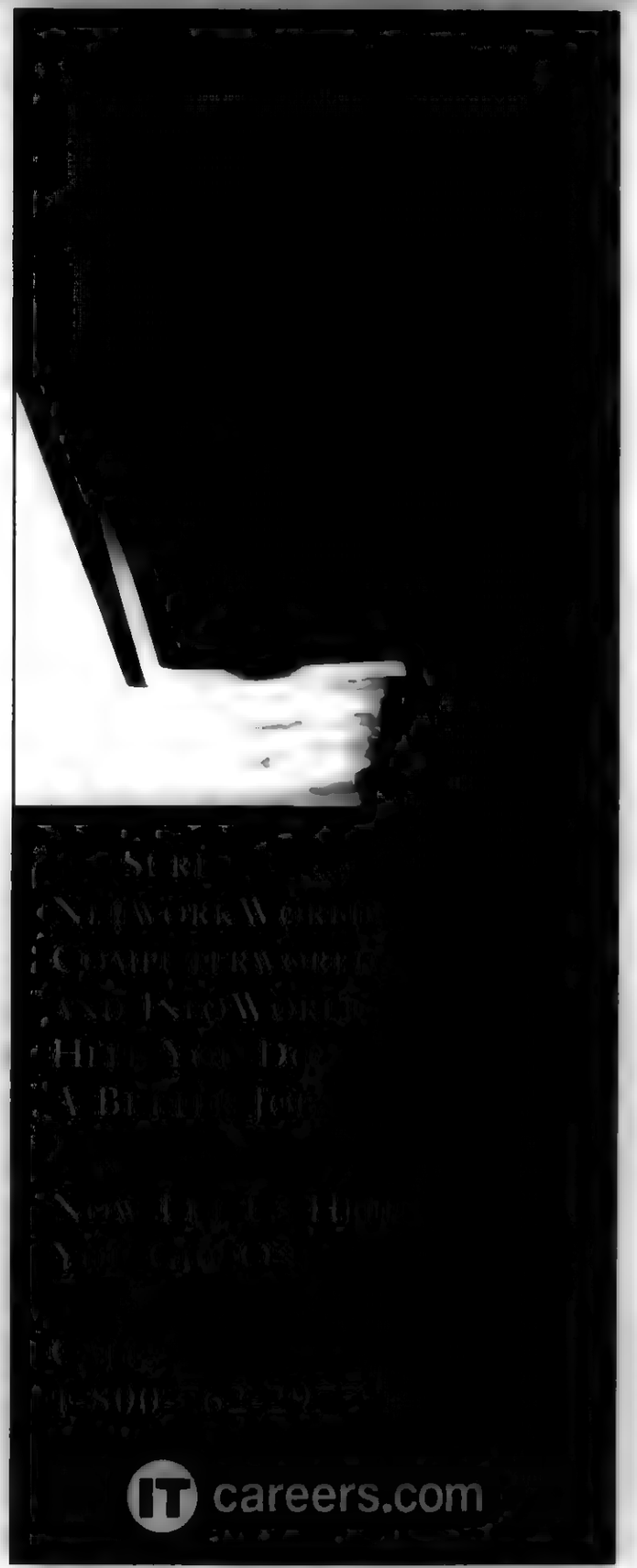

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Senior Member of Technical Staff - Optical Systems Design Engineer: Provide lead research & development expertise in the design & dvlpment of optical modules & subsystems for next generation broad band access networking systems. Perform testing in characterization of optical modules for networking system. Writes product specifications & application notes. & designs printed circuit boards to refine device design. Provide definition for prototype dvlpment & product fabrication. Consult with customers (ISPs/Cable Oper.) re product specs & with the exec. engineering team to facilitate implementation per network needs. Must have a Ph.D. in Electrical Eng. & 2 yrs exper. in job offered or 2 yrs exper. in Optical Commun. or Optical Systems Design & Testing. Will also accept M.S. in Electrical Eng. & 4 yrs exper. in the job offered or 4 yrs exper. in Optical Commun. or Optical Systems Design & Testing. Must have min. 2 yrs. exper. in design, dvlpment, testing & characterization of optical modules & optical electronic components for networking systems. 40+ hrs/wk; 9a- 6p (M-F); $110,000/yr. EOE. Must have unrestricted authorization to work in U.S. Submit resume in duplicate to: Case # 200114979, Labor Exchange Office, 19 Stanford Street, 1st Flr, Boston, MA 02114.

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Send Resume to: HR Dept., U.R. International, Inc., 12789 South Kirkwood, Stafford, TX 77477 or via email at: jobs@urinternational.com

Director IT Infrastructure

Western New York based manufacturing company seeking top quality candidate who could grow to CTO position. Requires BS, MBA preferred. ERP major application implementation, strong manufacturing systems. Experience building fault tolerant environments, Internet technologies and a demonstrated background in developing successful architecture and technologies. Proven strengths in system development methodologies and ability to present complex technical solutions to senior management. Exceptional compensations, benefit package. Respond to Personnel Resource, Inc. via email pr-north@prresource.com

COMPUTER PROGRAMMER-ANALYST Plans, develops, tests, installs, implements and documents the performance of the Electro-Tech suite of software applications for the testing of electrical engines and drives for an electrical engineering and servicing company. Applies knowledge of programming techniques and computer systems as well as experience in electrical engineering to evaluate user requests for new or modified programs or systems, and to determine feasibility, costs and time required, compatibility with current system and computer capabilities. Consults with user to identify current operating procedures and identify problems and objectives. Read electrical engine manuals, periodicals and technical reports to learn ways to develop programs and upgrade existing programs to meet customer needs. Formulate plans outlining steps required to develop program and submit plans to user for approval. Utilize knowledge of MATLAB and Simulink software applications to test engine models at different parameters in computer simulation for basic engine testing. For more complex engine testing that is beyond the capacity of MATLAB and Simulink, utilize C/C++ to create software applications for users that will test electrical motors and engines at different parameters in computer simulations and to determine effect of conditions on an engine prior to actual implementation of conditions on actual engine. Prepares flowcharts and diagrams to illustrate sequence of steps program must follow and to describe logical operations involved. Converts project specifications into computer code using knowledge of C/C++. Enters commands into computer to run and test programs. Reads computer printouts to detect syntax or logic errors during testing and uses diagnostic software to detect and correct errors. Analyzes, reviews and modifies program to increase operating efficiency or adapt to new requirements. Writes documentation to describe program development, logic, coding and corrections. Assists users to solve operating problems. Recreates steps taken by user to locate source of problem and rewrites program to correct errors. Trains users to use program. Oversees installation and testing of program and hardware. Provides technical assistance to program users. Monitors performance of program after implementation. Minimum Requirements: At least two (2) years of college in Electronics, Electrical Engineering, Computer Science or related field and two (2) years in job offered. Plus at least two (2) years of practical work experience in C/C++ as demonstrated by statements from prior employers or teachers. Must be fluent in the use of MATLAB and Simulink for testing of engine models in computer simulation as demonstrated by a proficiency test to be administered by an outside expert. $60,736/year. Location of job: Parker, Colorado. 40 hour work week. Submit two (2) copies of resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to job order number CO5034407

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SENIOR SYSTEMS ANALYST/PROGRAMMER: Responsible for the design, development, maintenance & support of highly sophisticated application software programs utilizing programming in Cobol, CICS, Unix Shell Scripts and JCL on Windows NT, MVS and Unix-based operating systems. Assist in analyzing and validating data by writing complex SQL queries to access data from DB2 database utilizing QMF. Follow change control rules by utilizing Version control environment ENDEVOR. Participate in debugging process utilizing tools such as XPEDITER, SMARTTEST and INTERTEST. Conduct DB2 data management and VSAM file handling utilizing FILE-AID. Conduct performance and model testing, report generation, troubleshooting and coding. Participate in process design and development, end-user training and systems support. Minimum requirements: Four (4) years of experience in the job offered or as Systems Analyst or Programmer. The four (4) years of experience must include the design, development, maintenance and support of software applications utilizing programming in Cobol, CICS, VSAM, Unix Shell Scripts, DB2, QMF and JCL on Windows NT, MVS and Unix-based operating systems; version control utilizing ENDEVOR; debugging process utilizing XPEDITER, SMARTTEST and INTERTEST; and experience utilizing FILE-AID for DB2 data management and VSAM file handling. 40 Hours/Week, 8:00AM - 5:00PM, $61,275 per annum. APPLICANTS MUST SHOW PROOF OF LEGAL AUTHORITY TO WORK IN THE U.S. Send resumes to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, IL 60605, Attn: Sheila Lindsey; Ref: V-IL 41198-L. AN EMPLOYER PAID AD; NO CALLS - SEND 2 COPIES OF BOTH RESUME AND COVER LETTER.

TX. Software development Company Seeks programmer Analyst to assist in all phase of SDLC in Analysis, Design, Code, Test and Implementation of applications and RDBMS design using Object oriented analysis and design techniques. Min Req: BS in Computer Science or equiv. with 2 year work experience using C/C++,MFC,ATL,DCOM,ASP, J2EE,Java,EJB,Servlet,JSP,IIS,JNI,DB2,Websphere,SQL,PL SQL,Oracle,Developer 2000,UNIX scripting, UML, Rational tools on WinNT/2K & UNIX. Send Resume to HR Dept.Inforide Technologies LLC, 9430 Research Blvd., Suite 350, Echelon IV, Austin, TX 78759. NO CALLS

VegaStream, Inc., located in Boca Raton is seeking F/T expd. Manager of Product Support to research, design, and developing of computer software systems, in conjunction with hardware product development. Analyze software requirements to determine feasibility of design within time and cost constraints. Consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements of overall system. Formulate and design software system, using scientific analysis and mathematical models to predict and measure outcome and consequences of design. Bachelor's degree in Computer Science, competitive salary. Fax resume to David Gellen (561) 995-6027.

Programmer/Analyst Sr. Plan, develop, code, & test complex programs for biz. systems customized to meet info. req'mts of non-profit engineer-based member society; develop client/server applic. to meet biz. req'mts; consult w/ clients to determ. program need, objective, & input/output req'mt; analyze & define req'mts for data, workflow, logical process, system interfaces, hardware & OS environmt.; develop plans re steps, cost & timetable for developing programs; create custom. report & manage d-base maintenance.; assist in test of developed applic. code; monitor performance of programs post-implement.; write documentation re program development, logic, coding, test, & correction, support & maintain applic.; identify software techn. gaps; eval. software & hardware option to assist in programming or use as platform; assist in development of program standard; conduct perform. design, & tuning, analyze & alter programs to increase efficiency; interact w/ product mngr to analyze customer n-action data from book & product sales, subscription, trade show exhib., training & event registration, & membership aspects of non-profit society to facilitate strategic biz. decision; liaise with user groups, system engineer & outside consultants re comptr system; train end users & technic. staff on applics.; provide tech. assistance to program users. Duties involve Relational D-base develop. (SQL based), dMS, OMNIS, Oracle, Windows NT, Great Plains eEnterprise, MS SQL/Server, Visual Basics, MS Office Suite, Crystal Reports & Mail Verify. Req'mts: Bachelor degree in Computer Science or Information Systems or related field, Plus 2 yrs. exper in job offered or 2 yrs. exper in financial biz. applic. systems development & d-base maintain. Competit. Salary. 8 a.m.-5 p.m., M-F Location: RTP, NC. Send resume to Molly Rodgers, HR Director, Attn: DOL-SD-1, ISA, 67 Alexander Drive, PO Box 12277, Research Triangle Park, NC 27709.

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Assistant Vice President of MIS is sought by int'l bank in NY to manage bank's Int'l Banking Financial Info. systems, SWIFT Alliance, general ledger, securities lending systems using Unidata, Oracle, SQL Server, MSAccess, IBM RS/6000, Windows NT, Java and VBA. Req. Bachelors in Comp. Sci. with 3 yrs exp. in job. Send resume to Mizuho Trust & Banking Co (USA), 666 Fifth Ave., Ste 802, NY, NY 10103 Attn: HR-QA. EOE.

Landing Tree has an opening for an E-Business Data Exchange/Interface Developer to provide e-business/automation solutions to our customers and clients. The successful candidate will develop/support computer software applications for expensive data translation and transmission functions, specifically for custom industry formed standards, including Desktop Underwriter 3.0, Mortgage Industry Standards Maintenance Organization XML, Interactive Financial eXchange XML and CSML. Key technologies include the use of specialized software development tools, specifically object-oriented Perl programming, TCL/TK application (Ajuba), BizTalk & XML programming in Visual Basic, Active Server Pages, Perl & TCL/TK in a Windows NT operating system using SQL Server databases. Utilize business systems development experience in implementing e-business interfaces for online transactional processing & data exchange. Will also document, train & support implementation personnel on operations of developed systems; participate & contribute to team development/planning environment & systems testing, problem determination & resolution. Minimum qualifications are a Bachelors Degree in Computer Science, Engineering, Mathematics or related discipline/US equivalency with 2 years experience in the skills/tools/technologies as described above. Please submit your resume to: Landing Tree, Inc. Attn: HR, 11115 Rushmore Drive, Charlotte, North Carolina 28277.

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NET2S, 82 Wall Street Suite 400, New York, NY 10005; Fax: (212) 278- 1980. Phone (212) 278-8555; or Email jobs-nyc@net2s.com

SENIOR SOFTWARE ENGINEER: Full range of programming responsibilities of Clockwork32-Time and Billing application as well as Client Profile Financial Management System used in law firm practice case management. Requirements: Bachelor's degree in Computer Science and proven knowledge and 3 years of experience in accounting in a time and billing environment, financial systems writing, Progress 7 & 8 Server DBA, Microsoft SQL Server 2000 DBA, Implement performance tuning, develop and maintain database schema and Multi Database application development. Must have the following Skills: Progress 4GL versions 7 & 8, Progress User Interface Builder version 8, SQL Programming, COM component programming, Crystal Reports 6 & 9 development tools, XML. Send resume to Jose Fernandez, HR Mgr., Client Profiles, 1215 Hightower Trail, Building A - Suite 200, Atlanta, Georgia 30350.

SOFTWARE ENGINEER: Boston-based Internet company has an immediate need for a Software Engineer responsible for developing, maintaining and documenting applications and programs for the Linux operating system using high-level programming languages such as C, C++ or Java and scripting languages such as Perl. Responsible for all development phases and coordination with other team members and associate departments.

A bachelor's of computer science or related degree, and knowledge of Java and scripting languages such as Perl required. We offer a competitive salary, excellent benefits, and a great work environment.

Please forward your resume and cover letter to Kaelyn Collins, Xmission, Inc., 401 Park Drive, 3-West, Boston, MA 02215.

Software Engineer: Harrisburg, PA. Responsible for process analysis, reengineering, architecture and development of IT solutions for complex business systems. Use tools like Java, C, C++, Visual Basic, Sybase, SQL Server, Rational Rose, ERWIN, and legacy systems (IBM/NCR/Unisys). Configure TCP/IP LAN/WAN environments and Windows/UNIX systems. Job involves active involvement in business planning/delivery and coordination with sales. Requires: BS or equivalent in Comp. Sci or Electronics Engineering and 4 years of relevant experience. Exp must include use of at least four mentioned tools and involvement in business systems planning, presentation and delivery. Competitive salary. Mail resume to HR, Shream LLC, 2121 Queens Drive, 99-2, Harrisburg, PA, 17110. Fax: 666-269-8273 Ref: TRK4390

Picobyte Consulting is looking for programmer/system analysts, software/project engineers. Candidates must have BS/MS with minimum 1-years exp. in the IT or engineering field. Strong skills in EJB, Oracle preferred. Apply at: 1500 S. 9th St., Ste B, Springfield, IL 62703. EOE.

Corpus is seeking IT professionals/engineers. Qualified applicants must have BS with 1+yr/min exp. Skills in SQL, PL/SQL, CGI, C/C++, VB, SAP, TCP/IP, NT, Java, XML, COBOL, ERP (PeopleSoft, ARIAP), XSL, ASP, Oracle are plus. Send resume to jobs@corpusinc.com. EOE

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The Pepsi Bottling Group is seeking a Senior Analyst for Somers, NY. Candidate will develop applications and reports for sales compensation applications in a SYBASE 11.9.2 environment, using Power Builder 6.5 and Novell Netware. Please fax resumes to J. Abena Aggrey at (914) 767-1082. No phone calls please.

SOFTWARE ENG Dvlp & maintain catalogs & models; analyze configuration & architecture of Cognos products. Provider user support. BS Computer Sci, Info Systems or equiv + 2 yrs exp in job or Programmer/Analyst reqd. Two+ yrs exp w/ Cognos Impromptu or PowerPlay plus exp w/ database/SQL & developing analysis & design docs reqd. Competitive Salary. Send resume to: C. James, John H. Harland Co, 2939 Miller Rd, Decatur, GA 30035.

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Java developer sought to design, develop, test MetaMatrix Server. Distributed computing multi-threading, query planning/ processing, relational algebra OO methodology on both Windows / Unix environ. Use DBMS, XML, SWING, Servlets, RMI, JDBC, and SQL. Requires BS in Comp. Sc., Math. or Engr. (MetaMatrix, Inc./ St. Louis, MO)

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Resume and/or cover letter must reflect each requirement above and specify reference code EPM or it will be rejected.

Forward resume to Mark V. Ferranti, Human Resources Manager, Carrier Corporation, Carrier Parkway, Bldg. AAR, Mail Stop 45, Syracuse, NY 13221 or fax to 315-432-3934. No phone calls please

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Positions may require relocation to various job sites throughout the United States. Qualified applicants send resumes to: HR Manager, Majesco Software, Inc., 222 W. Las Colinas Blvd., Irving, TX 75039.

System Administrator to manage the comp. info. system; develop data comm. & networking of co. branches/HQ: coord. strategic planning; tech. support; Need Master's Degree in Comp. Info. Systems; 40 hr wk. 8am - 5 pm; $42,640/yr. Send resumes to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202, Reference No. 202650. Employer Paid Ad.

DATA WAREHOUSE PROGRAMMER - Rockville, MD. Develop and maintain load programs, metadata, user forms and reports in Oracle 8. Size, develop, test, implement and maintain code on UNIX and Oracle SQL/PL*SQL. Document and communicate changes to users and assist in the development of overall architecture and system planning. Bachelor's Degree in Engineering or Information Systems & 2 yrs exp. in job offered or related field. Exp., which may have been gained concurrently, must include 2 yrs operating in Oracle. Send resumes to rockvilleresumes@marriott.com and reference code #8103.

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BPA ABM

Leader's Almanac

On the Cutting Edge

What technologies are the Premier 100 IT leaders using?

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Are they investing in open-source technology?

47 SAID NO. Of those, 25 don't plan to invest in open source in the next one to two years; 20 said they do plan to invest in open-source technology in the next one to two years. (Two expressed no preference.)

41 SAID YES, they are investing in open-source technology. The three most-cited technologies they are using are: 1. Linux; 2. Apache; 3. Perl

What technology holds out the most promise in the next two years?

1	Wireless
2	Web services
3	XML
4	Voice over IP
5	Vertical industry-specific technologies
6	Linux
7	E-commerce
8	Handheld computing
9	Customer relationship management
10	EAI

What technology has been overhyped and is underwhelming?

1	Wireless	6	Java
2	CRM	7	EAI
3	Web services	8	ERP
4	.Net	9	Linux
5	XML	10	PKI

Statistics compiled by research company [illegible] from survey data collected in August and September 2003.

FRANK HAYES • FRANKLY SPEAKING

2003 on a Shoestring

LET'S START WITH WHAT EVERY IT LEADER knows already: There's no money. There *is* no money. There is *no* money. There's not going to *be* money anytime soon. You don't know when there will be money. You can't make any plans that depend on there being money, because for the foreseeable future, the one thing you know is, there's no money.

And as far as money goes — forget about it.

This year, IT leadership isn't about achieving great things by marshaling all the resources at your disposal. It's about getting the job done, even without the resources you need.

But how do you keep a sense of powerlessness or paralysis from creeping in, when there's no budget to do things that need doing? And how do you keep morale up and keep moving ahead — all on the cheap?

First, **don't sugarcoat your situation.** You know there's no money. Keep repeating that to your staff, your users and your CEO. Don't complain; just be matter-of-fact about it — again and again and again. If nothing else, it'll help keep expectations low, so every success will look like a real achievement.

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If it's dead, kill it. You've already spiked your least-likely-to-succeed projects, right? Now go after the rest of them ruthlessly. If you can't see success, kill it. If you can't kill it, freeze it. And if you can't freeze it, figure out how to make it a success. Remember, the most costly projects are the ones that never deliver a return on your investment because they never go live.

Refactor - don't nickel-and-dime. You can trim a little fat out of any project easily once, maybe twice. The third or fourth time, it's a lot harder. Forget the nickel-and-dime approach. Try cutting big. Slice off bells and whistles, features and even some functions. Then offer users the option of a simpler, more reliable version delivered sooner — a go-cart instead of the Ferrari they asked for. They may go for it, and you'll cut development costs. Sure, they'll still want the Ferrari next year. But that'll be in next year's budget.

Watch out for overreactions — your own and anyone else's. Everyone's tired and stressed from tight budgets, shrunken staff and overgrown workloads. Tempers are frayed. Minor problems or disagreements can blow out of proportion. Step in. Find a resolution. Stupid blowups tend to get expensive fast.

Take care of your staff. Relax any rules you can that will make things easier for them without raising risks. Praise individuals in front of other executives and managers; word will get around. Defend them if a complaint is unreasonable or unfair. Look out for their interests.

Finally, follow through. The risk of trying cheap new ideas is that some won't work, others won't be worth the trouble, and all require more attention than business as usual does. You'll have to stay on top of everything you try if you want to get real value on the cheap.

But, of course, you knew that already.

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FRANK HAYES ■ FRANKLY SPEAKING

2003 on a Shoestring

LET'S START WITH WHAT EVERY IT LEADER knows already: There's no money. There *is* no money. There is *no* money. There's not going to *be* money anytime soon. You don't know when there will be money. You can't make any plans that depend on there being money, because for the foreseeable future, the one thing you know is, there's no money.

And as far as money goes — forget about it.

This year, IT leadership isn't about achieving great things by marshaling all the resources at your disposal. It's about getting the job done, even without the resources you need.

But how do you keep a sense of powerlessness or paralysis from creeping in, when there's no budget to do things that need doing? And how do you keep morale up and keep moving ahead — all on the cheap?

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But, of course, you knew that already.

Couldn't we just keep throwing more
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Five tips for heading off abuse by consultants.

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JANUARY 13, 2003 • VOL. 37 • NO. 2 • $5/COPY

Energy Market Revamp Pushes $79M IT Effort

Wholesale electricity firm tries to get jump on standardizing data

BY THOMAS HOFFMAN
HOLYOKE, MASS.

Federal efforts to create a standardized, nationwide wholesale electricity market have prompted ISO New England Inc. to jump ahead of the regulatory curve and invest $79 million in a system redesign that's scheduled to go live March 1.

ISO New England, a not-for-profit corporation that over-

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TECHNOLOGY DETAILS

ISO New England's System Architecture

The new energy market system includes hardware and software for design, testing and production purposes.

- **The production system** is powered by 400-plus servers, with 8 HP AlphaServer GS160 models running Tru64 Unix.
- **The system includes** Oracle databases and will run a set of mostly Java-based back-end applications.
- **Object broker technology** will be used to route transactions to different servers for fail-over purposes.
- **Linux servers,** most based on Red Hat's software, will run settlement and security applications and an external Web site.

'Trustworthy' Plan Plods Uphill

Microsoft continues struggle to balance security, functionality

BY CAROL SLIWA

Wednesday will mark the one-year anniversary of the day that Bill Gates decreed, via a companywide memo, that "Trustworthy Computing" would be the highest priority for all the work Microsoft Corp. employees do.

Plenty of hurdles still lie ahead for Microsoft as it tries to strike the proper balance between ensuring the security of its software and pushing out the sort of innovative, increasingly scalable and more complex products it needs to keep its business thriving.

"There is always a trade-off between new functionality and security exposures, and a perfect example of that is BSD," said Andre Mendes, chief technology integration officer at the Public Broadcasting Service, referring to

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HP Sets the Stage for Alpha's Last Hurrah

Company will introduce new line of high-end servers along with plan to migrate to Itanium

BY JAIKUMAR VIJAYAN

Hewlett-Packard Co. is gearing up for the Jan. 21 launch of a long-awaited line of AlphaServers that promises to deliver substantial price/performance gains over existing technology.

But HP's previously announced plans to eventually standardize all of its servers on Intel Itanium processors may temper some of the enthusiasm the announcement would otherwise have generated, analysts said.

HP gained the Alpha technology through its purchase of Compaq Computer Corp. last year. AlphaServers run the OpenVMS and Tru64 Unix operating systems and were scheduled to be phased out of production even before HP's merger with Compaq. The company's AlphaServer business is deep in the red and is expected to lose about $200 million this fiscal year alone.

HP's Marvel family of AlphaServers is based on the company's recently released EV7 processors, with models ranging from a two-CPU departmental server to a 64-processor enterprise server. HP last week confirmed the planned Marvel announcement but declined to provide details on the systems or migration strategy in advance. However, much of that information has been freely available to the Alpha faithful, most recently from HP, and from Compaq before that.

Apart from the faster EV7 processors, the new Marvel departmental and enterprise servers will feature a technology called switchless mesh ar-

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Software bugs cost U.S. companies nearly $60 billion per year, according to the National Institute of Standards and Technology. But they don't have to. Find and fix 1% of your software bugs, and 90% of your system problems go away, experts claim. Learn how smart CIOs are creating comprehensive strategies to test for and fix bugs in both off-the-shelf software and applications created in-house. **PAGE 39**

BITINGBACK

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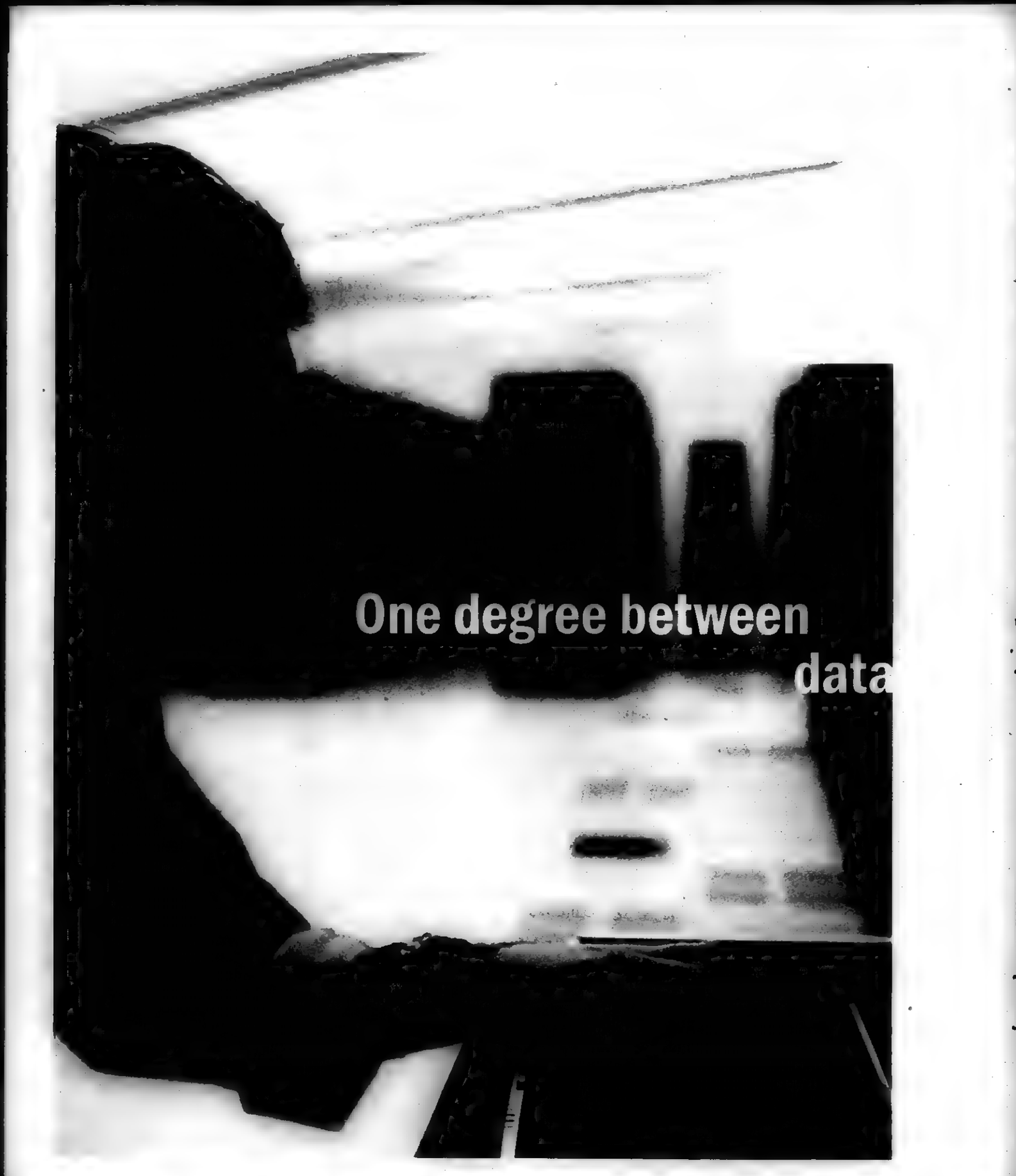
BITING BACK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data

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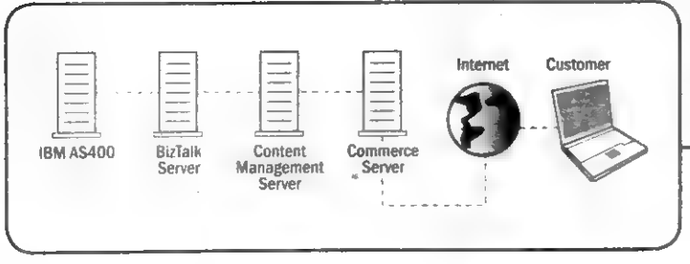

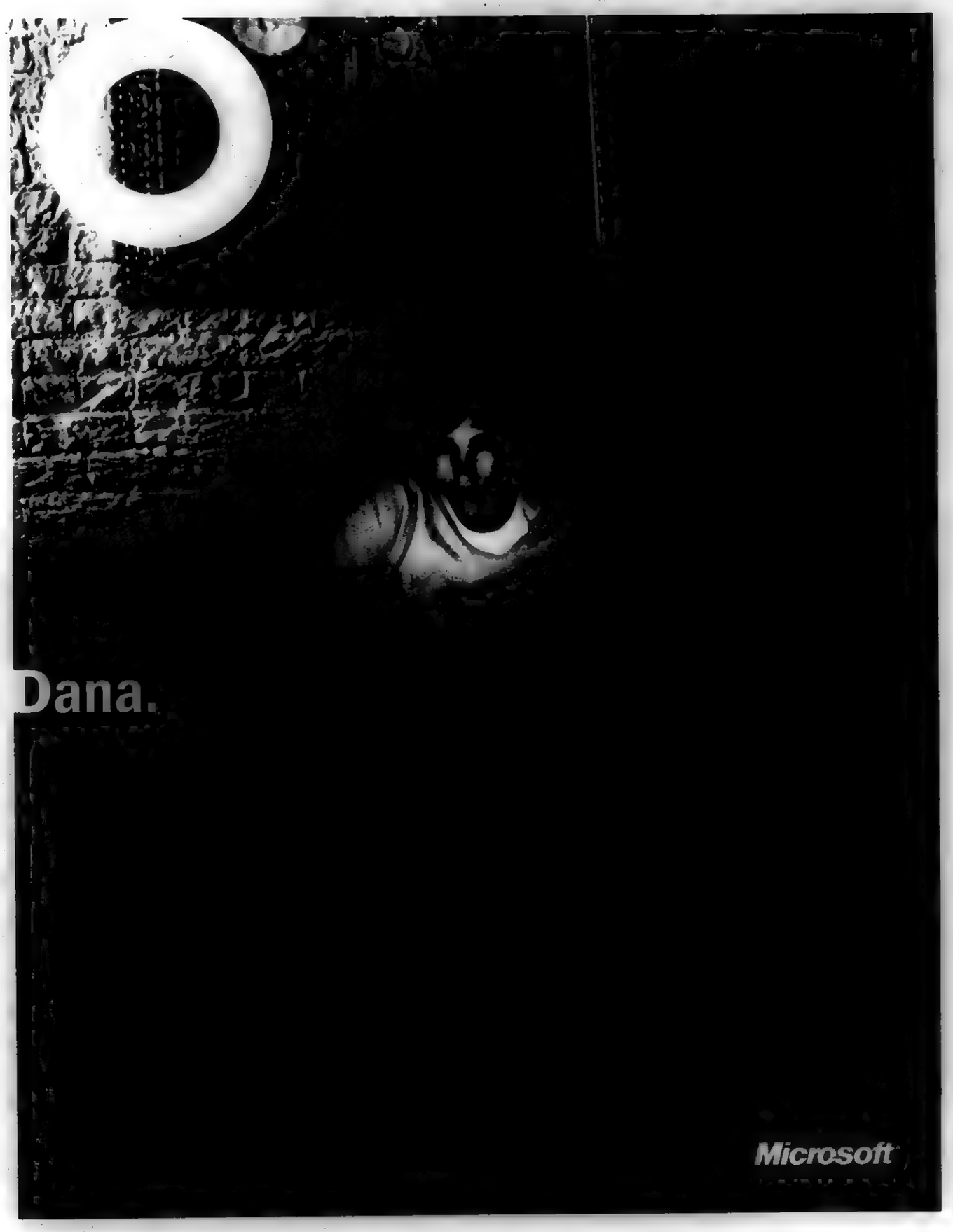
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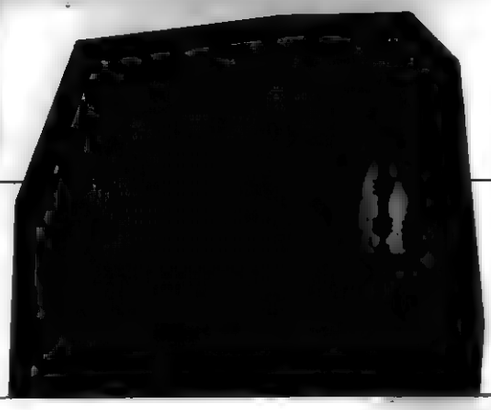

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Fix Your Weakest Link

One of your company's greatest security risks may be sitting next to you. Try these seven suggestions to educate employees on protecting your organization against attack. ● QuickLink 35409

Linux Persuasion

How can you talk your CIO into trying Linux? Open Source Development Labs director Timothy D. "Wookie" Witham offers some tips. ● QuickLink 35405

Migrating Java Apps to .Net

KNOWLEDGE CENTER: Here's what you need to know about converting Java or Visual J++ applications to J# or C#. ● QuickLink 35547

Realistic Disaster Recovery

Paul Castellano of Allegheny Energy Inc. offers advice on gaining senior management buy-in on your next disaster recovery project. ● QuickLink 35254

More Mac

With Apple seeking a bigger presence in the enterprise, *Computerworld* is beefing up its Macintosh section and has launched a new biweekly newsletter to keep you up to date on Apple activities. ● QuickLink 32020

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AT DEADLINE

Judge Won't End Microsoft Suits

A federal court judge in Baltimore denied motions by Microsoft Corp. seeking to dismiss private antitrust lawsuits filed by Mountain View, Calif.-based Be Inc. and Santa Rosa, Calif.-based Burst.com Inc. Late Friday, Judge Frederick Motz was due to hear arguments on Microsoft's request to dismiss 13 of 16 claims made by Sun Microsystems Inc. in another antitrust suit.

Amdocs Finalizes IT Deal With SBC

Amdocs Ltd., a Chesterfield, Mo.-based software vendor, said it has finalized a seven-year IT outsourcing deal valued at "hundreds of millions of dollars" with SBC Communications Inc. in San Antonio. Amdocs will upgrade the systems used by SBC's telephone directory unit and then manage them. An unspecified number of IT workers will be shifted from SBC to Amdocs.

Oracle Makes Cuts In Sales Force

Oracle Corp. said it has nearly finished a planned reorganization of its North American sales force that includes layoffs of about 200 workers in the U.S. and Canada. The software vendor last month said the cuts were on the way in connection with a move to split its sales force into separate units for its database and applications.

Short Takes

MICROSOFT said a faulty router upgrade by AT&T CORP. last Thursday temporarily cut off access to several of the software vendor's Web sites and messaging services for about 40% of Internet users. . . . ART TECHNOLOGY GROUP INC., a vendor of online marketing and sales software in Cambridge, Mass., said it laid off about 115 employees in a move that cut its workforce by 20%.

Deployments Raise Profile of Blade PCs

PC heavyweights keep an eye on new technology

BY LUCAS MEARIAN

CLIENT SYSTEMS

SEVERAL COMPANIES that have been kicking the tires on so-called blade PCs are starting to deploy the rack-mounted desktop technology in their data centers, looking for benefits such as increased security and ease of management.

For now, blade PCs are available only from start-up vendors like ClearCube Technology Inc. in Austin, Texas. But the devices, which put a desktop spin on the more prevalent blade server concept, are also starting to attract the attention of some leading PC vendors.

For example, a spokeswoman for Hewlett-Packard Co. last week said the company isn't ready to disclose any plans to offer blade PC technology. But HP may be willing to address the topic in a month or two, she added.

Don McCall, a product marketing manager at Dell Computer Corp., said the company is monitoring ClearCube's progress closely. For now, Dell doesn't see enough demand to offer blade client technology, McCall said. "We do want to watch it, however," he added.

ClearCube, which introduced its first products in 2000, shrinks PCs to blade-size devices that are installed in racks in data centers. End users connect to the blades through videotape-size control units that sit on desktops and include connections for monitors, keyboards and other peripheral devices.

BP Energy Co., a Houston-based gas, oil and energy trading firm, in November finished a rollout of 100 ClearCube blade clients at a new energy trading floor in Calgary, Alberta.

It cost BP Energy about $250,000 for the blade clients, including installation and software. But the project brought an immediate return on investment by doing away with the cost of maintaining individual desktop PCs and eliminating the need to buy trading-floor desks built to hold multiple systems, said Greg Miller, manager of infrastructure at the company.

"From an operational point of view, we've shrunk the envelope of potential problems," Miller said. PC maintenance work can now be done "in a bulk format where we can deliver it economically," he added, noting that technicians simply pull problematic blade devices out of the racks for service.

The Calgary trading floor is a prototype site for the rest of the company, Miller noted.

Avivah Litan, an analyst at Gartner Inc. in Stamford, Conn., said that although blade client technology is cutting-edge, the push to consolidate desktop PCs into data centers is several years old. Putting PCs in a data center can help companies improve IT security by reducing unauthorized software downloads by end users, Litan said.

But Litan and other analysts said blade PCs could face resistance from end users who don't want to lose control over their desktop systems.

That wasn't a problem for Guy Fuller, IT manager at Chicago-based Northwestern Memorial Physicians Group, which deployed 200 ClearCube devices at a clinic two months ago. Fuller said the doctors embraced the blade client architecture because they felt PCs made too much noise in examination rooms.

The upfront cost of ClearCube's technology was about 30% higher than the price of traditional desktop PCs because Northwestern had to buy racks and vent its computer room to reduce the heat generated by the blade devices, Fuller said. But he added that he likes the technology so much that he plans to deploy it at Northwestern's 11 other clinics by year's end.

Blade Clients

Devices like ClearCube's can:

- LET IT managers consolidate hardware in data centers, reducing office space requirements and simplifying PC maintenance.
- IMPROVE security by limiting the potential for users to download virus-laden software.

But the blades can also:

- FACE resistance from end users who don't want to give up their desktop PCs.
- COST MORE upfront than desktop PCs because of the need to buy racks and prepare data centers for the devices.

IBM Plans Software to Link Data From Multiple Sources

BY MARC L. SONGINI

IBM late this year plans to deliver DB2-based integration software that will let IT managers link data throughout their systems without needing to collapse the information into a single data warehouse.

While sketchy on the details, IBM last week said the integration technology will also give end users real-time access to data beyond DB2 and rival databases. Using native XML capabilities in DB2, users will be able to open up data from conventional sources, such as applications, as well as information stored in documents or e-mail messages, said Nelson Mattos, director of information integration at IBM.

He added that the new software will further IBM's federated approach to integration, which is designed to provide access to data without requiring users to move information from its source and reformat it to be DB2-friendly.

The company has already used the federated approach in products such as DiscoveryLink, which lets users in the life sciences industry access multiple databases, applications and search engines with a single query.

IBM is the only large vendor that's pushing ahead extensively with this kind of virtual-database concept, said Philip Russom, an analyst at Giga Information Group Inc. One of the enablers for its approach is the fact that DB2 has the ability to index data stored in other repositories, he noted.

IBM has yet to disclose the middleware platforms that will be supported by the new data integration software. But it likely will use its own WebSphere tools, Russom said.

The concept of federated databases has been around since the 1990s, but companies are only now starting to view it as desirable, he said. For one thing, Russom explained, extracting large amounts of heterogeneous data and formatting it for use in a database requires extensive network resources.

In theory, IBM's upcoming technology will let users avoid the costs generated by such resource usage. Mattos said the new software will be released for beta testing by June and should ship by year's end.

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Report Questions ROI of i2's Software

Vendor acknowledges complexity but says most users get returns

BY MARC L. SONGINI

After spending years of effort and millions of dollars, some marquee users of i2 Technologies Inc.'s software say they're not getting their money's worth on their investments, according to a report due to be released this week.

Nucleus Research Inc. said 12 of the 22 companies it surveyed indicated that they had not yet achieved a positive return on investment after using i2's supply chain management applications for an average of 2.2 years. All of the users were touted by i2 on its Web site, noted Nucleus, a Wellesley, Mass.-based research firm.

Dallas-based i2 acknowledged that its software is complex but defended its ROI record with users. And four i2 customers who were interviewed by *Computerworld* about the findings said they're getting the desired results.

It's 'Rocket Science'

"I'm a little bit of the opinion that some people who fail at it underestimate the difficulty of what they are getting into," said John Mallon, director of supply chain management at On Semiconductor Corp. in Phoenix. "Contrary to popular opinion, it's rocket science."

On Semiconductor has used i2's software for three years. Mallon said implementing advanced planning applications such as the ones sold by i2 can be even more complicated than installing an enterprise resource planning system.

But he added that the chip maker has saved $20 million through improvements in productivity and inventory management that were made possible by i2's products.

On the other hand, a user at a Fortune 500 company who spoke on condition of anonymity said the Nucleus report reflects his experience with i2's technology. It took two attempts to successfully install i2's transportation management software, the user said. His company wrote off millions of dollars after the first try and has yet to fully recoup that money, he added.

"It was the most difficult rollout we've ever done," said the user. He added that i2's sales force "had more vision than the ability to deliver on the vision."

The major problem facing i2 users, according to Nucleus, is the length of time required to deploy the applications. Nearly 70% of the rollouts by the surveyed users took longer than planned, said Rebecca Wettemann, an analyst at Nucleus, which issued a similar report about users of Siebel Systems Inc.'s customer relationship management software in September [QuickLink 33196].

MONEY MATTERS

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QuickLink k2340

Two other analysts said the Nucleus survey is consistent with what they have heard anecdotally from i2 users.

"I2's solutions are complex, as are the problems that they endeavor to solve," said Karen Peterson, an analyst at Gartner Inc. And until a year ago, the company's modules differed from one another too much to be configured and deployed in a standard way, she said.

"You don't typically take the software and drop it in place and have it run," said Janet Eden-Harris, i2's chief marketing officer. She said Nucleus' findings are difficult to refute because there are many ways to calculate ROI or even the average cost of an implementation. But i2 does provide ROI metrics to customers as part of its rollout methodology, and most users get a return, Eden-Harris said.

She also noted that i2 has changed its sales methods from the "zealous years" when it was growing rapidly and that it now focuses more on ensuring long-term customer satisfaction. I2, which has lost money in four straight quarters, is also designing its upcoming i2 Six set of applications to be easier to install and use than existing versions, she said.

Project Statistics

The survey of 22 of i2's reference customers reveals the following:

- 12 of the users said they had not gotten an ROI after an average of 2.2 years with the supply chain software.
- The average implementation cost was $7.2 million, with hardware accounting for more than $400,000.
- The software required 74 hours of training for end users, on average.
- 14 of the users saw reductions in inventory costs, but only four said the savings offset their installation costs.

Vendors Push SSL-Based Remote Access Devices

BY MATT HAMBLEN

Remote access appliances that support the Secure Sockets Layer (SSL) protocol are gaining the attention of various networking vendors, with the latest product announcement expected to be made today by Seattle-based Aventail Corp.

Aventail will announce the EX-1500, a clientless, rack-mountable SSL virtual private network (VPN) device designed to provide remote end users with secure Web browser access to data in Windows files and client/server applications.

The EX-1500 isn't alone in the market. In November, Neoteris Inc. in Mountain View, Calif., added three appliances to its product line that also provide secure remote access via an SSL VPN. And Check Point Software Technologies Ltd. in Redwood City, Calif., announced software support for SSL VPN hardware products in July.

Other vendors, such as Netilla Networks Inc. in Somerset, N.J., and NetSilica Inc. in Piscataway, N.J., have also entered the market for SSL VPN technology, said John Pescatore, an analyst at Gartner Inc. in Stamford, Conn. The SSL-based products are easier to use and less expensive than VPN tools that support the IPsec protocol, Pescatore said.

Simplified Installation

IPsec requires the loading of client software that can conflict with applications and network protocols, but there's no such client software required for SSL, according to Pescatore and VPN users. That simplifies the installation process and can reduce the number of connection problems, thereby lowering IT support costs, they said.

Ron Sha, CIO at Borland Software Corp. in Scotts Valley, Calif., noted that the software vendor can connect new employees around the world to its corporate applications in "less than a minute" using Neoteris' technology. The workers need only a user name and password, Sha said.

Dade Behring Inc. in Deerfield, Ill., has been beta-testing the EX-1500 for a month and plans to roll out the Aventail device for 900 field sales and service workers in the U.S., said Craig Ross, director of global communication services at the maker of laboratory diagnostic products.

PRODUCT DETAILS

Aventail's EX-1500

- **Pricing starts at $20,000** for the device, which features a rack-mounted design and supports clientless remote access.
- **The appliance uses SSL to connect** Web browsers to Microsoft Common Internet File System files, Windows Terminal Services and client/server software.

The technology will give users remote access to Web-enabled applications, plus messaging and collaboration tools, through their browsers, Ross said. Dade Behring may eventually use the EX-1500 to support all of its 6,000 employees worldwide, he added.

Because Dade Behring has remote workers who access data via Digital Subscriber Line and satellite connections, the company often experiences IPsec connection delays, Ross said. The EX-1500 offers "a nice alternative" to solve that problem, he added.

For the past three years, Aventail has provided managed SSL VPN services to Fast-Tax, a Dallas-based vendor of tax preparation software that plans to begin beta-testing the EX-1500. Because no client software is required with the appliance, the cost of supporting connections to 500 financial services firms that use Fast-Tax's software should be reduced, said Jim Sergison, director of product marketing at the subsidiary of The Thomson Corp.

BRIEFS

Southwest Gives Net Nod to Sprint

Sprint Corp. said it has won a three-year deal to provide voice and high-speed data networking services to Southwest Airlines Co. A Sprint spokesman said Dallas-based Southwest chose Sprint to deliver services similar to those that had been provided by WorldCom Inc. He described the contract as a multimillion-dollar deal.

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IBM also announced that its storage division plans to resell Cisco Systems Inc.'s new MDS 9000 line of switches for storage-area networks. IBM said it plans to begin offering the switches along with its disk and tape products by the end of this quarter. The deal is the first signed by Cisco for the devices, but EMC Corp. said it's currently testing the switches.

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MARK HALL ▪ ON THE MARK

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BY MATT HAMBLEN

BMC Software Inc. last week completed the rollout of its Patrol Version 7 enterprise management software, and clothing retailer The Men's Wearhouse Inc. said it's ready to put BMC's new network management consoles into production after a three-month test.

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"It's the difference between fighting fires and being proactive," she said. "Before Patrol came along, we'd react to problems, sometimes something as simple as running out of disk space." Men's Wearhouse has used earlier versions of Patrol for the past three years. With Patrol 7, the retailer expects to need fewer people to run its network.

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The Web and Windows management consoles each sell for $3,500, said BMC, which also released software to manage the deployment of its products for Windows and Unix systems.

Rich Ptak, an analyst at Ptak & Associates in Amherst, N.H., said BMC's new consoles don't leapfrog the ones offered by rivals. But he called BMC's pricing competitive.

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Tax Break Could Ease IT Purchasing Pain

High-tech groups hope stimulus plan will include boost to depreciation bonus

BY PATRICK THIBODEAU
WASHINGTON

CORPORATE USERS may get a tax incentive to avoid delaying hardware and software purchases if congressional backers prevail in their efforts to increase the depreciation bonus.

The bonus could influence the timing of business IT purchases, depending on when the move — if approved — takes effect. The current bonus, which was set at 30% last year by Congress, is on top of normal depreciation and has helped lower companies' year-end tax bills by increasing their write-offs.

High-tech industry groups, which say 30% isn't enough to stimulate spending, were disappointed by President Bush's rejection of an expanded depreciation bonus in the economic stimulus plan he announced last week. But in another stimulus plan also released last week, House Democrats proposed a 50% bonus for this year, a rate that the Information Technology Association of America in Arlington, Va., wanted in the president's proposal. There are signs of Republican backing for that proposal as well.

Case-by-Case Basis

Whether a bonus will help a particular company depends on its business needs, say analysts and IT managers.

For instance, retailer Lowe's Cos.' ongoing expansion, which included the opening of 120 superstores in 2002 with plans for 130 more this year, is driving technology purchases, said Steve Stone, vice president of IT strategy at the Wilkesboro, N.C., company.

But a depreciation increase could affect the timing of a purchase, if the planned date is close to when the tax break goes into effect, said Stone.

That's the case as well for Richard Jones, managing director and CIO at Countrywide Home Loans Inc. in Calabasas, Calif., who said he doubts that the depreciation bonus would affect purchasing in any way other than timing. Business expansion is the overriding factor in IT spending, he said.

While the depreciation bonus applies to any equipment purchase, the IT equipment sector is especially in need of a boost. Hardware, software and services spending declined 5.2% last year after a 5.4% drop in 2001, according to IDC.

And IT spending forecasts for 2003 are mixed. IDC expects a 4.4% increase in U.S. IT spending this year to $383.1 billion. In reports last week, Aberdeen Group Inc. in Boston said it expects U.S. IT spending to increase 3.6%, but The Goldman Sachs Group Inc. in New York predicted a 1% drop, based on a survey of 100 IT managers at Fortune 1,000 companies.

Analysts and trade groups have yet to determine whether the 30% depreciation bonus has helped IT spending.

"It's too soon for any of those forecasting numbers to show that," said Caroline Graves Hurley, a policy expert at AEA, a high-tech trade association in Washington. "But I do think there has been a sluggish response."

IDC economist Kevin White said the forecast increase in IT spending has more to do with economic improvements and corporate profits than with a tax break. "The biggest driver is the continuing improvement of the economy," he said.

Companies may not have to hold back on purchases. The 30% bonus was retroactive to September 2001, and Peter Rugg, a corporate finance expert at Tatum CFO Partners LLP in New York, said that historically, lawmakers have made these kinds of incentives retroactive.

How It Works

Congress last year approved a 30% depreciation bonus that remains in effect until Sept. 11, 2004. There is a push to increase it to 50% or more.

EXAMPLE: Your firm just bought a $100,000 system.

- Normal depreciation is 20% over five years. The 30% bonus increases that depreciation to 50% in the first year.
- At a 40% tax rate, the tax savings on the 20% depreciation is $8,000. At 50%, it's $20,000.

State CIOs Face Budget Crises

Layoffs, IT project cuts, pressure on vendors expected

BY PATRICK THIBODEAU
WASHINGTON

The worst fiscal crisis to hit state governments since World War II is forcing state IT managers to lay off employees, squeeze vendors for better deals and limit IT projects to those that deliver an immediate return on investment. Nothing less stands a chance.

"It's ugly. It's really, really ugly is the best way I can describe it," said Connecticut CIO Rock Regan, referring to the state's budget shortfall of more than $600 million. He has laid off 115 IT workers — 11% of his staff — and it could get worse.

Collectively, the states may be facing a budget gap this year of as much as $20 billion, and potentially many times that amount for the next fiscal year, according to some estimates. The National Governors Association says there hasn't been a budget crisis like it in 50 years.

Legislative sessions are starting this month, governors are releasing budgets, and lawmakers are getting ready to cut. Meanwhile, state CIOs are doing what they can to prepare for cutbacks by pushing consolidation and standardization of systems, examining the use of open-source alternatives and exploring new ways to finance projects.

Texas CIO Carolyn Purcell said that if vendors "are sure that their product will save money," then they should be prepared to accept payment out of the amount of money saved.

The position of state CIO is relatively new in most states, and turnover is high. A major problem they face is fighting bureaucratic resistance to systems consolidation. But that's changing, some said.

"There's a reason why Southwest only flies 737s and still makes money," said Terry Savage, Nevada's CIO, referring to Southwest Airlines Co.'s reliance on a single Boeing model. Agencies are now less eager to defend the support of multiple systems that are incompatible. The economic downturn "is changing the discussion," Savage said.

In New York, CIO James Dillon intends to standardize the state's e-mail system. State workers now use three major systems, as well as a host of mainframe proprietary systems. "We will decide on one," said Dillon, who has about 150,000 end users to deal with.

State agencies "are more accepting of change, provided we can show that a business case will result in cost savings," said Dillon.

But the budget crisis also means that projects with a return on investment beyond one or two years, such as many e-government or Web services projects, are unlikely to get funding.

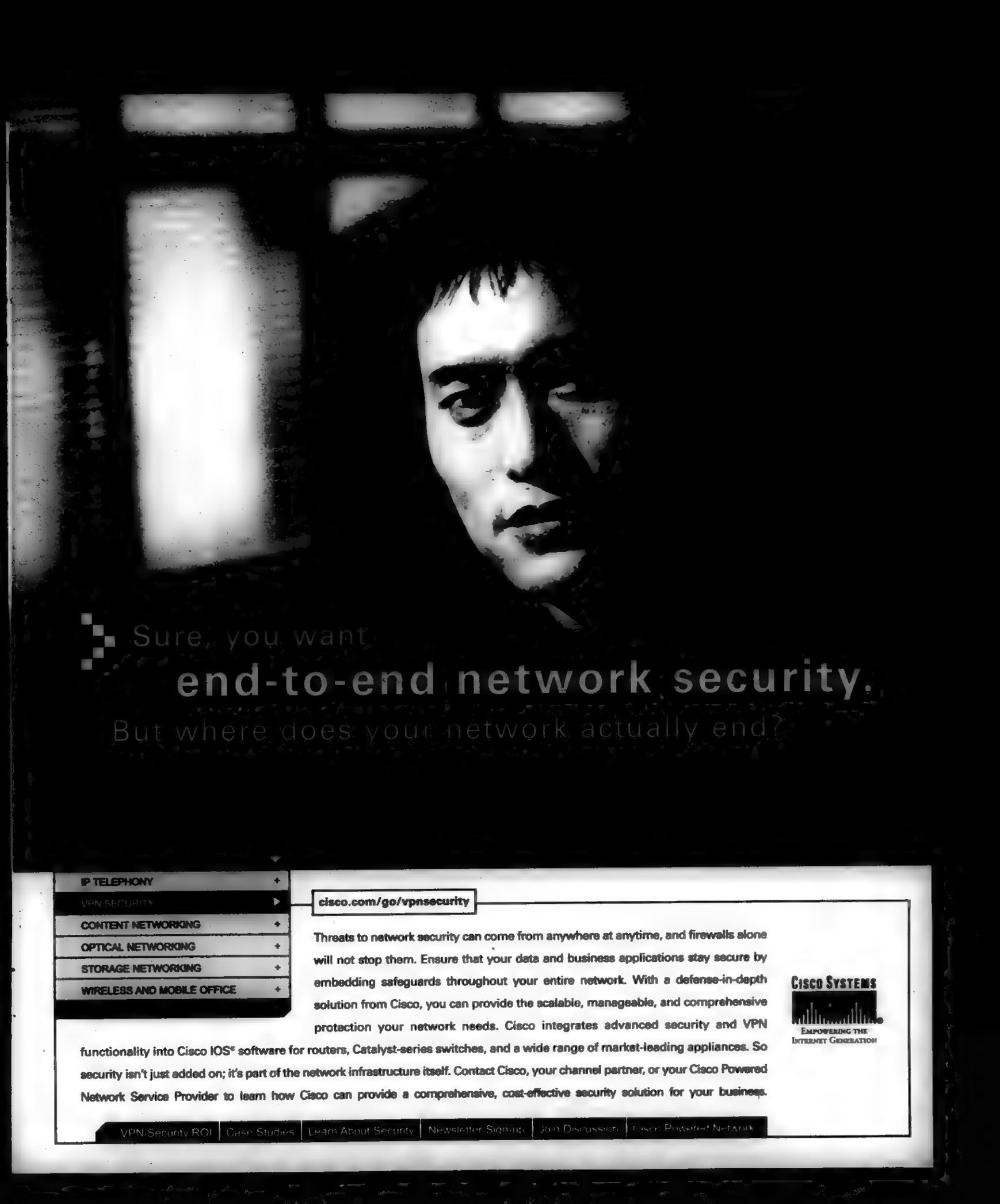
"We can't get to the point where anybody wants to talk about spending money to save money down the road," said Regan.

But efforts by state CIOs to consolidate and standardize, for instance, could be hurt if funding for centralized IT agencies is cut deeply and power shifts back to state agencies, said former Georgia CIO Larry Singer. CIOs could find themselves "taking a step back," said Singer, who moved last month to the not-for-profit public-sector consulting firm Public Interest Breakthroughs Inc. in Vienna, Va.

Although the budget problems are creating some opportunities to gain efficiency through consolidation and standardization, there's no getting around the pain.

North Dakota CIO Curtis Wolfe has been gradually letting his consultants go and doing what he can to save his IT workers from layoffs.

State agencies have been told that budgets will be 95% of last year's, and that's just for starters. "We've just got to reduce our cost of operation where we can," said Wolfe.


Sure, you want
end-to-end network security.
But where does your network actually end?
IP TELEPHONY
VPN SECURITY
CONTENT NETWORKING
OPTICAL NETWORKING
STORAGE NETWORKING
WIRELESS AND MOBILE OFFICE
cisco.com/go/vpnsecurity
Threats to network security can come from anywhere at anytime, and firewalls alone will not stop them. Ensure that your data and business applications stay secure by embedding safeguards throughout your entire network. With a defense-in-depth solution from Cisco, you can provide the scalable, manageable, and comprehensive protection your network needs. Cisco integrates advanced security and VPN functionality into Cisco IOS® software for routers, Catalyst-series switches, and a wide range of market-leading appliances. So security isn't just added on; it's part of the network infrastructure itself. Contact Cisco, your channel partner, or your Cisco Powered Network Service Provider to learn how Cisco can provide a comprehensive, cost-effective security solution for your business.
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Singlestep Readies Network Management Integration Tool

Start-up seeks to broaden capabilities of 'manager of managers' technology

BY MATT HAMBLEN

Singlestep Technologies Corp. this week plans to ship a tool for integrating different network management systems, a move analysts described as another effort to find the Holy Grail of network control products known as a "manager of managers" (MOM).

Two Seattle-based companies, Alaska Air Group Inc. and national broadband services provider Speakeasy Inc., last week said they're evaluating Singlestep's Unity software to see if it can live up to the promise of combining information pumped out by various network monitoring and management systems.

"Getting to network information as quickly as possible is important, so if you have a tool to look at all the network management sources, that would be a terrific benefit," said Jeffrey Hervin, network operations manager at Alaska Air Group's Alaska Airlines unit. He declined to discuss the evaluation further.

Danny Pickford, director of engineering at Speakeasy, said Unity looks to be "useful, because it can query data from disparate network sources and put it together, as well as filter out unimportant things."

The initial release from Seattle-based Singlestep will integrate data from up to seven network management sources, including Hewlett-Packard Co.'s OpenView and Cisco Systems Inc.'s Works. But Unity eventually will be able to perform logical analyses of network problems and then send reports to network architects, Pickford said. "I'm really excited about that potential," he added.

Speakeasy operates 11 points of presence in North America for Digital Subscriber Line services and has a network with 400 switches, routers and other nodes in Seattle. Pickford said he hopes to use Unity to improve load balancing across Speakeasy's network.

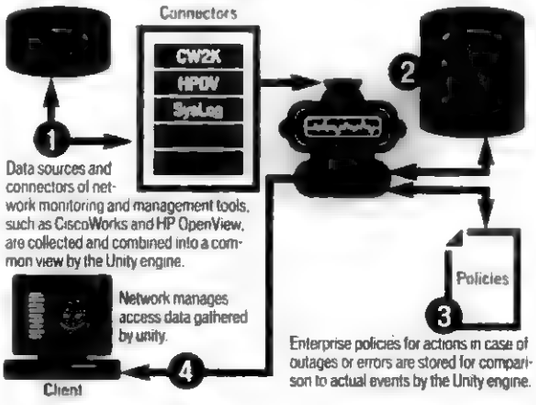
Michael Disabato, an analyst at The Burton Group in Salt Lake City, said Unity fits under the heading of MOM technology, which first arose more than 10 years ago. Other vendors, such as System Management Arts Inc. in White Plains, N.Y., and Aprisma Management Technologies Inc. in Portsmouth, N.H., also provide low-cost tools with MOM-like capabilities. But most of the products can read data only from devices based on the Simple Network Management Protocol (SNMP), Disabato said.

In contrast, Unity can read non-SNMP data and even Web page reports that are pushed to the software. That could include information from circuits that are monitoring burglar and fire alarms, power supplies and temperature controls, according to Disabato.

In addition, Unity is priced far below high-end MOM products from IBM's Tivoli unit and Computer Associates International Inc., which can cost a large company millions to implement, Disabato said.

Unity prices start at $75,000, but a typical installation that includes managed services provided by Singlestep and can monitor five to seven network management systems will cost about $250,000, said Singlestep CEO Chris Noble.

Singlestep's Unity Server



Feds Drop Wall Street IT Disaster Recovery Proposal

Implementation labeled unfeasible

BY LUCAS MEARIAN

A U.S. senator this month said federal regulators have abandoned a proposal that, if made law, could have required Wall Street firms to move their disaster recovery data centers hundreds of miles away from their primary IT facilities.

That idea was included in an interagency white paper, released in August, on strengthening the resilience of the U.S. financial system. However, financial services firms criticized it as unnecessary and technically unfeasible. For example, Fibre Channel, the most common network protocol used between data centers, has a distance limit of about 100 kilometers, or 62 miles.

Sen. Charles Schumer (D-N.Y.) based his analysis of the regulators' plans on a Dec. 23 letter that was sent to him by the heads of the Federal Reserve System, the Office of the Comptroller of the Currency and the Securities and Exchange Commission.

Schumer is a member of the Senate Banking Committee, which has oversight of federal financial agencies. He said the letter stated, in part, that the draft white paper had been inaccurately described in public accounts and didn't set minimum distance requirements or recommend "as a sound practice that firms move out of center-city locations."

However, the white paper did suggest the use of out-of-region IT backup facilities. It also posed a series of IT-related questions, including one that asked whether a minimum distance between primary and backup data centers should be required "for core clearing and settlement organizations and firms that play significant roles in critical markets." The paper listed a distance of 200 to 300 miles as an example.

In one of dozens of responses to the white paper, PNC Financial Services Group Inc. in New York said in an October letter to the Federal Reserve's board of governors that disaster recovery requirements must be technologically attainable.

"Under most disaster scenarios, technology backup recovery sites do not need to be more than a few miles apart to adequately recover the primary site," PNC said.

The Banking Information Technology Secretariat (BITS), a Washington-based organization made up of the 100 largest financial services firms in the U.S., also filed a comment letter in October.

"The regulators are trying to do the right thing, but let's do it in a way where we don't impose excessively high costs or implement something that is technologically not possible to do," John Carlson, senior director of BITS, said this month.

Many New York-based financial services firms already have disaster recovery sites in New Jersey or in boroughs of the city outside of Manhattan. But Larry Tabb, an analyst at TowerGroup in Needham, Mass., said the government's obvious concern is that in the event of a nuclear attack on New York, backup facilities would likely be destroyed.

Data Center Protection Practices

The federal white paper on strengthening the disaster recovery practices of the U.S. financial system asked the following IT-related questions:

- SHOULD some minimum distance between primary and backup data centers be specified?
- SHOULD backup sites not be dependent on the same labor pools or infrastructure components as main data centers?
- ARE there alternative arrangements that would provide sufficient resilience for facilities within a single region?
- SHOULD core transaction clearing and settlement firms consider adopting common communication protocols?

Singlestep Readies Network Management Integration Tool

Start-up seeks to broaden capabilities of 'manager of managers' technology

BY MATT HAMBLEN

Singlestep Technologies Corp. this week plans to ship a tool for integrating different network management systems, a move analysts described as another effort to find the Holy Grail of network control products known as a "manager of managers" (MOM).

Two Seattle-based companies, Alaska Air Group Inc. and national broadband services provider Speakeasy Inc., last week said they're evaluating Singlestep's Unity software to see if it can live up to the promise of combining information pumped out by various network monitoring and management systems.

"Getting to network information as quickly as possible is important, so if you have a tool to look at all the network management sources, that would be a terrific benefit," said Jeffrey Hervin, network operations manager at Alaska Air Group's Alaska Airlines unit. He declined to discuss the evaluation further.

Danny Pickford, director of engineering at Speakeasy, said Unity looks to be "useful, because it can query data from disparate network sources and put it together, as well as filter out unimportant things."

The initial release from Seattle-based Singlestep will integrate data from up to seven network management sources, including Hewlett-Packard Co.'s OpenView and Cisco Systems Inc.'s Works. But Unity eventually will be able to perform logical analyses of network problems and then send reports to network architects, Pickford said. "I'm really excited about that potential," he added.

Speakeasy operates 11 points of presence in North America for Digital Subscriber Line services and has a network with 400 switches, routers and other nodes in Seattle. Pickford said he hopes to use Unity to improve load balancing across Speakeasy's network.

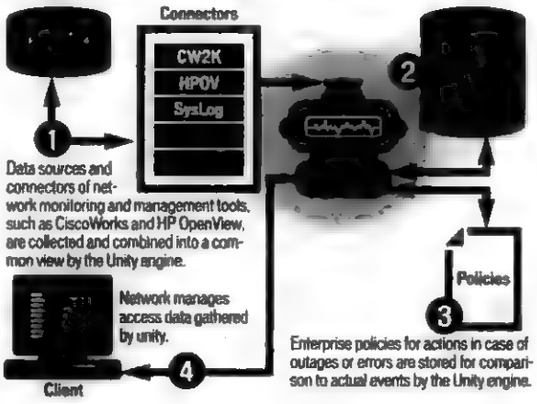
Michael Disabato, an analyst at The Burton Group in Salt Lake City, said Unity fits under the heading of MOM technology, which first arose more than 10 years ago. Other vendors, such as System Management Arts Inc. in White Plains, N.Y., and Aprisma Management Technologies Inc. in Portsmouth, N.H., also provide low-cost tools with MOM-like capabilities. But most of the products can read data only from devices based on the Simple Network Management Protocol (SNMP), Disabato said.

In contrast, Unity can read non-SNMP data and even Web page reports that are pushed to the software. That could include information from circuits that are monitoring burglar and fire alarms, power supplies and temperature controls, according to Disabato.

In addition, Unity is priced far below high-end MOM products from IBM's Tivoli unit and Computer Associates International Inc., which can cost a large company millions to implement, Disabato said.

Unity prices start at $75,000, but a typical installation that includes managed services provided by Singlestep and can monitor five to seven network management systems will cost about $250,000, said Singlestep CEO Chris Noble.

Singlestep's Unity Server



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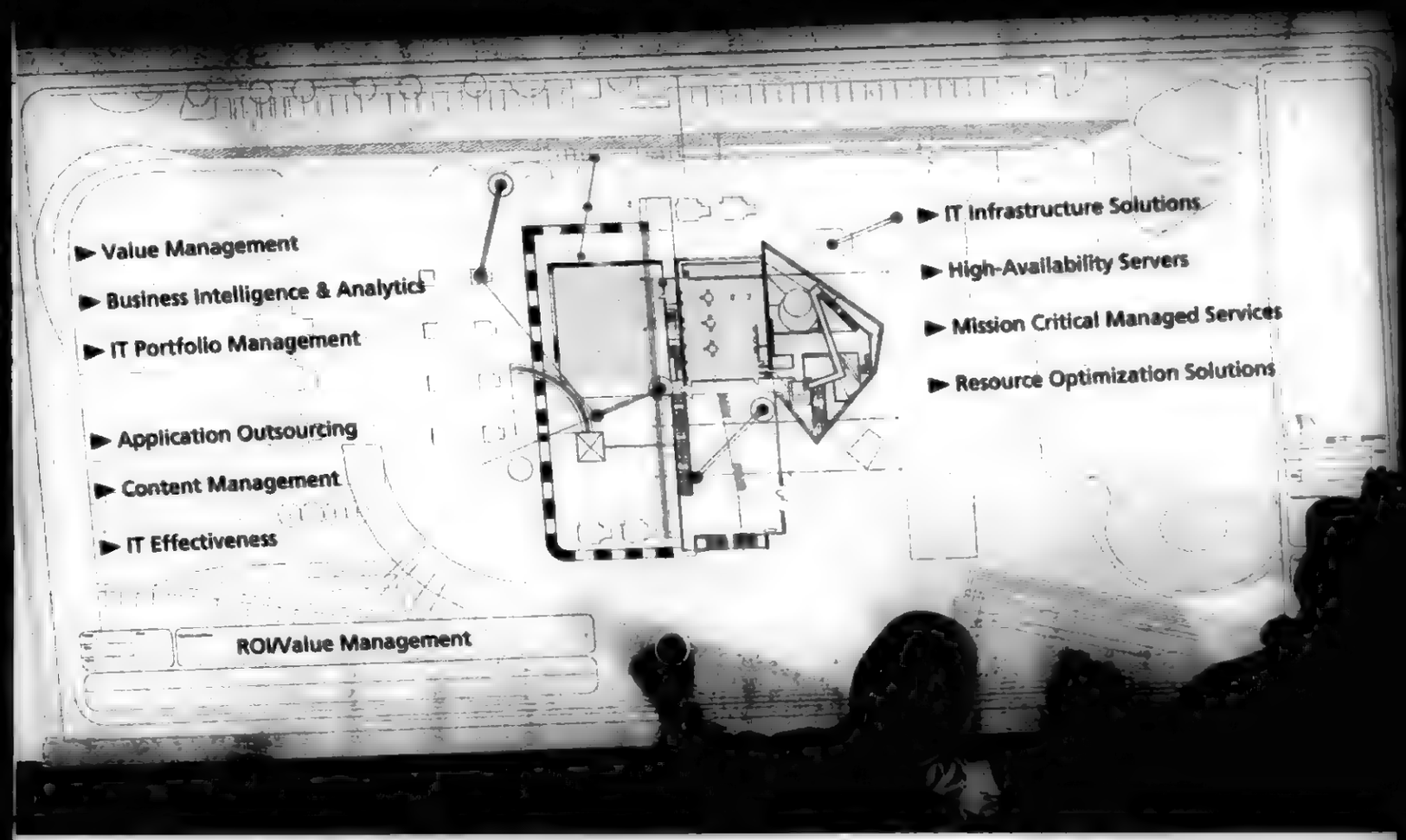

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BRIEFS

Storage Vendors See Stronger Q4

EMC Corp. said its fourth-quarter financial results should top expectations, with revenue totaling at least $1.47 billion. That's up from a projection of about $1.26 billion that EMC made during the quarter. However, EMC said it still expects to report a loss because of a $160 million restructuring charge. Storage Technology Corp. in Louisville, Colo., and McData Corp. in Broomfield, Colo., also raised their fourth-quarter guidance.

IBM to Outsource Production Work

IBM announced that San Jose-based Sanmina-SCI Corp. will take over manufacturing of "a significant portion" of its low-end and midrange xSeries servers and IntelliStation workstations in a deal valued at $3.6 billion over three years. IBM also said it's outsourcing a refurbishing center for leased IT equipment to Milpitas, Calif.-based Solectron Corp.

SAP Reorganizes, Cuts Sales Force

SAP AG said it laid off about 130 workers at its U.S. subsidiary in Newtown Square, Pa., as part of a sales force reorganization. SAP America Inc.'s sales personnel will now work on a regional basis instead of focusing on vertical industries, the company said. About one-third of the jobs that were cut will be redefined and filled again, SAP said.

Short Takes

AT&T CORP. said it plans to lay off 3,500 of its 72,000 workers, with most of the cuts coming at its business services unit. . . . IBM said it's transferring Al Zollar, general manager of its Lotus Software Group, to a new job heading the unit that develops its iSeries servers.

IBM Offers On-Demand Service for High-End Use

Option will enable companies needing supercomputer power to lower costs

BY JAIKUMAR VIJAYAN

IBM LAST WEEK launched a capacity-on-demand option under which companies with high-performance computing requirements will be able to rent supercomputing power on an as-needed basis.

The service will provide companies in sectors such as energy and financial services with quick access to the computing resources they need without the high fixed costs usually associated with supercomputing, said Dave Jursik, an IBM vice president.

Under the program, users will be able to rent capacity from either IBM Power architecture-based supercomputers or Intel Corp.-based high-performance Linux clusters. IBM will charge customers based on the capacity used and duration of use.

The approach makes particular sense for companies that want access to extensive computing resources for short periods of time, Jursik said.

"It will allow them to eliminate large fixed costs and have a variable-cost infrastructure instead," he said.

PGS Geophysical, an Oslo-based company that provides imaging services for large oil companies, expects to save about $1.5 million annually on equipment-related costs under this approach, said Christopher Usher, the company's president of data processing.

PGS usually leases or buys outright the supercomputing capacity it needs from IBM.

High Rent

To supply the processing power for supercomputing on demand:

IBM WILL BUILD a grid of Intel and IBM Power processors.

THE GRID WILL COMPRISE hundreds of 128-processor IBM eServer p655 systems, and a Linux cluster with IBM eServer x335 and x345 systems based on Intel Xeon processors.

But the company recently signed up for the on-demand option and is using rented supercomputer capacity for an advanced seismic imaging project in the Gulf of Mexico.

Under the arrangement, PGS sends disks containing seismic data to IBM. IBM loads and processes the data on its supercomputers, and users at remote PGS locations can access the data via the Internet or dedicated lines.

"Capacity on demand is something that we have been talking about for some time as an alternative way to get computing capacity," Usher said. "The savings come from not having to pay for your computers when you are not using them."

The new supercomputing capacity-on-demand option is an example of the kind of service users can expect to see IBM deliver under the On-Demand initiative recently outlined by CEO Samuel J. Palmisano, Jursik said [QuickLink 34091].

Initially, much of the interest in this kind of service will come from a narrow set of users with very periodic but well-defined needs for computing power, said Mike Kahn, an analyst at The Clipper Group Inc. in Wellesley, Mass.

Though such pay-as-you-go arrangements have been available on a sporadic basis for years, IBM's announcement last week marks the first time such an option is being offered on commercial RISC and Intel servers, Kahn said. ▶

SGI Offers Itanium 2-Based Linux Systems

Altix servers to complement Irix

BY TOM KRAZIT

Silicon Graphics Inc. last week announced systems that combine the Linux operating system with Intel Corp.'s Itanium 2 processor to create a nonproprietary server that can scale up to 64 processors.

The Altix 3300 and Altix 3700 run on a standard version of Linux that's compatible with Red Hat Inc.'s Linux Version 7.2. The Altix 3300 can be configured with a single node of four to 12 Itanium 2 processors, and the Altix 3700 can use 16 to 64 Itanium 2 processors in a node.

Each node contains a single Linux operating system image and up to 512GB of memory. The Altix 3000 machines will be ideal for clustering, because SGI's NUMAlink interconnect technology lets users connect nodes and share memory across processors, according to Jan Silverman, senior vice president of marketing at Mountain View, Calif.-based SGI.

SGI will support clusters of up to 512 processors this year and allow users to build clusters of more than 1,000 processors next year, said Andy Senselau, product manager for the Altix 3000 family.

The Itanium 2 processor offers Altix users the ability to run 64-bit applications at high levels, SGI said, pointing to several positive benchmarking results for the Altix system using tests from Standards Performance Evaluation Corp. in Warrenton, Va. But users of 32-bit applications won't be able to run those programs any faster than an ancient 356-MHz processor could, said Nathan Brookwood, a principal analyst at research company Insight 64 in Saratoga, Calif.

"Anything used on a day-to-day basis that requires significant computational ability will need 64-bit adaptations," he said. This means users have to recompile their older applications to realize the performance benefits of the Itanium 2.

The company's target market of researchers and creative professionals has been clamoring for a Linux operating environment that will let them break free of their dependence on proprietary platforms, Silverman said.

However, SGI also manufactures a line of proprietary systems, the Origin 3000 family, that comes with the company's Irix operating system. The new Altix machines let SGI tap into the rapidly growing Linux market while it continues to offer the advanced features of Irix to users who are willing to pay a premium, Silverman said.

"Irix has application capability that isn't present in Linux. People depend on the reliability and security features within Irix, and it's not easy to put those features into Linux," Silverman said.

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Continued from page 1

Energy Market

sees the six-state region's bulk power system and wholesale electricity market, this week plans to conduct its third external trial of the new system. The test, which is expected to be the final one, will involve an unspecified number of electricity generators and distributors and is aimed at gauging the technology's readiness.

The system is built around more than 400 servers, including eight of Hewlett-Packard Co.'s AlphaServers. It's being designed to let market participants buy and sell electricity at prices that are set one day before transactions take place and then in real time to reflect changes in the market. ISO New England officials said the company is developing the system with help from Alstom Corp., a Bellevue, Wash.-based software vendor.

The technology being implemented at ISO New England's facilities here is based on a system Alstom created for PJM Interconnection LLC, an independent system operator (ISO) in Norristown, Pa. But ISO New England has worked with Alstom and consultants such as Stamford, Conn.-based GRT Corp. to customize the system.

For example, the company added features that let market participants account for losses that can occur on transactions, plus capabilities to handle hydroelectric dispatches from sellers to buyers, said Gordon van Welie, ISO New England's president and CEO.

In addition to the AlphaServer hardware, which HP acquired through its purchase of Compaq Computer Corp., ISO New England's system uses Oracle databases and Linux servers. Work on the project started in May 2001.

The system includes so-called multisettlement capabilities, which let buyers and sellers agree on binding prices prior to an electricity trade or as it happens. Now ISO New England operates a single-settlement system that shows a single price to users. The new system also adds congestion management features for dealing with transmission congestion and differences in power consumption by regions.

ISO New England's efforts map with guidelines for exchanging data electronically that are being crafted by the Federal Energy Regulatory Commission (FERC) in an effort to make the electricity market more competitive.

Because the six ISOs that operate in the U.S. have their own operating rules and procedures, attempts to seamlessly exchange data now are "like having railroads with different gauge tracks," said van Welie.

The ISOs probably won't be required to meet the requirements envisioned by FERC's standard market design proposal until later this year or 2004. ISO New England plans to make any necessary changes to its new system in future upgrades, said van Welie and CIO Jamshid Afnan. But they added that the company wanted to get started in advance because the system should make its energy market operate more efficiently.

ISO New England's IT initiative "appears to put them ahead of the curve" on FERC's standardization proposal, said John Fringer, vice president of power services at Nicor Energy LLC, a natural-gas and electricity marketing company in Lisle, Ill. But, Fringer added, it will be "quite a task" to get the various ISOs and other market participants to adopt a common data-exchange format.

"We've been impressed with what ISO New England has done here," said Mike Roan, a regulatory specialist at Exelon PowerTeam, a marketing group of Kennett Square, Pa.-based Exelon Corp. Roan said he expects to get several business benefits from the new system, including increased access to information about the cost of energy consumption in different areas and where it would make the most sense to add generating plants. ◗

Other ISOs Also Prepare for Market Standardization

ISO New England may be ahead of the game in taking steps to comply with FERC's standard market design proposal, but that doesn't mean other energy industry ISOs are standing still.

For instance, California ISO is trying to address problems with its market structure that helped contribute to the California energy crisis in 2000 and 2001. The Folsom, Calif.-based company is shifting from a management system that breaks up the California energy market into just three regions to a new approach that would divide the market into dozens or even hundreds of regions, said spokesman Gregg Fishman.

Fishman said the new approach, as well as IT systems that will support it, should be in place later this year. In addition, California ISO this month plans to issue a request for proposals to technology vendors for bids on a transmission congestion management system. Fishman said he expects that system to be operational by early spring next year.

Because FERC's proposed guidelines were modeled to a great extent on ISOs in the Northeast, Guilderland, N.Y.-based New York ISO is already "closely aligned" with the proposal, said company spokesman Steve Sullivan.

New York ISO is working with a division of ABB Ltd., a Zurich-based vendor of power and automation technology, to develop a multisettlement system to replace its existing one, said Sullivan. The system is expected to cost "tens of millions of dollars" to develop and should be ready by mid-2004, he said, adding that the development schedule would be in line with FERC's vision for standardizing the national energy market.

– *Thomas Hoffman*

Continued from page 1

AlphaServer

chitecture that allows users to add processors, memory and I/O capacity "almost like Lego blocks," according to information posted on HP's Web site.

The servers will support multipath I/O technology for greater system availability and dynamic partitioning capabilities. The servers also come with a new system management console designed for centralized administration.

HP's Marvel plan says a lot about the company's intent to stick with its postmerger product commitments, said Fernando Yson, systems manager at Unicare/Cost Care. The Huntington Beach, Calif.-based health insurer has several small to midsize AlphaServers running homegrown applications.

When the time comes for an upgrade, it will most likely be to Itanium instead of Alpha because of HP's road map, Yson said. "But we are going to wait for other users to test it first before migrating."

The Pittsburgh Supercomputing Center, which has beta-tested the EV7-based servers, has ordered a "fair amount" of the systems, said Michael Levine, scientific director at the federally supported center.

The new servers will supplement the organization's existing 3,000-node AlphaServer cluster, the largest nondefense supercomputer in the country, according to Levine. The servers' very high bandwidth performance and interconnect technologies are what make them appealing, Levine said.

HP's decision to switch its server technology to Itanium in the future "doesn't make things any easier," said Levine. "But it is the sort of thing people are used to and should in most cases be manageable."

The new capabilities make for "faster, better, cheaper systems with much higher performance and much lower latency" than previous-generation Wildfire AlphaServers, said Terry Shannon, publisher of "Shannon Knows HPC," an Albuquerque, N.M.-based newsletter. The new servers should appeal to many larger users that would need years to migrate off Alpha, Shannon said.

Still, the migration issue is a thorny one.

"Last year, I would have said that this was some really great and exciting technology," said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. But with Marvel likely to be the Alpha family's last hurrah, users must get commitments from HP that guarantee investment protection when they move to Itanium processors, he said.

HP has said it will support the Alpha installed base for as long as necessary. Its AlphaServer customer assurance program offers money-back guarantees, technology-refresh incentives, guaranteed trade-in values and transition lease programs for systems purchased through December 2003. ◗

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Dell PowerConnect 3248 Outperforms the Cisco Catalyst 2950 and 3COM SuperStack 3 Switch 4400 by up to 47% in Layer 2 Throughput Tests.
Tolly Group Report #202149
– September 2002

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Geac Adds CTO, Looks to Integrate Apps

BY MARC L. SONGINI

Geac Computer Corp. last week hired a new executive to manage both product development and internal IT operations as part of the business applications vendor's plan to prop up its sagging revenue and woo new users.

Markham, Ontario-based Geac announced that Timothy Wright is taking over as its chief technology officer and CIO. Wright, who previously held similar posts at Barcelona, Spain-based Internet service provider Terra Lycos SA, will oversee the planned development of a fully integrated suite of front- and back-office applications that support business-performance management.

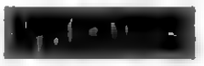
"There's a huge opportunity for Geac to exploit the very high-quality installed base we have today — if we can put together the right collection of offerings [for] complete financial or operational performance management, and if we can integrate them with existing back-end solutions," Wright said.

Geac's revenue fell to $201.5 million in the first six months of its fiscal year, through Oct. 31, down from $232.4 million a year earlier.

As part of its effort to rebound, the company also is buying Extensity Inc., an Emeryville, Calif.-based vendor of employee expense, procurement and billing software, in a deal that was announced in August and is due to be completed next month.

Wright said Geac plans to more tightly couple Extensity's software with its own applications, building on a lower level of integration that's already in place. The move is intended to let Extensity users access data in Geac's back-office software, as well as in rival applications from vendors such as PeopleSoft Inc. and Oracle Corp.

Geac also is evaluating how to provide a middleware and Web services framework to its users, according to Wright. That may involve combining internally developed software or some of Extensity's technology with functionality gained from partnerships or another acquisition, he said.



John Hagerty, an analyst at AMR Research Inc. in Boston, said Geac in the past bought rival software vendors without fully exploiting the inherited technology. But now the company is taking "a more aggressive stance with partnerships and acquisitions," Hagerty added.

The new capabilities Geac is looking to field through the Extensity deal might be a good fit at GenCorp Inc.'s Aerojet-General Corp. division, said Michael Hursey, a financial specialist at the aerospace and defense manufacturing operation in Sacramento, Calif.

Because Aerojet works extensively for the government, it's required to do frequent audits of travel costs and other expenses, Hursey noted. Aerojet has been running Geac's M Series finance applications since 1990, he said.

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McDonald's Ends Network Project in Cost-Cutting Move

BY TODD R. WEISS

The new senior management team at McDonald's Corp. is looking to cut costs, and IT is one of the departments feeling the pinch.

McDonald's this month confirmed that it has stopped work on a networking project to connect about 30,000 restaurants worldwide to its headquarters in Oak Brook, Ill. The fast-food chain wouldn't disclose the project's total budget, but spokeswoman Lisa Howard said McDonald's will save "tens of millions of dollars" this year by curtailing the networking initiative.

The company also wouldn't say how many IT staffers were working on the project, which was known as Innovate. An internal memo about the project's demise said job cuts could follow, although it added that McDonald's will try to minimize any layoffs.

Innovate began in 1999 and was expected to help make McDonald's operations more efficient by integrating all of its restaurants in 121 countries. Deployment of the network was due to start this year in Canada and France.

But the project was scrapped because it "was not going to deliver near-term benefits" at a time when McDonald's is trying to improve its financial position, Howard said. She added that Innovate is now viewed as too costly compared with the operating improvements it was supposed to produce. "We have other ways to achieve [efficiency goals]," Howard said.

The decision on Innovate follows the hamburger chain's first-ever quarterly loss. McDonald's last month also announced a series of management changes, naming a new CEO, chief operating officer and vice chairman.

"Our new management team is focusing on the near term," Howard said. "They're looking at everything . . . and reviewing all aspects of our business."

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IBM, meanwhile, under its new CEO, is pushing yet another all-encompassing new concept — "autonomic computing" — and has bought or is teaming up with all sorts of new partners, from Rational Software to AT&T.

The paths HP and IBM take, and the success they find, will affect most Fortune 1,000 IT shops in one form or another.

Balancing security needs with computing issues. Ironically, the first casualties of the war on terrorism are likely to be civil rights and privacy. But it won't stop there. The government will demand that reluctant corporations play ball on issues such as prompt and full disclosure of enterprise break-ins. Can customer and corporate data be protected?

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PIMM FOX

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DAVID MOSCHELLA

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RECENTLY, there has been a great deal of talk about the viability of the "utility model," the idea that information, just like water, gas, electricity and phone service, should be provided on demand via some sort of largely transparent conduit. It's an important concept and already a powerful IT industry trend, but I suspect I'm not the only one perplexed by the odd disconnect between rhetoric and reality.

Part of the problem is the word *utility* itself. Last I checked, most utility companies were still quasi-monopolies known for plodding, if generally reliable, service. Despite recent attempts at deregulation, it would be hard to think of a less innovative and dynamic part of the U.S. economy. It's telling that the broadcast business, which employs a similar automated delivery model, never refers to itself in this way. Neither should the IT industry. *Utility* has all the wrong connotations.

What we're really talking about is replacing the use of customer-managed hardware and software products with various third-party IT services delivered over a widely shared network, typically the Internet.

But if you accept this definition, then it's clear that many of us moved to the utility approach a long time ago. Certainly, most individuals (as well as many businesses) who have their own Web sites prefer to rely on Web hosting services, where you pay per megabyte of storage, gigabyte of traffic, number of e-mail addresses and other usage-based metrics. There's not much doubt that this style of computing will become increasingly important for an ever-wider range of applications.

And yet IBM, HP, Sun and others that talk about the utility model rarely mention consumer/small business Web usage (probably because they don't do a lot of business in the low end of the Web hosting market). Instead, they typically focus on large corporations, using exotic phrases such as *grid computing* and *data center virtualization*. They do this even though they know perfectly well that large organizations will likely be the last segment to move wholeheartedly toward the services model.

This disconnect between the real market and the current supplier marketing focus seems likely to continue. The reality is that the appeal of services-based computing is inversely proportional to the difficulty of the task at hand. This means that complex and frequently changing business processes will be the hardest IT activities to put inside a remote black box. Although such work can always be outsourced, the necessary customization doesn't go away.

More fundamentally, the essence of the utility model is the provision of largely homogeneous services on a societywide basis. Whereas traditional utility-led industries have powerful economies of scale and are therefore often viewed as natural monopolies, the computer business doesn't work this way. Unlike software tools and applications, the scale economies of computing services are quite limited, with very low barriers to entry. This is why the Web hosting and Internet service provider businesses remain so fragmented.

Consequently, while some services consolidation will no doubt occur, we'll probably never see a few companies dominate the online computing business. In the end, this is why the word *utility* is so misleading. The big hardware suppliers might want you to think that only they can provide the powerful services infrastructure the IT industry needs, but the market is already proving otherwise.

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David Wolff
Senior software engineer, Acton, Mass., cweo@dwolff.users.panix.com

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R.A. "Bob" Tremonti
Risk management consultant, Dolomite Consulting, North Vancouver, British Columbia

Locking Up Servers

THE FIREWALL IS NOT, and never was, anything but a perimeter safety net [QuickLink 34749]. Firewalls operate at Layers 3 and 4 of the OSI network model, and network attacks most often occur at Layer 7. As such, a firewall is designed only to attempt to help reinforce a secure environment by blocking types of network traffic that the servers definitely aren't hosting. Security must be built at the server. A properly secured network would, in fact, have no need for a firewall. One might even conclude that by implementing a firewall, you are providing a false sense of security. To put it in layman's terms, the firewall would be like having a brick wall around a house. It doesn't eliminate the need for the locks on the doors and windows, but only helps to deter the entrance of those who haven't been invited, assuming they are of good nature. To keep the bad people out, locks and alarms must still be installed.

Armand Welsh
Information security officer, State Street IMS West, Newport Beach, Calif., armand.welsh@sscims.com

Security Standard

THE DEC. 16 ARTICLE on Sprint's guidelines for vendors relating to the security of software products [QuickLink 35087] briefly mentions a Department of Defense directive dealing with this same issue. This directive is the Common Criteria (CC) certification for all new national security systems. However, CC is much more than a DOD directive, as it is now recognized by 15 nations, and more than 20 labs across the world can certify that products are CC-compliant. In other words, a global standard relating to computer security is emerging that can serve both government and commercial enterprises. CC in the U.S. replaces the NSA's old Orange Book program, which was fraught with problems and lacked international acceptance. Users want (and deserve) some type of guarantee that the software tools they use don't have any back doors and are produced and maintained to the highest standards.

It's my belief that more companies like Sprint will start demanding that the security products they use have the CC certification. Can you imagine any major company not using UL-certified electrical products? Why shouldn't software security products undergo similar scrutiny?

John Doyle
Sales director, STAT product line, Harris Corp., Melbourne, Fla.

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Risk management consultant, Dolomite Consulting, North Vancouver, British Columbia

Locking Up Servers

THE FIREWALL IS NOT, and never was, anything but a perimeter safety net [QuickLink 34749]. Firewalls operate at Layers 3 and 4 of the OSI network model, and network attacks most often occur at Layer 7. As such, a firewall is designed only to attempt to help reinforce a secure environment by blocking types of network traffic that the servers definitely aren't hosting. Security must be built in the server. A properly secured network would, in fact, have no need for a firewall. One might even conclude that by implementing a firewall, you are providing a false sense of security. To put it in lay man's terms, the firewall would be like having a brick wall around a house. It doesn't eliminate the need for the locks on the doors and windows, but only helps to deter the entrance of those who haven't been invited, assuming they are of good nature. To keep the bad people out, locks and alarms must still be installed.

Armand Welsh
Information security officer, State Street IMS West, Newport Beach, Calif.,
armand.welsh@sseims.com

Security Standard

THE DEC. 16 ARTICLE on Sprint's guidelines for vendors relating to the security of software products [QuickLink 35087] briefly mentions a Department of Defense directive dealing with this same issue. This directive is the Common Criteria (CC) certification for all new national security systems. However, CC is much more than a DOD directive, as it is now recognized by 15 nations, and more than 20 labs across the world can certify that products are CC-compliant. In other words, a global standard relating to computer security is emerging that can serve both government and commercial enterprises. CC in the U.S. replaces the NSA's old Orange Book program, which was fraught with problems and lacked international acceptance. Users want (and deserve) some type of guarantee that the software tools they use don't have any back doors and are produced and maintained to the highest standards.

It's my belief that more companies like Sprint will start demanding that the security products they use have the CC certification. Can you imagine any major company not using UL-certified electrical products? Why shouldn't software security products undergo similar scrutiny?

John Doyle
Sales director, STAT product line, Harris Corp., Melbourne, Fla.

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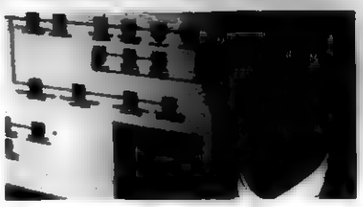
CASE STUDY

Dallas Answers the Call

The city deploys an integrated call system to become more responsive to citizens and to track performance. Other municipalities and event-driven businesses may follow suit. **Page 28**



FUTURE WATCH

Pervasive Computing Gets Organized

For pervasive computing to reach its potential, numerous devices and systems will have to interoperate. Vince Stanford (left) is among those working on a needed data-flow standard at NIST. **Page 32**

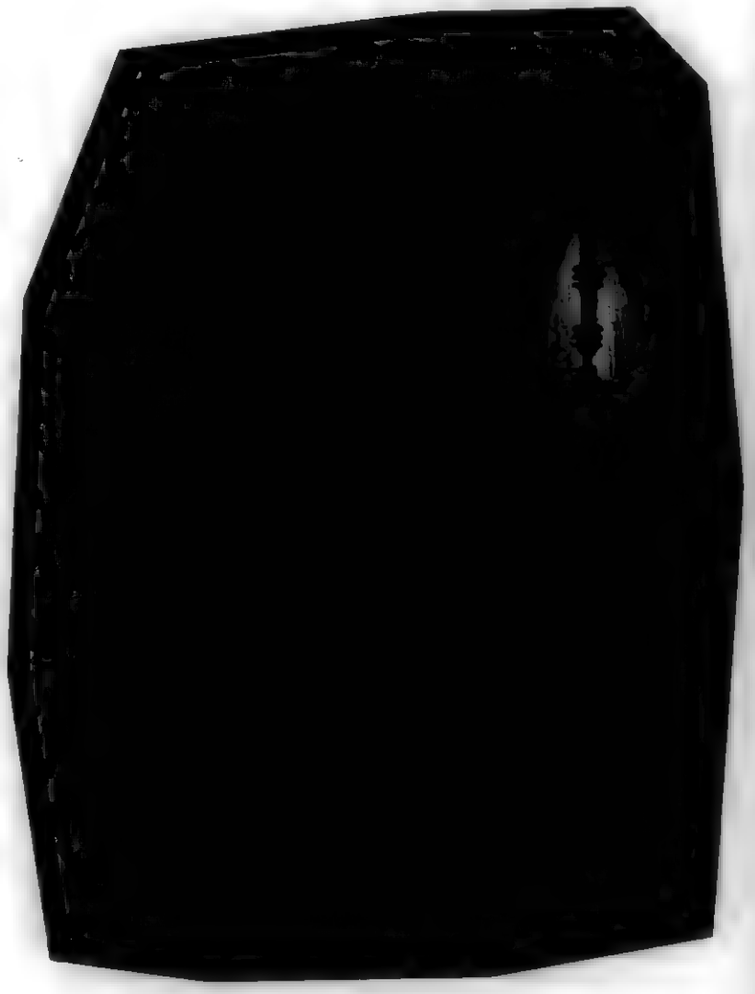
SECURITY MANAGER'S JOURNAL

Spam Issue Viewed As IT Security Failure

After a surge in spam puts Vince Tuesday on the defensive with users, a new service cleans up the problem and saves his reputation. **Page 36**

Vendors are pushing both the use of enterprise suites and new integration tools as ways to mesh CRM with other enterprise applications. By Marc L. Songini

CRM OPENS UP



DAVID PLUNKERT/SPUR DESIGN

AS CUSTOMER relationship management (CRM) technology has matured, users have begun looking for bigger payoffs by enabling better integration with other enterprise applications. For instance, companies that want to let their customers view the status of their orders in real time might need to connect their call center or e-commerce applications to supply chain or manufacturing systems.

"The notion that CRM is largely a stand-alone sales force automation function is no longer valid," says Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. "[Users] realize that CRM is central to many supply chain functions, such as order tracking and management, logistics and service."

But making those applications talk with one another isn't easy. One way to solve this problem is to migrate to an integrated enterprise application integration (EAI) suite from vendors such as SAP AG, Oracle Corp. or PeopleSoft Inc. These products have prebuilt integration hooks that ease application-sharing headaches. They also include tool kits or adapters to hook the suite applications to other vendors' modules. By using the suite vendors' tool sets and prepackaged processes, you can cut integration costs involved with custom coding and consulting. But even if you're willing to invest in such a migration effort, individual suite applications might not always have the features you require.

Users who go the best-of-breed

CRM OPENS UP

Continued from page 23

route and use applications from companies such as San Mateo, Calif.-based Siebel Systems Inc. can use built-in integration capabilities, says Erin Kinikin, an analyst at Cambridge, Mass.-based Giga Information Group Inc. For instance, Siebel is rolling out its Web services-based Universal Application Network framework to connect applications and allow business-process integration.

Other CRM software vendors, including Menlo Park, Calif.-based Kana Software Inc., Cupertino, Calif.-based Chordiant Software Inc. and Cambridge, Mass.-based PegaSystems Inc., also offer products that enable integration at the business-process level.

"These vendors tend to do best at customer-facing or partner-facing applications, where there's lots of integration required and processes change frequently," Kinikin says.

Suite Connections

Ottawa-based Canada Post Corp. took the suite route after dealing with the aggravation of linking multiple applications. "In the pre-Y2k world of our systems landscape, we had best-of-breed and custom-developed interfaces tying it together, and it was a real mess," says Aaron Nichols, general manager of business transformation at Canada Post. "It was tough to manage and hard to make changes."

Integrating disparate applications was possible, but it was complex and expensive because the software was passing information related to orders, pricing and contracts, he says. Because of this and the challenges of business-process re-engineering and change management in the organization, Canada Post decided to install SAP's CRM and enterprise resource planning (ERP) modules.

Using Web services, Canada Post has also connected its Web site to the SAP system so it can take orders and connect them directly to the ERP system. The mail carrier also built an interface to its legacy tracking software to let customers track parcel deliveries.

When Canada Post went live with SAP CRM 2.0, the technology was immature, Nichols says. And there were many questions to sort out, such as whether the master customer profiles should reside in the CRM system or the R/3 system. Nichols plans to move to Version 3.0, which he says is a more mature product with a broader range of CRM features.

The CRM system has both prebuilt and homegrown interfaces. The connectors between the SAP CRM and R/3 applications that handle workflow came out of the box, but they required a bit of tuning. "We had to spend some time understanding them," Nichols says. The connectors allow call center workers to access a customer's case history from the back-end systems by entering a phone number. They also allow the system to route individual cases into the human resources system to determine whom to send them to for resolution.

Canada Post's order-taking system isn't an SAP product, but it ties into the back-end R/3 software by way of eGate EAI software from Monrovia, Calif.-based SeeBeyond Technology Corp.

EGate handles all data going in and out of the SAP system. Nichols says business-process designers crafted each interface to select the requisite data that needed to be mapped and passed back and forth, and they developed error-handling routines. Once the designs were finalized, they were given to an integrator, who built, tested and deployed the architecture.

Nichols says the integration project has resulted in a consolidated set of systems with tightly linked business processes and a common view for all customers. "We eliminated over 80 legacy systems and reduced labor costs by eliminating duplication and waste in processes," he says.

Siebel in the Middle

Suites may claim easier integration, but Jay Gardner, CIO at BMC Software Inc., says mixing and matching different CRM and ERP applications wasn't a big deal. "There is definitely value to an integrated application, but I don't think I have to have [all applications] from a single vendor," he says. Although Gardner says he wouldn't want to link together five different systems, two front- and back-office suites are manageable, he says.

BMC recently connected its Siebel sales force automation system to its Oracle financials backbone to automate order processing on the Web. The Houston-based maker of management applications has also connected a Siebel installation to its call system from Vantive Corp. (now part of PeopleSoft). The Siebel system also pulls information from a document management system, which allows support workers to view images of customer contracts. Information sharing among the Web team and the inside sales, direct sales and support staffs has generated a faster turnaround on potential sales leads, Gardner says.

BMC initially wrote its own custom interfaces for these applications but now plans to use EAI software from WebMethods Inc. in Fairfax, Va., to simplify future connectivity. The WebMethods system, in pilot since June, provides more extensive coding capabilities than BMC's legacy systems allow, Gardner says.

For instance, it enables a "publish and subscribe" model that lets BMC connect applications that need to share data with WebMethods without having to write separate point-to-point interfaces for each one. BMC also plans to configure its Siebel application to generate XML as its common CRM document format, so that the WebMethods XML adapter can parse it. BMC will then use Web services to establish data synchronization between applications, Gardner says.

Going forward, both suite and best-of-breed CRM vendors point to their support for Web services as the glue that will hold disparate systems together. But, says Giga's Kinikin, "the reality is that Web services is a five- to 10-year evolution, not a magic answer. We're at the very beginning of a new journey."

And even after Web services are established, she says, IT will still need to incorporate process flows, metadata and semantics-based standards such as electronic data interchange.

Vendor Approaches to CRM Integration

Oracle Corp.

Oracle touts the value of its integrated business application suite, but it also offers integration with competitors' products using prebuilt transformation adapters. These adapters allow data to be exposed for use with standard Web services technologies such as XML, Simple Object Access Protocol (SOAP) and Universal Discovery Description and Integration. But "[Oracle] still is largely interested in just keeping users vanilla with its products," says Steve Bonadio, an analyst at Meta Group Inc. in Stamford, Conn.

PeopleSoft Inc.

PeopleSoft claims to offer easy integration for its CRM customers through its AppConnect data integration broker, data warehouse and portal middleware tools. The vendor has a "pure technology" approach, relying on its portal as the presentation aggregator, says Bonadio. The company also offers support for XML-based Web services connectivity.

SAP AG

SAP takes a similar tack by offering its own application server product and portal to facilitate CRM data integration. It relies on the SAP Web application server, mySAP Portal and messaging exchange technologies to permit users to map CRM documents to general business documents using SOAP and XML technologies.

Siebel Inc.

With its newly announced Universal Application Network (UAN), Siebel appears to be the most forward-thinking in viewing integration as a way to craft business processes, Bonadio says. UAN is a series of Web services and XML-based business-process library specifications that, according to the company, make it easier to connect Siebel's CRM applications to homegrown systems and other packaged applications.

MERGING ERP WITH CRM

Developers were the key to a successful integration project at InterLink.

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CRM OPENS UP

Continued from page 23

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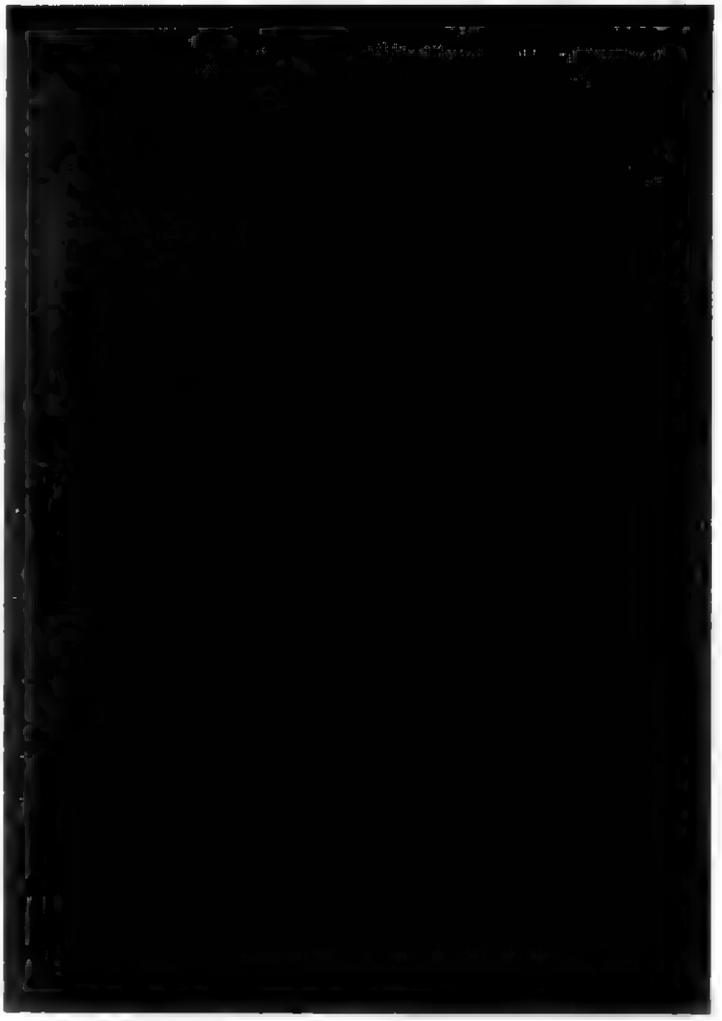

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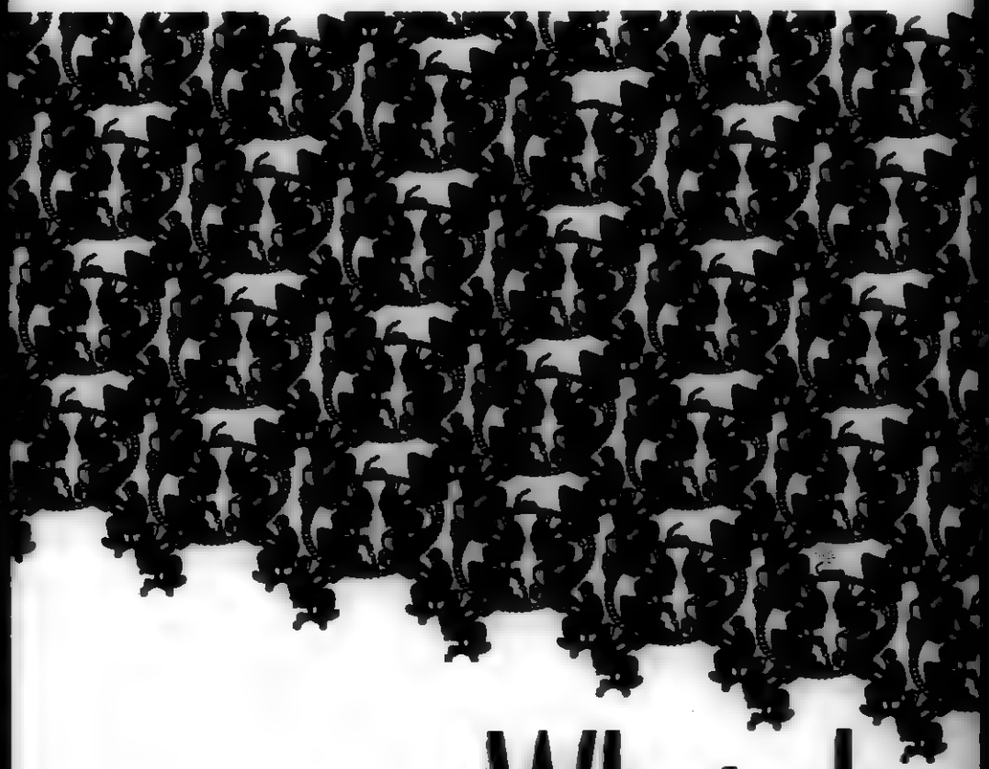

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DALLAS ANSWERS THE CALL

A newly integrated 311 call-taking system for all city services helps initiate action and track performance. BY SAMI LAIS

ONE YEAR AGO, on Jan. 13, 2002, the Dallas municipal IT department flipped the switch on a $5 million automated citizen-request management system.

From that moment on, city residents could make their 1.1 million annual calls for city services to one number, 311. And through that number, they could do everything from finding out when a pothole would be repaired to reporting a missed trash pickup to checking on a water bill.

In what is becoming a model for other municipalities and event-driven businesses, the Dallas system automatically routes requests to the appropriate departments and tracks them to ensure that service-level agreements are met. It runs on a central Oracle Parallel Server (OPS) and a centralized requests database, but each city department controls access to its own data and applications.

The system was in the planning stage for two years but went live after a scant six months for installation and testing. It was an immediate success, and the mood in the Dallas data center after the launch last January was exultant, says Dan McFarland, the city's CIO. A week later, however, things didn't look so rosy. An ongoing disaster recovery test, begun the week before the system went live, had crashed one of the system's two redundant servers from Suncoast Scientific Inc., a Motorola Inc. company in Shalimar, Fla. "It was abysmal," Jon Bigelow, the city's 311 project coordinator, says of the test. "How do you know you've got a good backup? Unless you test it, you don't know."

Although most glitches were minor and fixed by the end of January, the cause of the crash wasn't discovered for another month. "Installation settings from the backups were wrong," says Bigelow. With the settings corrected, backups worked properly, which cleared the roadblock standing in the way of disaster recovery.

But then software snags began to arise. As the first user to run Motorola's Customer Service Request (CSR) system on Oracle Corp.'s OPS, "we had some issues," Bigelow says. For example, application response time was "horrendous," he says. It should have been near instantaneous but instead took from minutes to an hour for one city department. Furthermore, the system required a complete reboot every 36 hours to keep it from slowing to a halt.

It wasn't until mid-March that the source of the slowdown was identified. "The Oracle people were instructing our people, and the Motorola DBA was watching and said, 'Something's not right here. That parameter is set wrong,' " says Bigelow.

Correcting that setting not only alleviated most of the response time lag, but it also allowed the removal of diagnostic software that had been using needed resources, he says.

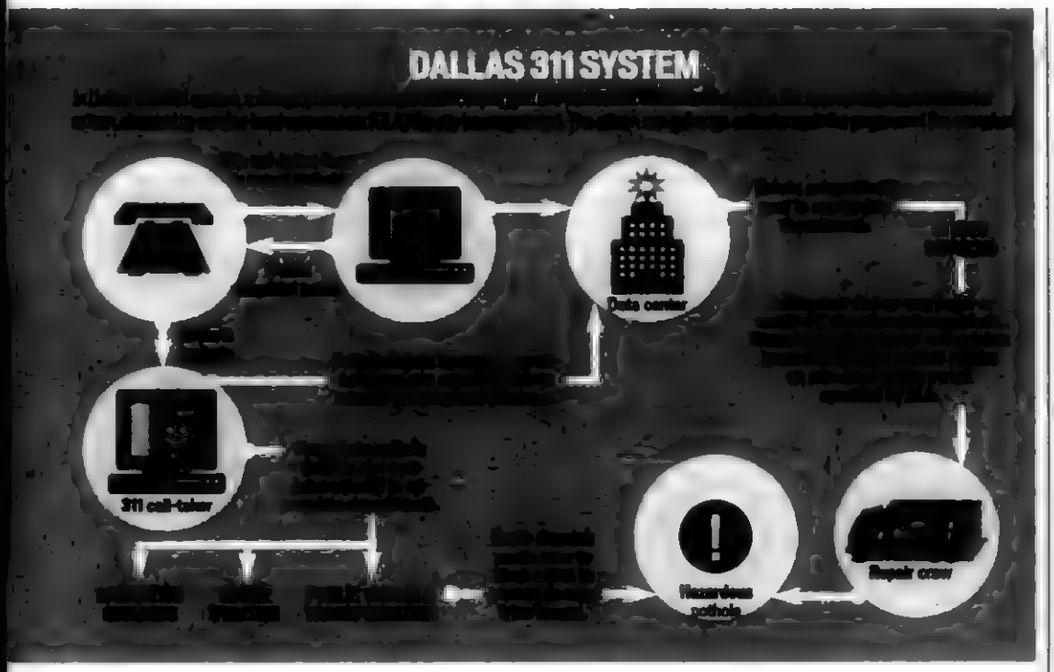
By late summer, all major city departments except for the water department were on the 311 system. The water department was still testing an interface between the customer relationship management system and its billing systems and evaluating whether requests involved too much data outside the scope of CSR, Bigelow says.

Good backups were running without incident.

Some geodata errors were still occurring with about 10% of the information about streets, but that shouldn't be a problem after the next release of CSR, Bigelow says. That version will interface with the city's geographic information system (GIS), which is based on GIS software from Environmental Systems Research Institute (ESRI) in Redlands, Calif.

Support from Motorola has been good, but the geodata errors reveal a drawback to the package software, he says. "It's proprietary software. If you need to make a change, you have to go to Motorola. While users can correct their geodata, no audit trail was incorporated into this portion of the product, so you can't track changes. We would like to change that, but the change has to come from Motorola. We're chomping at the bit for the ESRI interface," Bigelow says. "On the upside, we seem to be contributing to the road map for this product. A lot of what the departments have asked for has been implemented in the product."

When McFarland first came to Dallas in April 1999 and envisioned this clockwork system, the city faced



formidable hurdles. City databases and systems were splintered onto multiple applications and platforms, including some applications running under a homegrown mainframe operating system. Groundwork included converting to OS/390; consolidating the city's tax, court, building inspection and GIS databases onto an Oracle database; and standardizing 520 request processes from departments citywide.

The CSR project kicked off in July 2001. By November, the city had built three servers, installed virus protection and created an installation disk that would work across all platforms.

In December 2001, Dallas added two more servers to handle the Web interface. These would be joined in January by three more servers to handle the mobile application interface and one more in March to handle reporting. Also in December, the deployment team rolled out the system to 825 Windows NT, 98 and 2000 desktops. It was ready for testing Jan. 2, 2002.

Throughout the CSR project's life cycle, "we've kept in mind that this isn't IT's project; it's the user departments' project," Bigelow says. With more than 500 business processes that had to be re-engineered before the city could complete the project, success was predicated on getting buy-in, he says.

As ultimately successful as the implementation has been, Bigelow says he wishes some of the timing had been different. "Motorola had elected to have the city's configuration managers begin setting up the service requests before training them in how the base product worked," he says. When they did get training, they had to rework configurations to take advantage of what they had learned.

"The first full 90% of problems with the system were training issues," he acknowledges. There just wasn't enough time between training and implementation for users to practice, Bigelow says.

The city worked with Motorola for several months to get a viable installation package. The final version wasn't available until almost November 2001, and even then it had a conflict — fixed two months later — with the Windows 2000 platform, he says.

The geodata caused another lag: The Motorola conversion to the street data wasn't complete until the week of implementation. And Bigelow says the disaster recovery testing should have occurred much earlier than the week before implementation.

A Year Later

A year after Dallas' 311 system went live, it's still evolving, says McFarland. The anxiously awaited ESRI interface between the city's GIS and 311 systems has been deployed, virtually eliminating geodata errors.

BEYOND DALLAS
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"Of the 1.1 million 311 calls the city fields annually, about 300,000 are being offloaded onto the interactive voice response system," McFarland says. Citizens find the new system easier to deal with, he says. Requests for service now go directly to those responsible for the service, shortening response times and allowing managers to better allocate resources.

"The key to the success of any 311 system is how fast you can clear up those troubles. Otherwise, it's just a sophisticated record-keeper," says McFarland.

The IT department is now installing wireless LAN access points that will let city workers in the field download code-compliance data.

And the 311 project has provided plenty of lessons for the city's next project — an integrated, citywide enterprise resource management system. ◗

Lais is a Computerworld contributing writer in Takoma Park, Md.

Tracking a 311 Call

Dallas' new citizen-request management system integrates requests to 520 city services processes and lets the city and residents track each request.

Dan McFarland, CIO for the city, explains how it works:

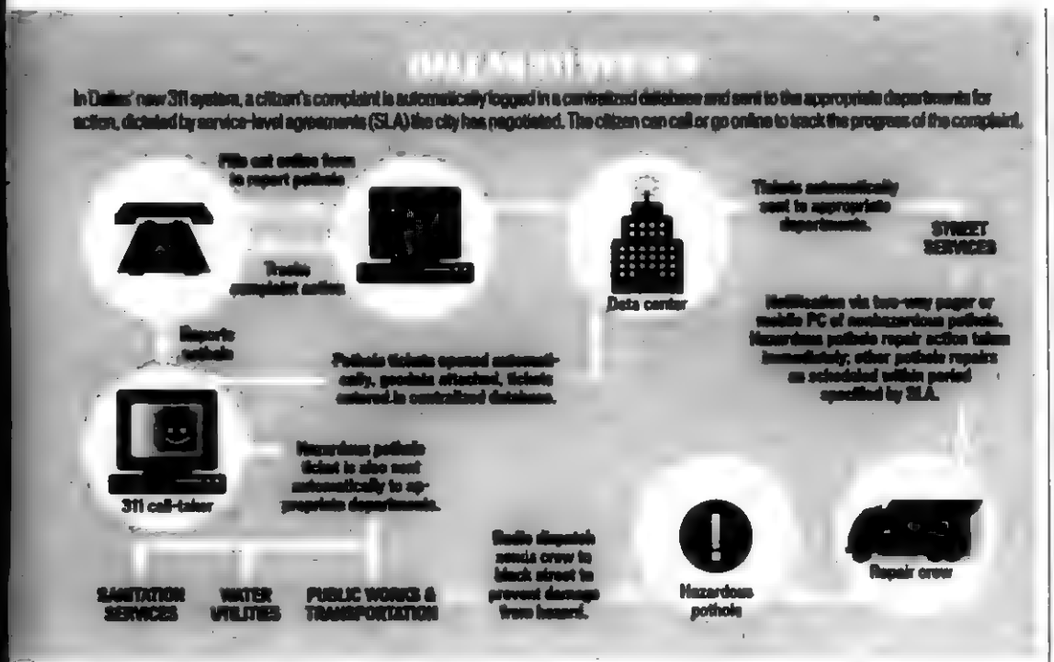
- A citizen needs a service – a pothole repaired, for example. She calls 311 to complain.
- The call-taker brings up the application and enters location and description information on the pothole.
- A geographic information system assigns 11 layers of geodata, such as the street number and the location of the pothole, and that data is stored with the application in the database.
- Differentiation is made between a nuisance pothole and one that presents a safety hazard. Notification goes to the Department of Streets Services and to the department's field supervisor via two-way pager, which syncs with the central data center database every half-hour.
- If the pothole is a safety hazard and the street needs to be closed for repairs, the call-taker can tell the caller about the closing and notify the field supervisor via radio dispatch.
- The system automatically notifies departments that will be affected; sanitation, for example, might have to reroute trash pickups.
- The city has service-level agreements (SLA) for when repairs will be done, and the new system enables the call-taker to tell the caller when the pothole is likely to be fixed. If the pothole isn't filled in time, the system escalates the report, notifying management that an SLA has been violated.

The new 311 system, which is integrated citywide and runs on a centralized server, stores information about the pothole in a centralized database, which each city office can access.

One of the advantages of the system is that it tracks citizens' calls centrally, eliminating redundancies. For example, McFarland says, if someone else had called with a question about, say, a water bill and at the end of the call had said he also wanted to report a pothole that needed to be filled, the system would recognize whether this caller's pothole was the same as the one the other caller reported.

With the old system, a second request for the same pothole would be initiated, with no way to tie it to the first request and no way to track the complaints.

– Sami Lais



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The CSR project kicked off in July 2001. By November, the city had built three servers, installed virus protection and created an installation disk that would work across all platforms.

In December 2001, Dallas added two more servers to handle the Web interface. These would be joined in January by three more servers to handle the mobile application interface and one more in March to handle reporting. Also in December, the deployment team rolled out the system to 825 Windows NT, 98 and 2000 desktops. It was ready for testing Jan. 2, 2002.

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Throughout the CSR project's life cycle, "we've kept in mind that this isn't IT's project; it's the user departments' project," Bigelow says. With more than 500 business processes that had to be re-engineered before the city could complete the project, success was predicated on getting buy-in, he says.

As ultimately successful as the implementation has been, Bigelow says he wishes some of the timing had been different. "Motorola had elected to have the city's configuration managers begin setting up the service requests before training them in how the base product worked," he says. When they did get training, they had to rework configurations to take advantage of what they had learned.

"The first full 90% of problems with the system were training issues," he acknowledges. There just wasn't enough time between training and implementation for users to practice, Bigelow says.

The city worked with Motorola for several months to get a viable installation package. The final version wasn't available until almost November 2001, and even then it had a conflict — fixed two months later — with the Windows 2000 platform, he says.

The geodata caused another lag: The Motorola conversion to the street data wasn't complete until the week of implementation. And Bigelow says the disaster recovery testing should have occurred much earlier than the week before implementation.

A Year Later

A year after Dallas' 311 system went live, it's still evolving, says McFarland. The anxiously awaited ESRI interface between the city's GIS and 311 systems has been deployed, virtually eliminating geodata errors.

"Of the 1.1 million 311 calls the city fields annually, about 300,000 are being offloaded onto the interactive voice response system," McFarland says. Citizens find the new system easier to deal with, he says. Requests for service now go directly to those responsible for the service, shortening response times and allowing managers to better allocate resources.

"The key to the success of any 311 system is how fast you can clear up those troubles. Otherwise, it's just a sophisticated record-keeper," says McFarland.

The IT department is now installing wireless LAN access points that will let city workers in the field download code-compliance data.

And the 311 project has provided plenty of lessons for the city's next project — an integrated, citywide enterprise resource management system. ◗

Lais is a Computerworld contributing writer in Takoma Park, Md.

Tracking a 311 Call

Dallas' new citizen-request management system integrates requests to 520 city services processes and lets the city and residents track each request.

Dan McFarland, CIO for the city, explains how it works:

- A citizen needs a service – a pothole repaired, for example. She calls 311 to complain.
- The call-taker brings up the application and enters location and description information on the pothole.
- A geographic information system assigns 11 layers of geodata, such as the street number and the location of the pothole, and that data is stored with the application in the database.
- Differentiation is made between a nuisance pothole and one that presents a safety hazard. Notification goes to the Department of Streets Services and to the department's field supervisor via two-way pager, which syncs with the central data center database every half-hour.
- If the pothole is a safety hazard and the street needs to be closed for repairs, the call-taker can tell the caller about the closing and notify the field supervisor via radio dispatch.
- The system automatically notifies departments that will be affected; sanitation, for example, might have to reroute trash pickups.
- The city has service-level agreements (SLA) for when repairs will be done, and the new system enables the call-taker to tell the caller when the pothole is likely to be fixed. If the pothole isn't filled in time, the system escalates the report, notifying management that an SLA has been violated.

The new 311 system, which is integrated citywide and runs on a centralized server, stores information about the pothole in a centralized database, which each city office can access.

One of the advantages of the system is that it tracks citizens' calls centrally, eliminating redundancies. For example, McFarland says, if someone else had called with a question about, say, a water bill and at the end of the call had said he also wanted to report a pothole that needed to be filled, the system would recognize whether this caller's pothole was the same as the one the other caller reported.

With the old system, a second request for the same pothole would be initiated, with no way to tie it to the first request and no way to track the complaints.

– *Sami Lais*

.Net Terminal Services Drive Rental System

Enterprise Rent-A-Car's thin-client project will be one of the biggest ever attempted using Microsoft's .Net Terminal Services. By Carol Sliwa

ENTERPRISE RENT-A-CAR CO. is venturing where few, if any, companies have gone before.

The St. Louis-based firm plans to deliver Microsoft Office and internally developed car-rental applications to 5,000 branch locations equipped with Windows CE-based terminals. Those thin-client devices will access the applications through the enhanced Terminal Services features in Microsoft Corp.'s upcoming release of Windows .Net Server 2003.

For more than 10 years, branch employees have rented out cars using 5250 terminals that link back to the company's AS/400 servers in St. Louis. But Enterprise wants to replace the limited-function green screens with a more graphical interface and give its users a more PC-like environment that will support new features and capabilities, says Mark Adams, an assistant vice president of information systems at the company.

Adams says that Enterprise also wants to retain its existing support model for its 5250 terminals because it knows well the effort required to support full-blown PCs. Enterprise settled on Windows CE-based thin clients because it found them easier to manage and configure and considered them more consistent across vendor lines than Unix- and Linux-based devices, says Derik Reiser, director of platform solutions at the company.

The Windows CE terminals launch Microsoft Remote Desktop Protocol (RDP) 5.1 client software and establish sessions either through a LAN to a server in the branch office or through a shared frame-relay circuit to servers at Enterprise's headquarters.

As part of Microsoft's Joint Development Program, Enterprise has been testing Terminal Services at 18 branches that have two-processor servers running locally and at two branches that connect to four-way boxes in St. Louis.

But the ultimate scope of the project is far more ambitious. During the next 24 months, Enterprise plans to roll out Windows .Net Server 2003 to 2,500 of its larger branches and connect the remaining 2,500 to central servers in St. Louis.

The sheer scale will set the Enterprise project apart from the typical Microsoft Terminal Services deployment, according to Mark Margevicius, an analyst at Stamford, Conn.-based Gartner Inc. He says that 250 to 300 clients has been the "magic number" for Terminal Services. Beyond that, most companies have gone to a more scalable product, such as MetaFrame XP from Citrix Systems Inc.

David Friedlander, an analyst at Giga Information Group Inc., says that even though the Windows .Net version of Terminal Server is improved, he still doesn't expect many companies the size of Enterprise to deploy only the Microsoft product. He says others will likely turn to MetaFrame because of its support for a wider range of clients, advanced manageability and security features for remote access.

Enterprise considered MetaFrame as well as several open-source options, but for the lighter needs of its branches, it found the Microsoft Terminal Services approach sufficient, Adams says.

"We believed that running fewer products would make the solution less complicated to support over the long haul," he says. "With the Windows .Net Terminal Services combination, we had fewer pieces and parts to manage."

Plus, .Net Server offers enhancements that Enterprise has found useful. For instance, the new group policy management console lets the company apply policies to a collection of servers. When Enterprise adds a server to the group, the server will inherit the same configuration settings as each of the others in the group, Reiser says.

Policies also can be applied to each user's account at log-on to indicate which data, directories and drives the user can access, he says.

Reiser says he also likes the new session-directory feature, which tracks user connections to specific servers. If a user is disconnected, he is pointed back to the server where the session originated. In the past, he might have reconnected to a different server, possibly losing work, Reiser says.

The MetaFrame Alternative

Citrix's MetaFrame has many capabilities that aren't found in Windows .Net Server, such as built-in load balancing, which directs users to the least busy server.

And Enterprise is familiar with the benefits that third-party products can add to a Windows Terminal Services deployment, because it has delivered enterprise resource planning applications to administrative offices using MetaFrame, Adams notes. But he says Enterprise won't need Citrix's advanced management console, since it won't be running a complex set of applications on its server farm. "Most of our applications will be delivered with browser-type technology," he says.

Support for heterogeneous clients isn't necessary because Enterprise plans to use only Windows clients. And because the clients will connect via a private network, the Terminal Server product won't be relied upon to provide security, Reiser says.

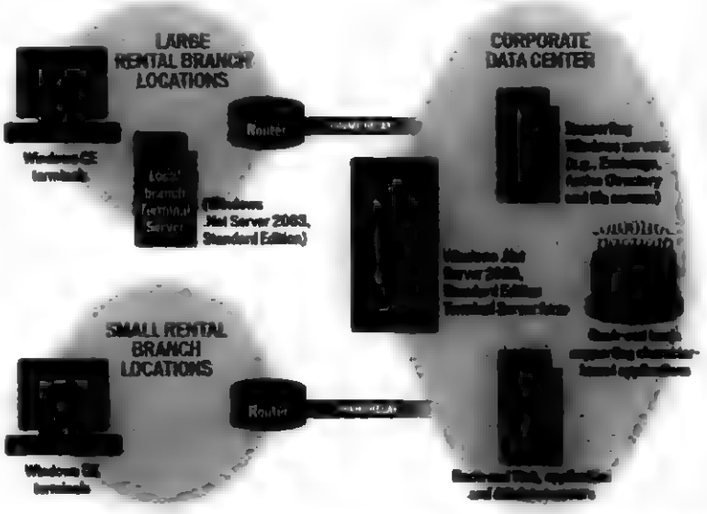
MetaFrame also helps companies that need to do complex application publishing, Reiser says. But since Enterprise is publishing an entire desktop to its Windows CE devices, which run only the Windows CE operating system and the RDP 5.1 client, those features aren't critical.

"In an all-Microsoft environment, with Microsoft clients and servers and no intention of supporting anything else, the Microsoft [Terminal Services] approach is certainly a reasonable one to take," says Dan Kusnetzky, an analyst at Framingham, Mass.-based IDC.

But even in an all-Microsoft environment, there's a need for considerable advance planning. Enterprise, for instance, had to roll out Active Directory in conjunction with the Terminal Services project.

"Don't underestimate the amount of time and effort you need to put into how this component intertwines with the other portions of your architecture," Adams says.

ENTERPRISE RENT-A-CAR is upgrading 5,000 offices from text-mode terminals to Windows CE terminals running .Net Terminal Services. The headquarters Terminal Server farm will support 2,500 branch locations directly and provide fail-over support for another 2,500 larger branches, which will have their own Terminal Server host.



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Pervasive Computing Gets Organized

Beyond the 20th century: Standards emerge for sharing data across heterogeneous computers and input devices. By Patrick Thibodeau

FORGET MOORE'S LAW. The reality is that workstations haven't changed all that much in 30 years, despite their enormous power and performance gains. Interfacing is still a matter of pressing plastic keys and clicking on a mouse.

But imagine, as Vince Stanford does, a time when a camera-equipped PC will be able to follow your gaze and shift applications with your focus. Imagine also that the camera and microphone arrays in conference rooms will recognize you, watch you, listen to you, infer what you want and produce the information that you need, sans keyboard.

"How do we get beyond this 20th century model?" asks Stanford, in his pervasive computing lab at the National Institute of Standards and Technology's (NIST) sprawling campus in Gaithersburg, Md. The computer scientist is creating standards that will enable computers and people to interact, no matter where they are.

Pervasive computing utilizes "multimodal" interfaces, and that means developing systems that can recognize voice and gestures — systems that perceive their end users. The PC remains important in a pervasive system, and the technology could involve new ways of interfacing with a desktop, such as gaze-tracking.

But instead of inputting commands in front of one PC exclusively, a pervasive system extends the idea of interfacing to tens or hundreds of devices. It will no longer matter whether end users are in front of their PCs; their connection to information will be available from any device or location. It's a philosophical as well as a technological change.

"You need to shift the focus from one machine, one interface, to one person and one interface made up of many computers," says Stanford.

But there are problems. Although PCs may be "plug and play," pervasive systems are not — yet. Interconnecting a wide variety of technologies that can be mobile or wearable, embedded or stationary, all performing a wide range of functions, can't be accomplished without standards.

PATRICK THIBODEAU

VINCE STANFORD is a computer scientist in the pervasive computing laboratory at the National Institute of Standards and Technology, which is connecting cameras, microphones and other sensors to create pervasive devices. The flow chart behind him illustrates some of that work.

FUTURE WATCH

NIST is at work on an open-source, pervasive computing standard called Smart Flow to address the underlying problem of connecting a variety of devices, systems and sensors that make up a multimodal environment. This standard is intended to let a company that makes a video, voice or location sensor, for instance, send data from that device in a standard format that could be accessed by an analyzer from another company.

NIST has formed the Pervasive Computing Standards Working Group and has begun recruiting vendors to join the effort. Initially, the focus will be on getting technology companies to join, but business end users will also be asked to participate. "We also try to have companies that are large-scale consumers of the technologies," Stanford says. Creating this standard will be a multiyear project, he notes, partly because the technologies are still emerging.

Stanford says there are a lot of "little pieces" of pervasive computing technology "that can't play together" because of this lack of standards. "We think there is tremendous leverage to be had in these so-called sensor fusions and combinations of different capabilities," he says.

As its name implies, NIST seeks out technologies in need of standards work. NIST sees itself as a neutral third party "that has the broader public good in mind," says Stanford, and its goal is that "all companies should become more capable."

For example, NIST is leading an effort to analyze the Bluetooth wireless protocol so it can interoperate better with 802.11 wireless Ethernet. Bluetooth shares its part of the radio spectrum (2.45 GHz) with 802.11, but the two interfere with each other's signals in that spectrum. Both protocols are considered critical to pervasive computing.

NIST also develops reference data for testing products. For instance, its speech-recognition reference data allows vendors to compare the accuracy of their voice recognition software against a neutral benchmark. The benchmarks consist of annotated voice recordings of varying levels of difficulty.

Vendors agree that NIST has a role to play in developing standards. "Because there are no standards, everyone has to set up their own protocols," says Alex Malison, the CEO of Action Systems Inc., a Silver Spring, Md.-based maker of wireless systems for restaurants. "There is no coherent way for everyone to know what to expect when they are learning something new."

Read My Lips

The practical applications of pervasive systems vary. NIST has set up an array of microphones and cameras that can keep track of what's occurring in a conference room. With sophisticated lip-reading, gaze-tracking and speech-recognition systems, the time may soon come when meeting minutes are automatically recorded and digitized, and participants can issue commands directly to employees from the meeting.

Pervasive systems depend on a lot of technology coming together. For example, Foveal Systems LLC in Madison, N.J., makes automated camera systems that can make videos by sensing the presence of a speaker and the visual aids he's using. Foveal 's owner, Michael Bianchi, say he needs microphone arrays that can look at a 50-seat classroom and figure out the location of a person asking a question. Developing that microphone array and integrating it with Foveal's camera system will take standards, he says.

Stanford says NIST decided to focus on the issue of integration in a pervasive environment because the private sector wasn't doing it. If vendors "can come together and create and find new business opportunities because they have this ability to interact," he says "then we would say we have succeeded, and we would be happy for a few months and then start something else."

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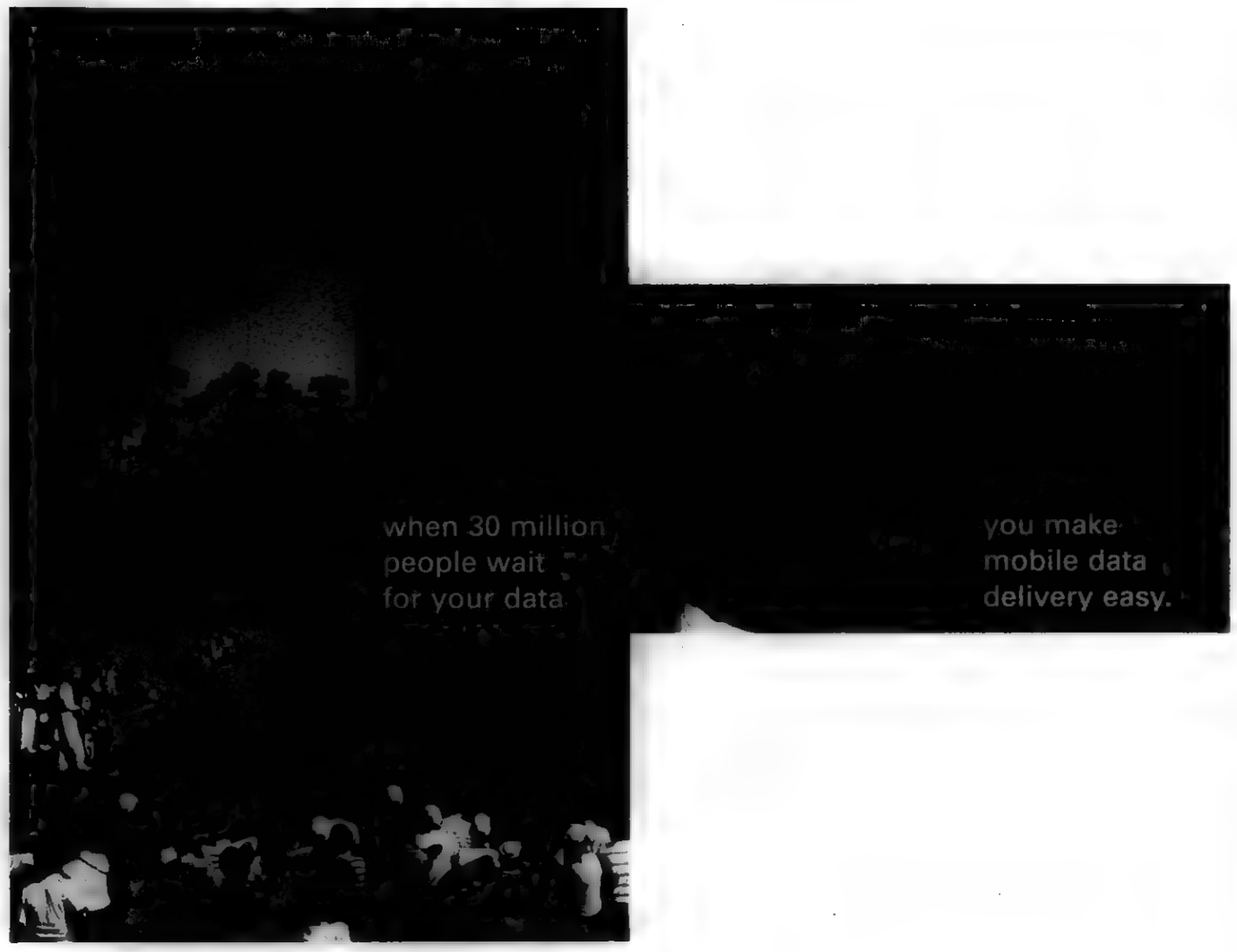

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Spam Issue Viewed As IT Security Failure

A surge in e-mail spam undermines user confidence in an otherwise solid security infrastructure. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

THE PROBLEM of unwanted e-mails may not be the biggest security threat my company faces, but it's a highly visible failure to our employees and threatens to taint the IT security group's good reputation.

One of the ways that staffers judge good security is if they can work free of fear. We score pretty well on that measure. Our managers don't fear that our business systems will be compromised or corrupted, our desktop users no longer fear virus infections, and I generally don't fear large security incidents looming on the horizon. Life is good. Apart from spam, that is.

Because many of our staffers work with customers, they often publish their e-mail addresses on our Web site and in our publications. These staffers get flooded with hundreds of rubbish messages along with real customer e-mails.

They get offered radio-controlled cars, free money from Nigeria and, perhaps most bizarrely, septic tanks. That flood is bad enough, but mixed in with all the commercial rubbish are darker-themed messages — come-ons to pornographic Web sites and hate sites, as well as abusive e-mails.

These frontline staffers constantly face high volumes of offensive content, and until recently, we had done little about it.

The problem became bad enough that it presented a risk to our productivity. Staffers were worried by the content, our e-mail systems were spending time on spam rather than on customer e-mails, and the problem affected employees at all levels.

Turning to Blacklists

The first option we looked at was using a blacklist service, which takes spam reports, identifies the servers used and publishes the addresses so that our e-mail server can automatically shun further e-mails from those sources. But spammers move to new servers faster than the blacklist can keep up. Another drawback: Once a company is on the blacklist, its e-mail administrator must jump through hoops to get it removed. Meanwhile, any legitimate e-mail from that company is blocked. Blacklists are useful and have made a dent in spam volumes, but this tool alone wasn't good enough for us.

We ended up going with a more elaborate service from MessageLabs Ltd., a Minneapolis-based service provider we were already using for e-mail traffic virus scans. The company offers a service to label spam using both blacklists and heuristics. As far as I can tell, this means MessageLabs has found a set of features associated with spam, produced a weighting for those features and established a threshold above which something is marked as probable spam.

> **Once a company is on the blacklist, its e-mail administrator must jump through hoops to get it removed. Meanwhile, any legitimate e-mail is blocked.**

For example, if an e-mail says, "Make money fast," then it will get a high score as possible spam. But if it comes from a known mailing list, the score will drop.

After testing the service, we found that it was marking 40% of all inbound e-mail as spam — more than 10,000 messages per day. After a month, just 106 e-mails had been incorrectly flagged — a false-alarm rate of less than 0.04%. That was good enough for us, especially since we can tune the rules so that such messages will be delivered the next time.

We later discovered that many of the falsely tagged e-mails were what I would call spam, but they happened to advertise products in which the recipient had an interest. This built our confidence in the service even more.

Some spam still gets through, but the amount is relatively small, and the sources are blocked when reported. And our users don't have to do anything to benefit from the service.

Not to be cynical, but I wonder, How long will it take for users to start thinking that even the greatly reduced level of spam is too much and come back asking for further improvements?

Spam is also a problem outside the office. My personal e-mail address is widely published, thanks to this column, so I get on many lists as well. The Web e-mail company I use, Dublin-based Hush Communications Inc., recently launched a new service called the Human Authenticator. When readers send me an e-mail message, I don't receive it until the sender performs a simple task that only a human could do. If you are a spammer, you won't have the time to carry out this task, so I hope that only individuals will be able to send mail to that account from now on. I'll have to see how it works out — and how readers react to the request.

Hoop Games

Even if the Human Authenticator works, I have concerns about forcing people who want to communicate with me to jump through hoops. And spammers, who make good money for their efforts, can well afford to get around such mechanisms by finding new ways to distribute commercial messages to potential customers.

I've already seen operating system message windows popping up on cable and Digital Subscriber Line clients with spam text in them. I've also seen Windows Media files that halfway through loading start opening Web sites to display commercial messages. Is this the way spammers will go if control of e-mail spam finally starts to work?

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

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SECURITY LOG

Security Bookshelf

■ *The Art of Deception*, by Kevin Mitnick and William L. Simon; John Wiley & Sons, 2002.

Mitnick, once the world's most reviled hacker, has co-written this book to teach companies how to defend against the threat of social engineering attacks.

Although the author includes best defenses against these threats, his recommendations offer fairly weak protection against social engineering. Nonetheless, I found *The Art of Deception* to be a superb primer.

– Vince Tuesday

NAI Adds Spam Control

Network security vendor Network Associates Inc. (NAI) beefed up its antispam products by acquiring Palo Alto, Calif.-based Deerfield Inc. NAI will use Deerfield's SpamAssassin Pro and Enterprise editions as the basis for its upcoming antispam products.

Santa Clara, Calif.-based NAI will deliver McAfee SpamKiller Enterprise for desktops early in the second quarter, and the company will update its ePolicy Orchestrator to manage SpamKiller Enterprise.

Sourcefire Ships Sensors

Intrusion-detection systems (IDS) vendor Sourcefire Inc. in Columbia, Md., this month began shipping two IDS network sensors for use in businesses that don't require gigabit-speed intrusion detection. The Sourcefire Network Sensor 3000 appliance, which supports up to 300M bit/sec. speeds, costs $5,000. The Network Sensor 2106, which operates between 250M to 500M bit/sec., costs $12,000.

BRIEFS

LANDesk Updates Management Suite

LANDesk Software Inc. in Salt Lake City today will announce a version of its Management Suite product that provides operating system deployment functionality. The new version provides patented multicasting technology for distributing operating systems to new clients or for updating older ones. Pricing is $75 per node, the company said.

Microsoft Releases Security Package For Servers

Microsoft Corp. last week released Feature Pack 1 for its Internet Security and Acceleration (ISA) Server 2000. The feature pack includes new application-layer firewall defenses and security enhancements for Exchange Server and Internet Information Server, as well as support for RSA Security Inc.'s SecurID two-factor authentication product. ISA Server Feature Pack 1 can be downloaded at Microsoft's Web site at *www.microsoft.com/isaserver/featurepack1/*.

OASIS Launches PKI Initiative

The Organization for the Advancement of Structured Information Standards (OASIS) announced last week the formation of a new technical committee to promote adoption of public-key infrastructure (PKI) technology for Web services and other applications. The Billerica, Mass.-based group plans to put out white papers, implementation guidelines and conformance tests to increase awareness and use of digital certificates. Terry Leahy, a vice president at Wells Fargo & Co., is chairman of the new committee. Vendor supporters include Baltimore Technologies PLC, Computer Associates International Inc., Entrust Inc., Neucom Corp., RSA Security, Sun Microsystems Inc. and VeriSign Inc.

NICHOLAS PETRELEY

Digital Rights Dominate 2002 Awards

GIVEN THE YEAR'S EVENTS, it should come as no surprise that digital rights dominate my 2002 "You Can't Be Serious" awards. These annual awards recognize truly astonishing achievements in IT double-think.

In that spirit, the "Beverage Through the Nose" award for 2002 goes to Congressman Howard Berman.

Be sure not to indulge in any liquid refreshment while reading Berman's statements about peer-to-peer networking published at *www.house.gov/berman*. In one amusing argument, he suggests that companies should be held blameless for breaking into your network to search for copyrighted content. It seems he came up with this theory because people are already given the leeway to trespass on someone's lawn to retrieve a stolen bicycle that's in plain view. To be sure, Richard Nixon's infamous Checkers speech was more inspired, but Berman's works of lunatic reasoning show great promise.

Microsoft ranked a close second in this category, but I have no pity for the poor fool with a mouthful of ginger ale when he heard Bill Gates first utter the words *Trustworthy Computing* last January. After hearing terms like *Zero Administration Windows*, everyone should know by now that it's dangerous to drink anything carbonated during an announcement from Redmond.

Nevertheless, Microsoft does run away with three major awards this year. The first is the "Information at Your Fingertips" award. How many times has this happened to you? You're at a company party shooting the breeze with your boss about the clever plot of a DVD movie you rented and watched yesterday. But when she asks about the name of the movie, your mind goes blank. Until recently, you'd have to wait until 3 a.m. for the name to come back to you.

Now the information can be as close as your cell phone. Every time you use the Windows Media Player to watch a new DVD, it automatically identifies the DVD to a Microsoft server, along with a unique identifier for your personal player.

So the next time you're on the spot for the name of some DVD you watched, give Microsoft a jingle and ask. Someone at the company should know the answer.

Naturally, this convenience will be unavailable to you if you don't use Windows Media Player. Fortunately, Microsoft devised an ingenious plan to prevent you from accidentally using less capable alternatives.

Here's how it works: Along with automatic updates to software and your end-user agreement, Windows XP periodically downloads the information it needs to prevent unapproved media players from accessing DRM-enabled content.

As DRM, or digital rights management, gains momentum and all your other software stops working, Windows Media Player is sure to become the irresistible choice for all your entertainment needs.

This ability to assert remote control over your software earns the company the "Zero Degrees of Separation" award for 2002. Granted, you could miss out on features like this if you don't have a PC, but it's safe to assume that Microsoft has similar plans for the Xbox and that companies such as Disney and Sony are hard at work figuring out how to control your access to copyrighted media on standard players. Better watch out, Microsoft, or one of these other companies could nudge you out of first place in this category next year!

The third award for Microsoft is the coveted "Ignorance Is Bliss" prize for 2002. The fact that sane people still use Windows or Media Player testifies to how well the company has been able to protect its customers from information about what these products are doing without their informed consent.

Finally, Ximian Inc. walks away with "The Mouse That Squeaked" award for continuing to reproduce the .Net development framework as an open-source project called Mono. The value of Mono eludes me, but perhaps there's a secret contingent of open-source programmers itching to write code in Visual Basic .Net.

Nevertheless, only delusions of grandeur could account for the notion that Microsoft won't bankrupt Ximian and stop the project on claims of patent violations the moment Mono poses a threat.

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They get offered radio-controlled cars, free money from Nigeria and, perhaps most bizarrely, septic tanks. That flood is bad enough, but mixed in with all the commercial rubbish are darker-themed messages — come-ons to pornographic Web sites and hate sites, as well as abusive e-mails.

These frontline staffers constantly face high volumes of offensive content, and until recently, we had done little about it.

The problem became bad enough that it presented a risk to our productivity. Staffers were worried by the content, our e-mail systems were spending time on spam rather than on customer e-mails, and the problem affected employees at all levels.

Turning to Blacklists

The first option we looked at was using a blacklist service, which takes spam reports, identifies the servers used and publishes the addresses so that our e-mail server can automatically shun further e-mails from those sources. But spammers move to new servers faster than the blacklist can keep up. Another drawback: Once a company is on the blacklist, its e-mail administrator must jump through hoops to get it removed. Meanwhile, any legitimate e-mail from that company is blocked. Blacklists are useful and have made a dent in spam volumes, but this tool alone wasn't good enough for us.

We ended up going with a more elaborate service from MessageLabs Ltd., a Minneapolis-based service provider we were already using for e-mail traffic virus scans. The company offers a service to label spam using both blacklists and heuristics. As far as I can tell, this means MessageLabs has found a set of features associated with spam, produced a weighting for those features and established a threshold above which something is marked as probable spam.

Once a company is on the blacklist, its e-mail administrator must jump through hoops to get it removed. Meanwhile, any legitimate e-mail is blocked.

For example, if an e-mail says, "Make money fast," then it will get a high score as possible spam. But if it comes from a known mailing list, the score will drop.

After testing the service, we found that it was marking 40% of all inbound e-mail as spam — more than 10,000 messages per day. After a month, just 106 e-mails had been incorrectly flagged — a false-alarm rate of less than 0.04%. That was good enough for us, especially since we can tune the rules so that such messages will be delivered the next time.

We later discovered that many of the falsely tagged e-mails were what I would call spam, but they happened to advertise products in which the recipient had an interest. This built our confidence in the service even more.

Some spam still gets through, but the amount is relatively small, and the sources are blocked when reported. And our users don't have to do anything to benefit from the service.

Not to be cynical, but I wonder, How long will it take for users to start thinking that even the greatly reduced level of spam is too much and come back asking for further improvements?

Spam is also a problem outside the office. My personal e-mail address is widely published, thanks to this column, so I get on many lists as well. The Web e-mail company I use, Dublin-based Hush Communications Inc., recently launched a new service called the Human Authenticator. When readers send me an e-mail message, I don't receive it until the sender performs a simple task that only a human could do. If you are a spammer, you won't have the time to carry out this task, so I hope that only individuals will be able to send mail to that account from now on. I'll have to see how it works out — and how readers react to the request.

Hoop Games

Even if the Human Authenticator works, I have concerns about forcing people who want to communicate with me to jump through hoops. And spammers, who make good money for their efforts, can well afford to get around such mechanisms by finding new ways to distribute commercial messages to potential customers.

I've already seen operating system message windows popping up on cable and Digital Subscriber Line clients with spam text in them. I've also seen Windows Media files that halfway through loading start opening Web sites to display commercial messages. Is this the way spammers will go if control of e-mail spam finally starts to work?

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vincetuesday@hushmail.com, or join the discussion in our forum.

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To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

■ ***The Art of Deception***, **by Kevin Mitnick and William L. Simon; John Wiley & Sons, 2002.**

Mitnick, once the world's most reviled hacker, has co-written this book to teach companies how to defend against the threat of social engineering attacks.

Although the author includes best defenses against these threats, his recommendations offer fairly weak protection against social engineering. Nonetheless, I found *The Art of Deception* to be a superb primer.

– *Vince Tuesday*

NAI Adds Spam Control

Network security vendor Network Associates Inc. (NAI) beefed up its antispam products by acquiring Palo Alto, Calif.-based Deersoft Inc. NAI will use Deersoft's SpamAssassin Pro and Enterprise editions as the basis for its upcoming antispam products.

Santa Clara, Calif.-based NAI will deliver McAfee SpamKiller Enterprise for desktops early in the second quarter, and the company will update its ePolicy Orchestrator to manage SpamKiller Enterprise.

Sourcefire Ships Sensors

Intrusion-detection systems (IDS) vendor Sourcefire Inc. in Columbia, Md., this month begins shipping two IDS network sensors for use in businesses that don't require gigabit-speed intrusion detection. The Sourcefire Network Sensor 1000 appliance, which supports up to 30M bit/sec. speeds, costs $5,000. The Network Sensor 2100, which operates between 250M to 300M bit/sec., costs $13,000.

BRIEFS

LANDesk Updates Management Suite

LANDesk Software Inc. in Salt Lake City today will announce a version of its Management Suite product that provides operating system deployment functionality. The new version provides patented multicasting technology for distributing operating systems to new clients or for updating older ones. Pricing is $75 per node, the company said.

Microsoft Releases Security Package For Servers

Microsoft Corp. last week released Feature Pack 1 for its Internet Security and Acceleration (ISA) Server 2000. The feature pack includes new application-layer firewall defenses and security enhancements for Exchange Server and Internet Information Server, as well as support for RSA Security Inc.'s SecurID two-factor authentication product. ISA Server Feature Pack 1 can be downloaded at Microsoft's Web site at *www.microsoft.com/isaserver/featurepack1/*.

OASIS Launches PKI Initiative

The Organization for the Advancement of Structured Information Standards (OASIS) announced last week the formation of a new technical committee to promote adoption of public-key infrastructure (PKI) technology for Web services and other applications. The Billerica, Mass.-based group plans to put out white papers, implementation guidelines and conformance tests to increase awareness and use of digital certificates. Terry Leahy, a vice president at Wells Fargo & Co., is chairman of the new committee. Vendor supporters include Baltimore Technologies PLC, Computer Associates International Inc., Entrust Inc., Neucom Corp., RSA Security, Sun Microsystems Inc. and VeriSign Inc.

NICHOLAS PETRELEY

Digital Rights Dominate 2002 Awards

GIVEN THE YEAR'S EVENTS, it should come as no surprise that digital rights dominate my 2002 "You Can't Be Serious" awards. These annual awards recognize truly astonishing achievements in IT double-think.

In that spirit, the "Beverage Through the Nose" award for 2002 goes to Congressman Howard Berman.

Be sure not to indulge in any liquid refreshment while reading Berman's statements about peer-to-peer networking published at *www.house.gov/berman*. In one amusing argument, he suggests that companies should be held blameless for breaking into your network to search for copyrighted content. It seems he came up with this theory because people are already given the leeway to trespass on someone's lawn to retrieve a stolen bicycle that's in plain view. To be sure, Richard Nixon's infamous Checkers speech was more inspired, but Berman's works of lunatic reasoning show great promise.

NICHOLAS PETRELEY is a computer consultant and author in Asheville, N.C. He can be reached at [illegible]

Microsoft ranked a close second in this category, but I have no pity for the poor fool with a mouthful of ginger ale when he heard Bill Gates first utter the words *Trustworthy Computing* last January. After hearing terms like *Zero Administration Windows*, everyone should know by now that it's dangerous to drink anything carbonated during an announcement from Redmond.

Nevertheless, Microsoft does run away with three major awards this year. The first is the "Information at Your Fingertips" award. How many times has this happened to you? You're at a company party shooting the breeze with your boss about the clever plot of a DVD movie you rented and watched yesterday. But when she asks about the name of the movie, your mind goes blank. Until recently, you'd have to wait until 3 a.m. for the name to come back to you.

Now the information can be as close as your cell phone. Every time you use the Windows Media Player to watch a new DVD, it automatically identifies the DVD to a Microsoft server, along with a unique identifier for your personal player.

So the next time you're on the spot for the name of some DVD you watched, give Microsoft a jingle and ask. Someone at the company should know the answer.

Naturally, this convenience will be unavailable to you if you don't use Windows Media Player. Fortunately, Microsoft devised an ingenious plan to prevent you from accidentally using less capable alternatives.

Here's how it works: Along with automatic updates to software and your end-user agreement, Windows XP periodically downloads the information it needs to prevent unapproved media players from accessing DRM-enabled content.

As DRM, or digital rights management, gains momentum and all your other software stops working, Windows Media Player is sure to become the irresistible choice for all your entertainment needs.

This ability to assert remote control over your software earns the company the "Zero Degrees of Separation" award for 2002. Granted, you could miss out on features like this if you don't have a PC, but it's safe to assume that Microsoft has similar plans for the Xbox and that companies such as Disney and Sony are hard at work figuring out how to control your access to copyrighted media on standard players. Better watch out, Microsoft, or one of these other companies could nudge you out of first place in this category next year!

The third award for Microsoft is the coveted "Ignorance Is Bliss" prize for 2002. The fact that sane people still use Windows or Media Player testifies to how well the company has been able to protect its customers from information about what these products are doing without their informed consent.

Finally, Ximian Inc. walks away with "The Mouse That Squeaked" award for continuing to reproduce the .Net development framework as an open-source project called Mono. The value of Mono eludes me, but perhaps there's a secret contingent of open-source programmers itching to write code in Visual Basic .Net.

Nevertheless, only delusions of grandeur could account for the notion that Microsoft won't bankrupt Ximian and stop the project on claims of patent violations the moment Mono poses a threat.

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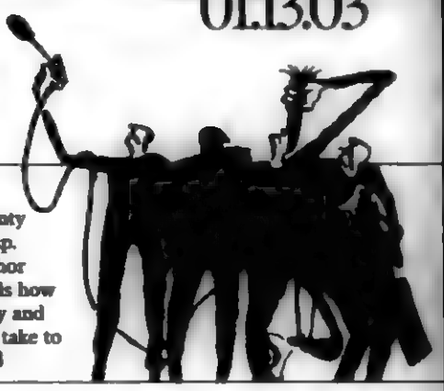

QUOTE OF THE WEEK

"Knowledge transfer in the long run isn't going to help consultants get more business. So, make sure it's in the contract upfront as one of the deliverables. This is a good place to separate good consultants from bad ones."

– Steve Romaine, chief strategist at Hartford Financial, author and former IT consultant. Page 44

OPINION

When to Leave Your Calculator in the Drawer

Not all IT investments require ROI and other financial modeling upfront. Sometimes managerial experience and know-how are far more valuable than any calculator, writes columnist John Berry. **Page 45**

High Anxiety

Dread and uncertainty can hurt an IT group. Consultant and author Jeffrey A. Miller tells how to recognize anxiety and what steps you can take to alleviate it. **Page 43**

ISABELLE ARSENAULT/ARGODSON.COM

BITING BACK

Find and fix 1% of your software bugs, and 90% of your system problems go away, say experts. By Alan S. Horowitz

BUGS ARE SMALL. Usually. Unless, of course, they are of the software kind, in which case they can grow quite large and become hugely expensive to fix. The Sustainable Computing Consortium, a collaboration of major corporate IT users, university researchers and government agencies, estimates that buggy or flawed software cost businesses $175 billion worldwide in 2001. In the U.S., software bugs cost companies nearly $60 billion per year, according to the Commerce Department's National Institute of Standards and Technology (NIST). More important is that one-third of these costs could be eliminated with improved testing that catches errors earlier in the software development process, NIST says.

Smart CIOs are creating comprehensive strategies to test for and fix bugs in both off-the-shelf software and applications created in-house. They know that bugs, like infections, fester the longer they hang around and, as a result, cost more to deal with when left unchecked.

Gartner Inc. analyst Theresa Lanowitz says a software defect left unfixed until late in the development cycle costs 80 to 1,000 times more to fix than it would if it was dealt with earlier. No company is immune to the potential costs of software bugs, which is why a comprehensive plan for dealing with them is critical.

"Bugs are a way of life. You have to accept that," says Vivek Wadhwa, CEO of Relativity Technologies Inc., a software vendor in Cary, N.C.

"Every piece of software will have bugs in it," agrees Lanowitz.

Some are more easily recognized than others. For example, CIO Jose Marrero and his team at Agco Corp., a $2.5 billion manufacturer and distributor of agricultural equipment in Duluth, Ga., recently thought they were updating a particular record in a database when, in fact, because of a bug, the software was updating a different field. The cost to analyze and fix the problem: $30,000 to $40,000.

Human Bug Busters

Experts say software quality assurance is as much a people issue as it is a technical one. "If you don't change the way people work, it won't help. To solve quality problems, you have to change what software people do," says Watts S. Humphrey, a fellow at Carnegie Mellon University's Software Engineering Institute.

The institute trains programmers and engineers to work in self-directed teams and to manage their work. They become owners of their plans and processes and therefore take more responsibility for the quality of their products upfront. As a result, says Humphrey, engineers, who might spend upward of 50% of their time testing software after it's developed, now devote as little as 10% of their time to postdevelopment testing.

Regular communication among software developers and all stakeholders, including users, is also essential. Lanowitz recommends that software

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BITING BACK

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development project teams, which should include the development manager, test manager and business champion, meet weekly, with the same participants attending each meeting to ensure that everyone involved knows what progress has been made and what problems have arisen. If bugs are holding back a project, everyone needs to know as early as possible.

This strategy is typically used by commercial software development companies, but not by user companies, says Lanowitz.

Foster Wheeler Inc., a design, engineering and construction services company in Clinton, N.J., has created Web-based software for internal use called Bugtracks. It tracks all information about bugs in real time, including who is working on any given bug, who is ultimately responsible and who the project managers are on both the business and technical sides. Bugtracks, says Foster's corporate IT director, Victor Slaicetti, "allows business users to see what the status of bugs is. It ties the actual developer to the actual business user. The benefit is, you put everybody on the same sheet of music."

But harmony isn't always the result. One reason is that some developers don't like to admit that they are the source of bugs, which is understandable. "Developers like to hide their bugs. They regard them as a weakness or inferiority," says Wadhwa. Observers say this is especially true once the software has gone into production.

To counter this problem, Jonathan Clark, chief technology officer at software tester VeriTest North America in Morrisville, N.C., offers financial incentives to developers who find bugs in other developers' software during the development process — say, $50 to $100 per hit, depending on the severity of the bug. Wadhwa gives similar incentives, plus a party to the team that finds the most bugs by the end of the project. Such incentives motivate developers to find bugs before the software is deployed.

BOB GRAWIEN of Schneider National tries to find bugs in preproduction.

But first, bugs must be defined. "Sometimes the [internal] customer thinks it's a system issue, but about 90% of the time we have bugs reported by customers, it's more a process or data issue," says Art Data, vice president of IT at International Truck and Engine Corp. in Warrenville, Ill.

Defining Your Terms

When someone on the business side can't do what he expected to because of software limitations, he calls it a bug. But the developer usually views this as a change request, because the functionality wasn't initially specified.

For example, IDC analyst Christine Tenneson says she has seen cases in which the software for a database covering multiple regions was designed with selections for only general geographies, such as the Americas, but users wanted to select by country. Users call this a bug; developers call it a change request.

FINDING YOUR SWEET SPOT

Here's how to tell it's time to stop testing and deploy new software

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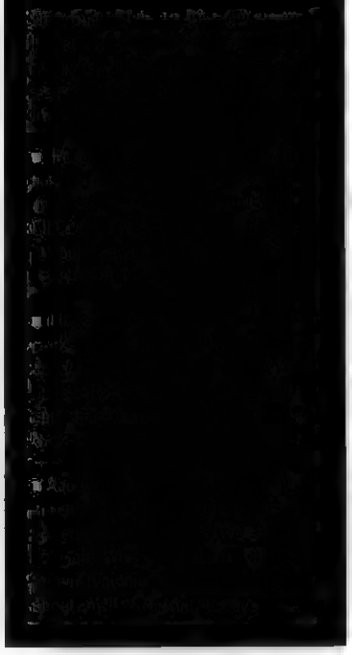
For this reason, Andrei Chivvis, CIO at Converium Reinsurance Inc. in Stamford, Conn., does what might seem obvious: He requires users to sign off when they define their requirements and after they test in terms of performance. This forces users to think upfront about what they want, Chivvis says.

Before he implemented this formal sign-off process, users were involved with software development but frequently didn't think things through to the finished product. It was believed that if changes needed to be made later, that was fine. This tended to shorten the development time but caused more headaches after the software was created. Chivvis is trying to change this problem with his new strategy, which he acknowledges is a difficult culture change. Users need to understand that once the testing begins, specifications don't change.

A debugging strategy must also include the programmers, notes David J. Agans, author of *Debugging: The 9 Indispensable Rules for Finding Even the Most Elusive Software and Hardware Problems* (Amacom Books, 2002). "The assumption is that because they have a degree in engineering, they know how to debug." Not true, Agans says. Developers often approach debugging as puzzle-solving, but it's actually more investigative, a la Sherlock Holmes, he says. So train your developers in debugging.

Dealing With Packaged Bugs



To accommodate the growing number of external users, Bob Grawien, vice president of application development at trucking firm Schneider National Inc. in Green Bay, Wis., implemented a comprehensive testing procedure to be used during the in-house development process. It begins with testing specific features in an isolated environment on a developer's workstation, followed by testing in an isolated system-level environment. Next comes application load testing, scalability testing and, finally, a user acceptance test. All of this is aimed at preventing bugs from making it into production.

When bugs do creep through Schneider's process and are found in production, there's an IT help desk for users to call. If that group can't determine the cause of the problem, it moves up to the next group, whose job is to keep production running. If the bug is still running around unchecked, the development team is brought in. This escalation process lets the development team focus primarily on development, while others deal with bugs first.

Schneider's bug management program has also implemented consistent ways to notify users of problems. For example, if a logistics application has a bug, IT has a list of users it calls to alert them to a problem in production, let them know what the ramifications might be and tell them when to expect the software to be up and running again.

"We tend to view the world as an iron triangle: people, process and technology," notes Grawien. Project managers, for instance, are given well-defined deliverables and responsibilities.

The company recently built isolated systems for a wide range of tests, with the goal of providing consistent quality improvement. And, on the technology side, it has invested in hardware and software, including a Segue Software Inc. tool that simulates multiple users, and a Sitraka Inc. software tool that analyzes software performance. Schneider also provides training on the tools for its development teams.

Menasha Corp., a manufacturer of packaging materials in Neenah, Wis., goes a step further.

"It's not enough [to test] that the software ran to completion. We put a business model against it to validate it will respond in production," says CIO Ed Wojciechowski.

Testers consolidate a number of scripts for business processes, such as processing a sales order to ship a product. They then compare the software against historical trends, which, among other things, indicates how well current software works for the same business processes from a profit-and-loss perspective. It's not enough that the new software works technically; it must perform better than what it's replacing in the real-world production setting, he says.

It's estimated that less than 3% of insects are actually pests in the natural world. VeriTest's Clark says something similar happens with software: "One percent of software bugs tend to cause 90% of the problems. [Fixing] your top 10 bugs would solve so much of your problems."

Software bugs can't be eliminated any more than all the insecticides in the world can eliminate creepy bugs. But experts conclude that if you focus on the peskiest ones, you'll go a long way toward eliminating most of your bug-related headaches.

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@horowitz.com.

A DEBUGGING PRIMER

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BITING BACK

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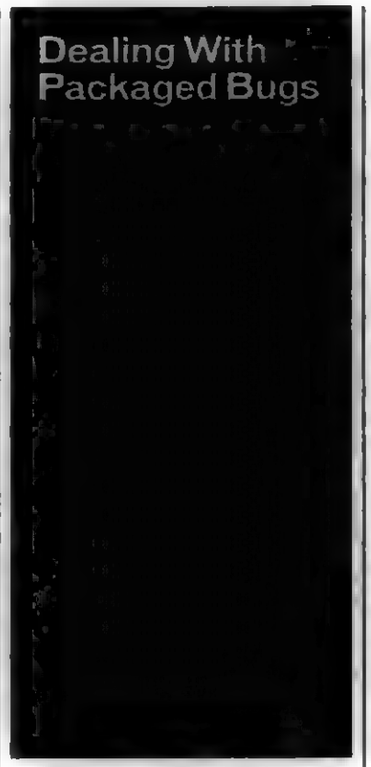

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MOVING BUSINESS FORWARD

When The Plug Gets Pulled

How to survive and maybe even thrive in the wake of a canceled IT project.

By Minda Zetlin

CAREERS

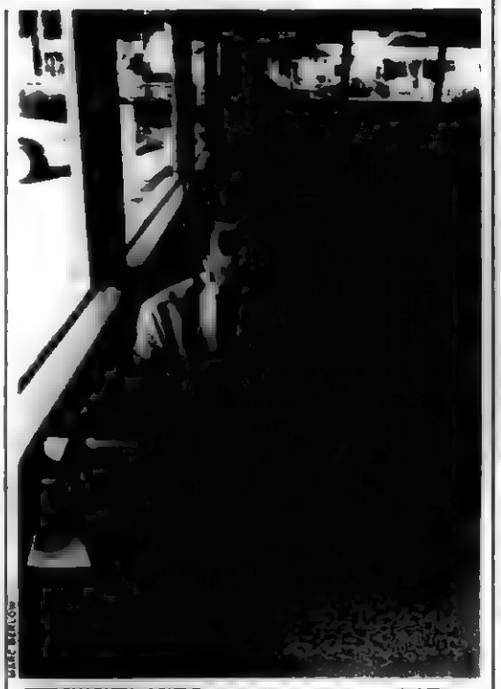
IN A PREVIOUS JOB at a large refining company, IT director Bob Ghirlanda spent a year putting together a plan to install a computerized maintenance management system. With the system specifications and ROI analysis in place, Ghirlanda went to work implementing the project. Then things started to go wrong.

Executives had selected software that seemed to fit their corporate goals, but it wasn't the right software for the company's technology needs. Faced with growing concerns, the company's CIO decided to cancel the project, and Ghirlanda agreed with this decision. "We could not assure corporate leadership that the project would be a success," he says.

In these days of economic uncertainty, canceled projects are a fact of life. Although it's never a pleasant experience, it doesn't have to be a debilitating career setback for an IT project manager. The key is how you handle the cancellation. Here's some advice from those who have been there on how to survive after the plug is pulled.

■ **Don't take it personally.** "Most of the time, it's not that the team was doing things badly," says Jeff Chasney, CIO at $3 billion CKE Restaurants Inc. in Santa Barbara, Calif. Chasney characterizes himself as a "turnaround CIO" who is often hired to make changes in troubled IT organizations. He says he has canceled at least 12 major projects in the past few years — including the one Ghirlanda was working on. "Better than 50% were because the company was changing direction," he notes. "In other cases, it was the right project at the wrong time, or it didn't match the organization's culture."

■ **Treat it as a completion.** Do the things you would after a successful completion. "It's really important that the project manager does the regular closeout activities," says Karen White, director of resource management at Project Management Solutions Inc., a consulting, training and research company in Havertown, Pa. As both a consultant and an internal project manager, she has been through several project cancellations in her career.



JEFF CHASNEY of CKE Restaurants says most canceled IT projects are the result of organizational changes, not staff failures.

"Close the files in an orderly way, do the team awards and lessons learned," White says. "You need to recognize that there's a grief period and help the team through it — and still have the ending celebration to say, 'We took our best shot.' This is important for team morale."

■ **Make sure the team isn't blamed.** "Both the project manager and the project's business sponsor need to make sure the team is not labeled as a failure," White says. For instance, a major project White was working on at a financial services company was canceled when the firm was acquired.

"We made sure the team got awards and recognition and bonuses," she says. "It wasn't their fault the corporation was sold."

■ **Keep your eye out for the next project.** "A project can always be canceled, so it's important to keep networking," Ghirlanda says. White advises project managers to keep their skills and certifications current. "Don't always have lunch with your project team — eat with other folks from your company as well," she counsels. In effect, White says, "you're always interviewing."

■ **Learn from it.** "I look for whether people have learned the lessons of a canceled project," Chasney says. For instance, he says, if a project was canceled because of spiraling expenses, "I expect to see far more diligence and for them to be watching the budget numbers more closely."

In some cases, the company and the project manager are simply a bad fit. That's the conclusion Ghirlanda reached after his maintenance project was one of a whole suite canceled by the refining company. About a year later, he began looking for other opportunities, and he's now a reliability systems planning manager at Eastman Kodak Co. Of his old firm, Ghirlanda says, "It became clear they weren't going to invest the resources in IT projects." ◗

Zetlin (minda@mindazetlin.com) is a writer in Woodstock, N.Y. Her latest book is Telecommuting for Dummies *(Hungry Minds, 2001).*

Cancellation As a Career Plus

A few years ago, Karen White was principal information systems analyst at now-defunct Wang Laboratories Inc. She and her team built a large data repository for the company's hardware sales segment.

The project was a high-profile success, and the maintenance department requested that White's team do the same for it. But after a feasibility study, the team concluded that the department's reporting was incompatible with the system it wanted.

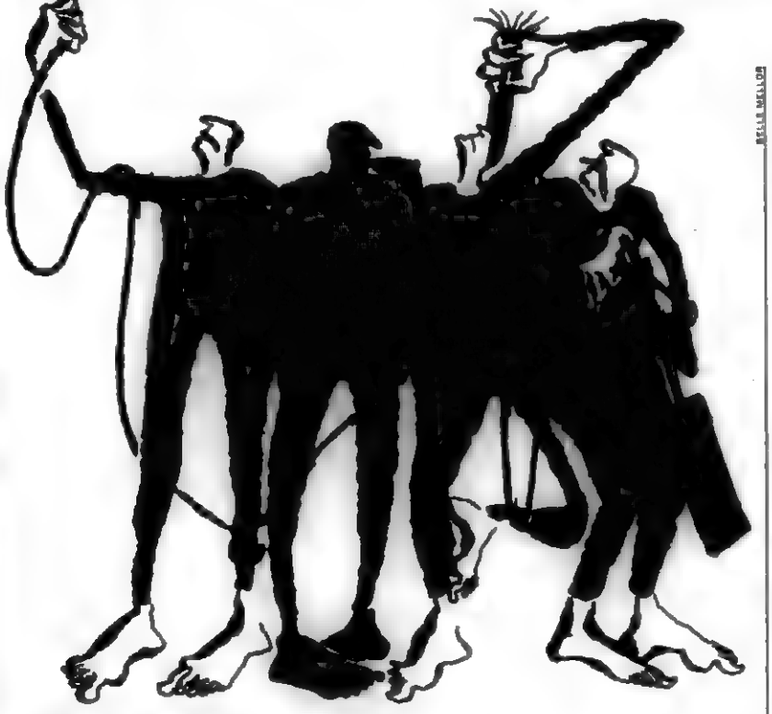
So White sat down with the project's business sponsor and explained why it wouldn't work. "A lot of angst comes into play when you do that," she says. "I thought, 'I just shot down my own project. Now I don't have a project to manage.'"

The business manager, however, was impressed with her willingness to state an unpopular truth. He became a valuable advocate for her within the corporation. "There were other instances when I needed his political support, and he was always there," she says.

Jeff Chasney, CIO at CKE Restaurants, confirms that a project manager who volunteers to cancel a project that's in trouble can gain respect from top managers. "It's a real career enhancement when someone can forecast out and see that a project won't work," he says.

"Don't be afraid to recommend a cancellation," White says. "After all, it's much better to cancel something than to complete it – and then have it sit on a shelf."

– *Minda Zetlin*



BELLE MELLOR

High Anxiety

Dread and uncertainty can hurt an IT group. What to do? By Kathleen Melymuka

AN IT MANAGER and a programmer at a large Eastern frozen food company were locked in mortal combat. "Bob," the programmer, was working 60- to 80-hour weeks for "Larry," his manager. But Bob thought that Larry didn't appreciate his efforts and that he often threw back perfectly good code as unacceptable. Bob was so distraught that he was literally hiding from Larry.

Larry was equally annoyed at Bob, whose work he considered substandard. He wanted Bob out, but he knew that if he fired him, the IT department would miss a critical deadline.

When organizational consultant Jeffrey A. Miller was brought in, he found that the problem was neither Bob nor Larry; it was the anxious atmosphere of the organization where they worked.

A little anxiety can be a good thing, as when keen competition forces companies to work smarter. But when organizational anxiety rises and isn't handled well — when employees begin to blow up or hide out — productivity can suffer in unpredictable ways.

The root of Larry's and Bob's anxiety was that their company had just made a huge acquisition, and the IT group had been charged with integrating the two information systems within a time frame that seemed impossible to them. To make matters worse, Larry's boss, "Ted," was playing out his own stress by micromanaging, adding to the tension. And his "overfunctioning" was affecting people's performances by leading them to "underfunction," according to Miller.

If this scenario seems familiar, you may be working in an anxious organization, and you may not be aware of it, says Miller, author of *The Anxious Organization: Why Smart Companies Do Dumb Things* (Facts on Demand Press, 2002). Organizational anxiety can result from inappropriate, unarticulated or conflicting goals, time pressure, bad leadership, mixed messages and the helpless feeling that you're damned if you do and damned if you don't.

Often, people like Bob and Larry deflect attention from the real problems, such as time pressure and poor leadership. "People think: 'Fix them, and we fix the problem,' " Miller says. "But they may not have identified the problems. This is very common in IT."

"I see this type of anxiety in every shop I go to," says Tom Murphy, CIO at Royal Caribbean Cruises Ltd. in Miami.

"I've seen cultures where interpersonal clashes were considered good for the organization," says Ed Bell, CIO at Commonwealth Financial Network in Waltham, Mass. "Feuding and finger-pointing are offshoots of these interpersonal clashes. The net result was projects took longer or never got started, turnover was high, and people were hesitant to make decisions or take risks."

The more people focus on these symptoms, the more anxious they become and the less able they are to see, let alone solve, the real problems, Miller says.

Organizational anxiety can also affect the business in subtle but equally destructive ways. "In the face of consistent and acute anxiety, people really pull inward," says Miller, who is also president of Jeffrey A. Miller & Associates in Chicago. "They're not likely to be very creative or flexible or to make decisions other than the same ones that have always been made. No one wants to break stride from the pack when anxiety is high." This leads to "group think," which keeps individuals from challenging bad ideas.

Because change can breed anxiety, IT is prone to it, Miller says. But IT people can also alleviate anxiety if they think of the organization as a system. "This isn't psychology; it's systems," Miller says. "Change the program a little, and you might get it to run."

Miller suggests that IT managers start with their own relationships. "Deal with each person directly, not through someone else," he says.

Meanwhile, look for an opportunity to change something for the better. "It's just like writing code or plotting a system," he says. "Once one part of a system changes, the whole system is de facto different."

"IT professionals are responsible for change within the organization," says Virginia Robbins, IT director at Chela Financial Cos. in San Francisco. "IT drives change. Our behaviors drive the culture and thus influence and change the culture every day. We are either part of the company's positive culture, or we're the problem."

Anxiety and calm are contagious, Miller says. If you can calm down the system, people will loosen up and begin to address the real problems.

That's what happened with Bob, Larry and Ted. Miller helped Bob notice that the more detail he added to his work, the less Larry complained. Because Bob didn't need to redo his work, he went home earlier. He and Larry began to work out a better relationship. Ted stopped micromanaging and let his staff take charge. All three found that as they stopped feeding their anxiety, they had much more energy to do the work. The bottom line: They got the project done on time.

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@earthlink.net.*

ARE YOU FULLY FUNCTIONAL?

To find out, go online and read this book excerpt from Jeffrey A. Miller's *The Anxious Organization*:

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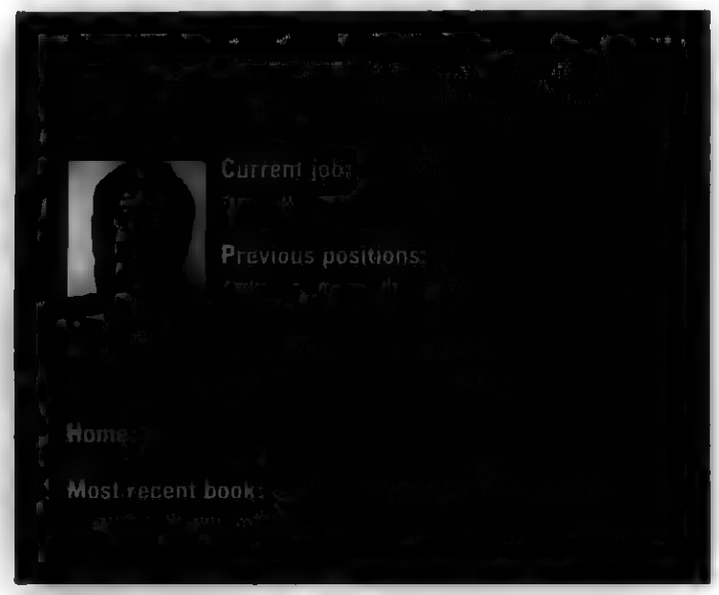
How High Is Too High?

If your answer to most of the following questions is yes, the anxiety level in your IT department is probably too high:

- Do people take sides with others instead of talking about an issue?
- Do workgroups tend to come to rapid agreement, with very little discussion or dissent?
- Do the same individuals tend to be blamed consistently for problems?
- Are people quitting due to stress or dissatisfaction with the company?
- When problems arise, are people urged to show more "team spirit"?
- Is "improved communication" considered the solution to all conflicts?
- Do leaders send conflicting instructions and mixed messages?

Coming In From the Cold



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You've been on both sides of the fence. Where would you say problems first surface? **What are the early warning signs of potential abuse?** What often happens is a consultant comes in and says, "We have a game plan we used before. It's a best practice. Get someone out of your business unit to be the project sponsor and head that up." Consulting firms say they need a high-level sponsor [at the client company] because it's important to make sure the business unit buys in. But the problem is that the client company is often getting such a senior-level executive that they're not there to run the project on a day-to-day basis. Senior executives don't understand the technology, but they don't want to appear not to understand, so it creates a dependency on the consultant. That's a huge issue.

You raise an interesting issue about best practices. Consulting firms like to tout their vertical industry expertise. But what value is it to Company B to have a consulting firm deploy the same systems and processes it deployed for Company A, especially if they're in the same industry? If it's something that's a core competency of your business, something you're hoping will give you a competitive advantage, don't bring in consultants who will learn on the job [and] then go across the street and work for the next guy. You have to be careful not to train the workforce of your competitor. Sometimes, best practices make a lot of sense if you can gain competitive information, but you have to put parameters around it to make sure you're not becoming a me-too operation.

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Consultants bill by the hour, which can get extraordinarily expensive for companies. Any tips for keeping a lid on their hours? Consultants get caught up in "analysis paralysis" because they're trying to bill out as much as they can. It makes sense for companies to define their [project] requirements before they hire an outside consultant or to divide up the work, because there's a conflict of interest if you hire the same consulting firm to do both [the requirements planning and the implementation]. For example, you're not going to see a firm with PeopleSoft consultants on their bench recommend SAP.

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JOHN BERRY

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As it happens, the economic potential of that risky strategic technology might hit you so hard between the eyes that a fully loaded business case becomes irrelevant — if not a waste of time.

Consider this example — no, fairy tale. A computer-aided design (CAD) software vendor was pitched a sales-lead management application as a means to automate its relationships with its resellers. The business benefits blared out to the chief operating officer of the CAD software company. To him, the economic justification was obvious. So, he decided, why bother formulating a financial business case?

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Another benefit the vendor recognized was the acceleration of leads into the sales pipeline. Historically, leads were collected, dropped into a spreadsheet and shipped off weekly to the resellers. When leads are plugged into the software sooner after capture, resellers act upon them more quickly.

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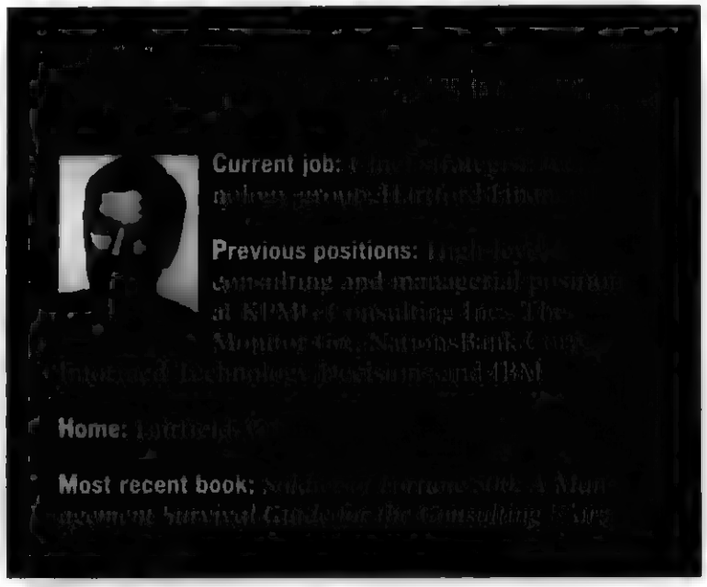

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A position is available for a Quality Assurance Technician with an Atlanta-based technology solutions company. The company architects and designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.

The Quality Assurance Technician is primarily responsible for assisting the Quality Assurance Manager in the development of standardized repair processes in an effort to identify "best practices" and instill quality into the company's products. Specific responsibilities include developing standardized repair procedures for all new products and assisting in the planning and implementation of testing strategies.

Candidates should possess a Bachelor's degree in Computer Engineering or other engineering related field and five years' experience in board-level repair testing, database management, and computer systems repair.

Apply by mail to:
Christie LoCurto
3925 Brookside Parkway
Alpharetta, Georgia 30022

Seeking software engineer with Master's Degree in Computer/Electrical Engineering, Physics or Math + 3 yrs. exp. as Software Engineer or Software Developer to research, design, & develop computer software systems applying principles & techniques of computer science, engineering, and mathematical analysis & work with wide variety of platforms. Analyze software requirements, consult with hardware engineers & other engineering staff, evaluate interface between hardware & software & operational & performance requirements of system. Formulate & design software system. Develop & direct software system testing procedures, programming, & documentation. Consult with customers on maintenance of software system & coordinating installation of software systems. Must have experience with XML standards, XSLT, J2EE Architecture, EJB 1.1 and EJB 2.0, JMS; JSP; Java Swing, Java, BEA Weblogic and Customizing GIS software. Rational Tool Suite UML, Object Oriented Design, Oracle/MSSQL, C and C++, and Sun/Windows software and hardware. Salary $85,000.00/yr. 40 hrs./wk. Applicants must send two (2) copies of resume to Job Order #2003-086, P.O. Box 999, Concord, NH 03302-0999

SOFTWARE CONSULTANT

Analyze & evaluate existing or proposed software sys. Design, dvlp, implement & improve programs, sys. and related procedures to process data using in-depth knowledge of the software dvlpmnt life cycle. Encode, test, debug & install operating programs & other sys. software utilizing knowledge of RDMBS environments & PowerBuilder. B.S. (or equiv.) in Comp. Sci., Comp. Eng. or directly related field + 2 yrs exp. in position offered or as a Prog. Analyst, Sys. Analyst or Software Engnr req'd. Exp. must include: (a) Oracle, Sybase or SQL Server; and (b) PowerBuilder. High mobility preferred. 40 hours/week, 8:00 a.m. to 5:00 p.m., $61,000/yr. Qualified applicants submit resume to: Manager, Washington County Team PA, CareerLink Millcraft Center, suite 150LL, 90 West Chestnut Street, Washington, PA 15301-4517. Please refer to Job Order No. WEB 2795707.

Senior Software Developer. Provide architectural direction to web app. projects. Design, implement and deploy web apps. using J2EE. Execute projects using RUP. Provide object and component modeling using UML. Provide integration solutions between J2EE and EIS platforms using JCA. Design, implement and deploy HROR-BIT Project on UNIX platform, with performance tuning by clustering and load balancing of Weblogic app. Server. Provide SOAP based XML messaging solutions. Must have B.S. in Comp. Sci., Eng. or related degree + 1 yr. exp. in job offered or Software Engineer. Must have knowledge of J2EE and EIS platforms (PeopleSoft) using JCA, ADK, SOAP, XML messaging, RUP, UML and UNIX. $72,000/yr. Send resume + cover letter to: CMC, Attn: Anshu Butcher, 6951 Pistol Range Rd., Tampa, FL 33635.

GIS Software
Quality Control Specialists:
GIS Software test planning and preparation. Generate test cases and scripts using geographically referenced data, report and coordinate test activities, execute test scripts, record results in a defect tracking pool and implement sound QA testing practices using GNIS, LODE data, GE Smallworld, Framme, Microstation & Autocad. Communicate and resolve QA issues with Programmers and Developers. Develop & initiate quality standards for new software tools to implement new versions of GIS. 2 years exp. in job offered required. Think Resources, Inc., Attn: GIS Recruiting, 280 Technology Parkway, Norcross, GA 30092. No phone calls please. EOE

PenCap Corporation is looking for a senior software engineer responsible for the architecture and development of the company's systems performance and capacity planning software products that are intended for secure web based performance management of hybrid IT infrastructures with multiple platforms like HP-UX, IBM-AIX, Sun Solaris, TRU64 Unix and Windows 2000. Duties involve development of system data collectors for the mentioned platforms, web based GUIs and management servers. Requires JAVA, C/C++ programming and SQL Server. A bachelor's degree in Engineering or Computer Science with five years experience. Salary $82K. Submit 2 copies of resume to Job Order # 2003-078, PO Box 999, Concord, NH 03302-0999.

SolutionsIQ seeks DB Engr for HQ office in Bellevue, WA. DESC: Dsgn, dev. & cust. RDBMS, web based tools, components & progs. & encryption techs. for impl. into multi-user financial transactions sys. usg. SQL, C#, XML, ASPX, internet protocols, component based techs., OO dsgn & dev. and .NET on Win based o/s. REQS: BS in Engr, CS, Math, or Physics + 5 yrs. exp. dsgn. dev. & impl. RDBMS & rel. apps. for multi-user financial transactions sys. usg. SQL, internet protocols, component based techs., OO dsgn & dev., HLL, and Win plats. Prem. pay + bonus. Pls. reply to D. Wilmert, Job # SIQ-214, 1260-116th AVE NE, Bellevue, WA 98004

Computer Network Analyst

Computer Consulting Co. seeks qualified indiv. to analyze, design, test & evaluate network systems. Req'd: Master Degree in Comp Sci. Must have MCSE/MCSA. Must have exp. with Java, Unix, &TCP/IP through education or employment. Pls. send res. to: Infovalue Computing, Inc. 4 Westchester Plaza, Elmsford NY 10523 Attn: Sharon Chen

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PROGRAMMER-ANALYSTS needed to analyze use-cases & class diagrams using Rational Rose; dsgn & customize Livelink applics. w/web interface using Livelink Builder & SDK; create interfaces to generate Web docs; create workflows & dsgn forms using Livelink (Workflows, Forms, LAPI), OScript, SQL, JSP, JavaBeans & JDBC. Apply to: Global Consultants, 601 Jefferson Rd, Parsippany, NJ 07054.

Computer Consulting Co seeks programmer analysts & database administrators. Bachelor's +2yrs IT exp. Resume to Upp Business Systems, 3075 Highland Parkway, Downers Grove, IL 60515.

Clear Technology is looking for Soft. Development Engs & Progr. Analysts. Resumes by e-mail/fax only to HR, Clear Technology, 11030 Circle Point Road, Westminster, CO 80020; Fax (303) 583-4168; software.analysts@clear-technology.com

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Senior Software Eng. with Masters degree and two years exp. wanted in Houston, TX. Respond to: HR Dept., Houston Computer Center, Inc. 10641 Harwin Dr., Suite 500, Houston, TX 77036.

CONSULTANT. Analyze user needs & requests, design, dev. & implement med. to lg. apps. using various software technologies, such as Java, Javascript, HTML, ASP, Lotus, SQL, MS Office, Dreamweaver, Frontpage, Photoshop, & ACCESS. Must have MS in Comp. Sci., MIS, Information Systems or related field. Send res./cov. ltr. to Patricia Sirabella, HR Dir., Gemini Systems, Inc., 61 B'way, #925, NY, NY 10006.

Software Developer

Develop customized software solutions to address client's business and commerce needs. Must have Bachelors Degree in Computer Science or in a related field & 3 yrs. exp. or 3 yrs exp. in a related position req'ing to use Oracle, Windows, Visual Sourcesafe. Willing to travel and relocate across the U.S. 40.0 hrs./wk. 8:00 AM - 5:00 PM. $76,000/Yr. Applicants send cover letter and resume to:

SRA Systems Limited
1945 Cliff Valley Way
Suite 270
Atlanta, GA 30329
Attn: K. Markandan

Page & Olson is a CPA firm, developing an unique software (commander for CPA firms running on TCP/IP LAN. We look for software engineers or system analysts. Candidates must have BS with exp. using ColdFusion and ASP. Send resumes: P.O. Box 39882, Pleasant, MI 48804-0388

Adept Computer is seeking IT professionals/engineers. Qualified applicants must have BS with minimum 1-yr exp. Skills in Oracle, Java, XML, J2EE, SQL, JSP, WebLogic/WebSphere, DB2, JDBC, Client/Server are plus. Apply at 1010 Harmon Blvd., Hoffman Estate, IL 60194. EOE

Kwikset is looking for the following positions:

Software Developer.
IT Supply Chain Logistics Project Mgr. to work w/QAD-Mfg/Pro, costing modules, EDI and quality mgmt. Masters degree & 2 yrs. exp.

Resumes by fax/email only to HR, Kwikset, 19701 DaVinci, Lake Forest, CA 92610; Fax (949) 672-4761; e-mail; apply@bdhhi.com.

Software Engineers needed for Houston based firm to work in various unanticipated U.S. locations, to design, develop, implement complex financial business performance management solutions, incl. planning, budgeting, cash flow analysis, forecasting, reporting applications. Utilizing OLAP, decision support systems technologies and SQL. Must have Bach. in Comp. Sc. or CIS and 5 yrs. exp. in job offered. Fax resume to COMPOSOFT, HR Dept. at 281-272-2515. Ref. Code: Put SE-1102 on the resume.

Web Developer/Programmer

Multiple positions available to primarily develop web-based computer applications, applying knowledge of computer programming techniques & systems.

Requirements: Bachelor's degree in Computer Science or related field. Must possess 3 yrs. post-baccalaureate work exp. in position offered or in computer industry. Must be knowledgeable & proficient in (1) one of the following databases (Oracle, VSAM, DB2, SQL Server or Teradata); (2) JAVA; and (3) one of the following high-level languages (VB/ASP, PL/SQL or C/C++). Must be willing to travel & relocate to client sites nationwide frequently. Replies with ref. Code CW2003 via email (steve@sdiworld.com), fax (412-490-0565) or mail (Steve Rydzak, SDI Technologies, 1 Penn Center West, Suite 311, Pittsburgh, PA 15276)

Paymap, Inc., a Division of First Data Corporation, a company in Greenwood Village, CO specializing in electronic commerce/money transfer, has an opening for a Senior Database Administrator to work in San Francisco, CA and other unanticipated job sites in the U.S. Installation, configuration and upgrading of Oracle server software-related products. Requires bachelors degree or foreign equivalent in engineering or computer science, 3 yrs. experience as an Oracle database administrator on Sun Solaris and Windows NT platforms; working knowledge of installation & configuration of Oracle Application servers & standby databases; deploying Oracle Forms on the web; design & creation of OLTP & data warehouse databases; PL/SQL and Shell Programming, as well as Oracle Enterprise Manager. Respond by resume to Norm Barnett, First Data Corporation, 6200 S. Quebec St., Greenwood Village, CO 80111 and refer to job #6440MQ

Software Engineer. Dev Warehousing data mart & various Logical/Physical data models, Unix Scripts using Erwin 4.0 & ETL for perf. Tuning appl. in Test & Production environment. Req: MS in Com. Sci. or Comp. Eng. 40 hr/wk. Job/Interview Site: Simi Valley, CA. Send resume to Soclear Corp., P.O. Box 2111, Simi Valley, CA 93062-2111.

Sr. Programmer Analyst, Denver, CO. Plan, develop, test and document computer programs using RPG/400 programming techniques and AS/400 hardware. B.S., computer science or related field and 2 yrs relevant experience. Fax resumes to N. Prentice, TransMontaigne Product Services Inc., 303 626 8245.

Analyst; User Support Analyst Mgr. needed by jewelry mfrg. co. to manage internet proj for ERP syst. implementation (Microsoft Navision), manage info syst development & develop user procedures, define & develop mgmt level Performance Measurement Systems (PMS), develop contract mfrg planning & controlling syst using Navision C/AL & supervise 3 User Support . Bach Deg or Equiv in Computer Sci or Engr, Mathematics & 4 yrs exp in this field. Send res to: Mr. Joe Manber, Andel Jewelry LLC, 31-00 47th Ave, LIC, NY 11101

Software Engineer. Design, build & maintain networking Cisco/LAN & sec. sys. including user interface (JSPs) & backend busn. obj.(EJBs) w/ use of WebLogic app. server in clustered env. on Windows 2000 server & SQL 2000/Oracle/SAP as backend d/b. Req: MS in Comp. Sci., Bld. Sci. or related. 40 hrs/wk. Job/Interview Site: Newark, DE. Send resume to AlphaNet Consulting, 705 S. Silver Smith Ln., Newark, DE 19702.

Software Developer wanted to design, Develop and Implement Software programs to assist national/international companies. Improve sales of product in Retail Outlets. Design, Implement and Manage system to support localized multi-lingual database and websites for international clients. Perform web development including web page design, development, testing, implementation and maintenance. Perform coding using ASP, ASP.NET, VB, VB.NET VB Script, JavaScript, COM, DCOM, Active X, HTML, DHTML, CSS, XML, XSL, MS SQL Server 7.0/2000, IIS 4.0/5.0, Windows NT/2000/CE& others. 40 hrs/week, 8:00 a.m. to 5:00 p.m. Requires a Bachelor Degree in Computer Science or Electrical Engineering. Please send resume to Panos Mastrogiannis, SPAR Infotech, 680 White Plains Road, 6th Floor, Tarrytown, NY 10591. Employer Paid Ad

Corpus Incorporated, hereinafter referred to as, "Corpus", is a leading Information Technology Services firm providing innovative B2B, enterprise integration and m-commerce solutions and services to businesses worldwide. We have the following position available:

Business Intelligence Analysts: Utilize Business and Technical Expertise in Systems Application and Products in Data Processing. Analyze User requirements, procedures and problem to automate process, improve computer SAP Systems. Plan design and implement integrated family of sales, marketing, and customer service applications, in SAP FI/CO modules. Utilize tools such as C++, C#, ASP.NET, SeeBeyond, MS SQL Server 2000 and Oracle 9i to provide implementation using object oriented design and Provide post-implementation support. Need Bachelor's in Business Administration or Computer Science or Engineering. Need 2 years of experience in related field.

Programmer Analysts: Plan, design, develop, test and deploy n-tier object-oriented enterprise software applications. Experience in the following technologies required: OOAD, RDBMS, Client Server Technology, Distributed Computing and Configuration and Change Control Management. Also knowledge of the following tools and methodologies is essential: Unix, Oracle, Informix, SQL, C++, Corba, MQ Series, XML, UML, Testing tools and the Rational tools like Rational Rose, Rational Requisite Pro, Clear Case and Clear Quest. Need Bachelor's degree in Engineering or Computer Science and 2 years of experience.

Send resume to: HR, 1300 West Walnut Hill Lane, Suite 3250 Irving, TX 75038. E-mail jobs@corpusinc.com

Computer System Administrator

(Yorktown Heights, N.Y.)

Evaluates business requirements for new or modified program to determine cost and time required, compatibility with current system, and required computer capabilities. Consults with managerial and systems operation personnel and systems architects to clarify program intent and objectives, identify problems and suggest changes to Unix Production System. Within time and cost restraints, and considering hardware capabilities, analyzes, researches, designs, and develops computer software systems relating to Unix utilizing principles and techniques of computer science, engineering, and mathematical analysis. Prepares object models and data flow diagrams to develop program considering hardware capabilities and intended use of output data. Plans, schedules, develops, tests, and documents computer programs using object models and data flow diagrams applying knowledge of programming techniques and computer systems. Consults with systems operation personnel to install and maintain the software system. Tests programs, detects, locates and corrects errors. Monitors performance of program after implementation, corrects errors and optimizes for performance. Requires a Bachelor degree in Computer Science/Engineering, Electrical Engineering, Mathematics or Computer Applications and two years experience in the job duties or a Master degree and one year of experience or two years as a Programmer Analyst or software engineer. Must have two years experience in C++, C, COM, ATL, and all Windows operating systems. Must be able to communicate in English. 40 hours a week; 8:30am to 4:30pm. $85,000 per year. Send resume in duplicate to: AIM-437, PO Box 703, N.Y., N.Y. 10014-0703. EOE.

Computer Software Designer

(Yorktown Heights, N.Y.)

Analyzes software requirements to determine feasibility of design within time and cost restraints, and considering hardware capabilities, analyzes, researches, designs, and develops computer software systems in Windows utilizing principles and techniques of computer science engineering, and mathematical analysis. Prepares object models and data flow diagrams to develop program considering hardware capabilities and intended use of output data. Plans, schedules, develops, tests, and documents computer programs using object models and data flow diagrams applying knowledge of programming techniques and computer systems. Consults with systems operation personnel to install and maintain the software system. Tests programs, detects, locates and corrects errors. Monitors performance of program after implementation, corrects errors and optimizes for performance. Requires a Bachelor degree in Computer Science/Engineering, Electrical Engineering, Mathematics or Computer Applications and two years experience in the job duties or a Master degree and one year of experience or two years as a Programmer Analyst or software engineer. Must have two years experience in C++, C, COM, ATL, and all Windows operating systems. Must be able to communicate in English. 40 hours a week; 8:30am to 4:30pm. $85,000 per year. Send resume in duplicate to: AIM-437, PO Box 703, N.Y., N.Y. 10014-0703. EOE.

Multiple openings available for Prog/Sys Anal, DBA's, Syst/Admin and S/W Engineers to design /develop S/W appls using some of the following - C++, VC++, Java and web related technologies, HTML, VB Script, CGI, SQL, TSQL, MS Access, Visual Interdev, Active X, COBOL, CICS, DB2, SAP, ABAP etc. on Windows, UNIX, NT/Server E OS, Sun Solaris, etc. All positions require a BS/MS or its foreign equivalent. Competitive salary. Some travel/relocation required. Apply to: HR, CipherTrust, Inc., 11475 Great Oaks Way, Ste 210, Alpharetta, GA 30022.

Multiple openings for exp'ed Prog/Sys Analysts, DBAs and S/W Engineers to perform design and development of S/W systems using various H/W, OS, tools, software packages and languages; developing client server, mainframe, ERP and web applications. Oracle database admin/systems admin. All positions require a BS/MS or foreign equiv in CS/Engg or related field. Competitive salary. Some travel/relocation required. Send Resumes to: HR, Opal Soft, Inc. 3150 Almaden Expwy Ste 205, San Jose, CA 95118.

Between Cybertek Technologies, Inc. has several openings available for qualified Prog/Sys Analysts, Soft Enggs./Consult-ants, Proj. Mgrs, DBAs and Sys Admins to design/develop applications using skill sets such as C, C++, VB, VC++, Java, EJB Oracle Informix, Sybase, UML, Internet, telephony and wireless technologies. Windows/UNIX admin Require BS/MS or for. equiv. in Comp Sci/Engg(any branch)/Sci /Math/Busn related field. Combination of education and experience will be accepted. Highly competitive salaries & benefit. Travel involved. Resumes to: Ste 312, 209 West Central Street, Natick, MA 01760

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Asst S/W Eng

Will assist in designing, developing, integrating, and testing desktop & notebook computer test software/hardware architecture. Req. BS in Comp Sci. or related field. 40 hr/wk. Job site: Irvine, CA. Send resume to eMachines, Inc., 14350 Myford Rd., Irvine, CA 92606. Pls ref to job code: aswang-cw.

Prog/Analysts to analyze, design, test enterprise level appls using Java, HTML, VB, ASP, JDBC, Servlets, etc. under Windows and UNIX OS; perform database monitoring and quality control, coding and testing of projects; generate batch reports from existing data and debug for better performance. Require BS or foreign equiv in CS/Engg (any branch) and 1 yr exp in IT. High salary. F/T. Travel required. Resumes to Salem Associates, Inc. 405, 6th Ave, Ste 102, Des Moines, IA 50309

Data Base Administrator: Analyze database management systems and network administration using Oracle database on Unix platforms such as Sun Solaris, IBM AIX, and SCO. Develop backend access using PL/SQL server and SQL Server. Analyze and identify components and features of Recovery Manager (RMAN), configure database for archive processing and identify the contents of user process trace files. Requires: Bachelor of Science degree in Comp. Sci., Eng. or related field and 2 years experience in software development including hands on knowledge of Oracle 8 X Administration. 40hrs/wk (8-5). $75,000.00/yr. Send two resumes/responses to Case Number 200114999, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114

Computer Software Engineer. Atlanta, GA - Implement designs adhering to well-structured software engineering standards, design specification and the development schedule. Primary modules of responsibility may include Viewer, Movie, Profile Tools, Virtual GIS and New Visualization Capabilities. Test software and on-line help to assure minimum level of quality is met. Maintain software during its life cycle. Bachelor of Science and 3-5 years of GIS/Remote Sensing processing techniques and methodologies experience required. Leica GIS and Mapping Division, LLC, 2801 Buford Highway, NE, Suite 400, Atlanta, GA 30329. jody.stepakoff@gis.leica-geosystems.com

Member of Technical Staff - Advanced Technology Group: Perform research, analysis, design, development, testing & implementation of transceiver modem. Design & simulate high speed & low power platforms, filters, diplexers, PLLs & other RF circuitry for modem. Design suitable channel coding, modulation & equalization methods for bandwidth efficient, extremely reliable bi-directional communications. Research & investigate design requirements, vendor specs, market trends, & industry standards for parts to be used in circuitry. Perform testing & analysis of hardware prototypes of product design. Develop engineering design analyses & trade-offs for cost, stability, performance, & quality to make recommendations to management. Work & collaborate with other engineers to share ideas & resolve software & hardware issues. Master's degree in Electrical/Electronics Eng'g or a closely related field, & 1 yr. experience in job offered or in Communications Systems Research Engineering. Requires demonstrated knowledge of communications systems theory in design of modems & expertise in dvlpment & application of broadband, high-speed communication networking, such as modulation, equalization, & channel coding theory 40 hrs/wk, 8a-5p (M-F); $88,000/yr. Must have unrestricted authorization to work in U.S. Submit resume in duplicate to: Case #200114999, Labor Exchange Office, 19 Stamford St, 1st fl, Boston, MA 02114 EOE

Aurora Consulting is looking for Programmer Analyst, Software Engineer to implement Oracle Financials for clients. Candidates must have BS/MS, exp in Oracle and US work permit. We offer attractive wage. Send resumes to 9083 Countrywood Dr, Plymouth, MI 48170. EOE.

Nexsoft is an IT consulting firm with offices in different states, has positions for software/project engineers, system/programmer analysts. Req: BS with min 1-yr exp. Preferred skills in Oracle, Seebeyond, SQL, Java. Apply hr@nsic.net or jobs@nsic.net.

AFI, Inc.

S/W Eng./Sys. Analysts /Techn. - Interface Mgr. Multiple Positions. S/W Eng. & Sys. Anal. will dev., code, test, implement & maintain custom S/W pkg. in areas of web dvlpmnt w/ the use of Windows NT/2000, Visual Basic, Asp, JavaScript, VB Script & SQL Server. Tech.-Inter. Mgr. will perf. sys. analysis, data mapping, info. archit., web page dvlpmnt. & maintenance for AFI website & custom agent/ CSR appl. & HTML w/ the use of C++, ERD, SQL Scripting, ASP, SQL Server. Req. MS in Comp. Sci, Comp. Eng., S/W Sys., Mech. Eng. or Info. Sys. (can be sub. w/ BS + 5 yrs. exp) 40 hrs/wk. Job/Interview Site: Encino, CA. Refs: LA1000. Resumes to: careers@afinancialfinancial.com.

IT Analyst III. Setup & monitor MQ queue structures, middleware Java objects dvlpmt; coding & testing of COBOL/CICS multi-enviro prgms; dsgn n-tier architecture; ETL data transfer. BS in Comp Sc or related field +5 yrs exp in job offd or as S/ware Engr or similar duties under different job title. Exp. must incl middleware dvlpmt involving MQ Series, Cobol, Java, IBM Workflow, Mercator, Maestro, XML, XSL, UML & Business Objects; MVS & Win NT enviro utilizing DB2 & Oracle 11i; writing & monitoring MQ queues; willingness to travel (up to 20%) 40 hrs/wk, $58K/yr. Must have proof of legal auth to work in US. Send your resume to IA Workforce Center, 215 Keo Way, Ste 100, Des Moines, IA 50309-1727. Please refer to JO# IA1101669. Employer paid ad.

Sr. Programming Analyst (multiple positions). Design customized techn appl programs. Install & config program prod. Determine tech infrastructure & comm. Req. Test appl. Analyze, design & develop app. Interfaces using IBM AS400, RPGLE, CA400 & Java/400. Req. BS in Comp. Sci., Comp Eng. Or Elect. Eng. And 5 yrs exp as Programmer. 40 hr/wk. Job/Interview site. Irvine, CA. Send resume to SVI Solutions, 5807 Palmer Way, Carlsbad, CA 92008.

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ENGINEERS

Netopia has the following opportunities available in our Orem, Utah location:

Sr. Software Engineers - # 0201

Job Description: Netopia Web Platforms Group (WPG) develops, licenses, and supports hosting solutions enabling customers to do business via the Internet. Netopia's Web Platform is a comprehensive, integrated software system that enables organizations to successfully deploy and manage Web-based services that provide eBusiness solutions including eCommerce, systems management, customer relationship mgmt. (eCRM) & broadband deployment.

Senior Software Engineers are a part of the Engineering group in Orem, Utah. The group has resp. for developing, creating, & modifying Netopia's next-generation Java/J2EE application server, database schema, & applications. Senior Software Engineers will develop core technologies, objects, & database schema designs to meet the needs of independent merchants, VARs, franchisees, & our partners who host their own WPS-based services. Job resp. also include leading key pieces of the engineering effort on

Netopia's next-generation web platform technology, & the underlying data access technologies. Candidates must be able to design & implement object-oriented code, related database schema objects, & user interface using current & emerging technologies.

Job Resp.: Develop, create, implement, & modify core technologies and application features, architect & design algorithms & methods for increasing performance while moderating resource consumption; detect & resolve database issues in Oracle8i or newer.

Job Req.: BS in CS/Engr. + 2 yrs. exp. in dev. software for commercial applications. Exp. must include 2 yrs. of: Software development with RDBMS development/design; Web application technologies; team-based source code control processes/systems such as CVS.

Database Administrators - # 0202

Job Resp.: Database Administrators will develop & implement strategies for maintaining security roles, privileges, & authentication for Netopia's internet product database. Resp. include: Creating & maintaining all backup procedures; installing & upgrading SQL Net & TCP/IP processes; Oracle & supporting products; providing recommendations & impact analyses of Oracle & related software purchases through the collection & analysis of relevant app performance information using various software tools; identifying & implementing appropriate schemes for database performance problems; & maintaining documentation on database, applications, and licenses.

Job Req.: BS or equiv. combination of education & exp. in CS/MIS or a closely related technical field + 4 yrs. of exp. in analysis, design, development & administration in Oracle (PL/SQL).

Must have at least 2 yrs. exp. in each of the following: Transitioning sites & online stores in a production-hosted environment, data warehousing & administration of Oracle8i databases including database backups, recovery, performance tuning on Sun Solaris, HP-UX, & Windows NT, database applications in the financial, credit card, and/or accounting areas.

For consideration, please indicate job number and email resumes to employment@netopia.com. EOE

American Information Technology Corp has several openings for Programmer Analyst/Systems Analyst/Software Engineer, System Admin. Database Administrator with at least two years of experience in any of the following skills.

Database Admin: Informix, Oracle, Sybase MS SQL, DB2.
Systems Admin: UNIX (SUN, HP-UX, AIX). WIN NT, MVS.
Programmer Analysts/Systems Analysts/Software Engineers: VB, PB, AS/400 RPG/400, Synon, JDEdwards, Progress, Java, J2EE, HTML, WEB, E-commerce, C++, VC++, Lotusnotes, CORBA, EDI/Mercator, CGI, Perl, PL/SQL, Oracle, Cobol, JCL, Cognos, Erwin, ETL, Peoplesoft, SAP, DW, BO, Coldfusion, TIBCO, .Net, C#, Oracle Financials, Datastage, CRM, Actuate

Some positions require a Bachelors Degree, others Masters Degree. Equivalent degree and experience is also accepted. Exc. Pay & Benefits. Please indicate the position you are applying. Mail resume to: HR Dept., 3204, Long Prairie Road, Suite E, Flower Mound, Texas - 75022

COMPUTER/IT
Senior Analyst. Vega HR (Troy, MI). Requires a Bach.'s degree (or equiv. foreign educ.) in I.T., M.I.S., or computer systems analysis, and 2 yrs.' exp. in the job offered or 2 yrs.' exp. in development and configuration of SAP R/3 Human Resources (H.R.) module utilizing Accelerated SAP (ASAP) methodology. All stated exp. must involve each of the following: definition of functional specifications for the development of custom reports, interfaces, conversions, & enhancements; definition of SAP R/3 H.R. module security requirements; & use of automated test tools. Exp. must include one full lifecycle of SAP R/3 H.R. module development. In lieu of Bach.'s degree (or equiv. foreign educ.), will accept 2 additional yrs. of systems analysis exp. Engage in development & configuration of SAP R/3 H.R. module over a full lifecycle utilizing ASAP methodology. 40 hrs./wk., 8:00-5:00. Apply with resume to LaWanda White, Delphi Corporation, 5825 Delphi Dr., Troy, MI 48098. EOE. Reference #01116 when applying.

IT CAREER OPPORTUNITIES

CSC has the following positions available in Massachusetts:

- **ERP Program Director**
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We offer excellent compensation and a comprehensive benefits package. Positions may require BS, MS, relevant experience, or combination of education and experience based on the level of position. National travel of up to 100% may be required. Please forward resume to: S. Neer, 5885 Landerbrook Dr., #300, Cleveland, OH 44124. Must indicate job title in cover letter.

HTTP://CAREERS.CSC.COM

CSC

Lead Software Developer
Waltham, MA

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Trustworthy

the BSD Unix operating system. "It is fairly secure, but it is also fairly devoid of any but the simplest of operating system functionality."

Craig Mundie, chief technical officer of advanced strategies and policy at Microsoft, likened the technological challenge Microsoft faces to "chasing a rocket ship."

"We continue to scale up the capability of the systems. As they get bigger and bigger, complexity mounts, and to some extent, those things all work against the idea that, well, can we really get this thing stabilized and improved?" Mundie said. He said he worries about maintaining the balance "between having to make the product and the business go forward and trying to lock it all down."

"If things weren't moving, it would be easier," Mundie said. "But they have to keep moving, or there would be no business."

Looking at it from a business management standpoint, he noted the challenges the company faces in coming up with audit measurements to ensure that "the effort doesn't dissipate," especially since it could take 10 to 20 years to achieve technological success. Yet another problem is the testing issues the company confronts when it decides that it needs to make a security fix that will affect a system as large as Windows, Mundie said.

THE STORY SO FAR

Visit our Web site for a timeline of Microsoft's security moves in 2002:

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Several IT managers said they think Microsoft's Trustworthy Computing progress should be judged based on the number of vulnerabilities they see in future releases. But many customers may continue to use older products that haven't been the focal point of Microsoft's security push.

"In the short term, I'm resigned to an increasing cycle of patches and updates to existing systems that my already overwhelmed technicians have to implement," said Paul Lanham, senior vice president and chief technology officer at Jones Apparel Group Inc. in Bristol, Pa. "I'm hoping that the next generation of products from Microsoft addresses these issues so that there is a reasonable balance between the features that customers insist upon and basic security measures in the products offered."

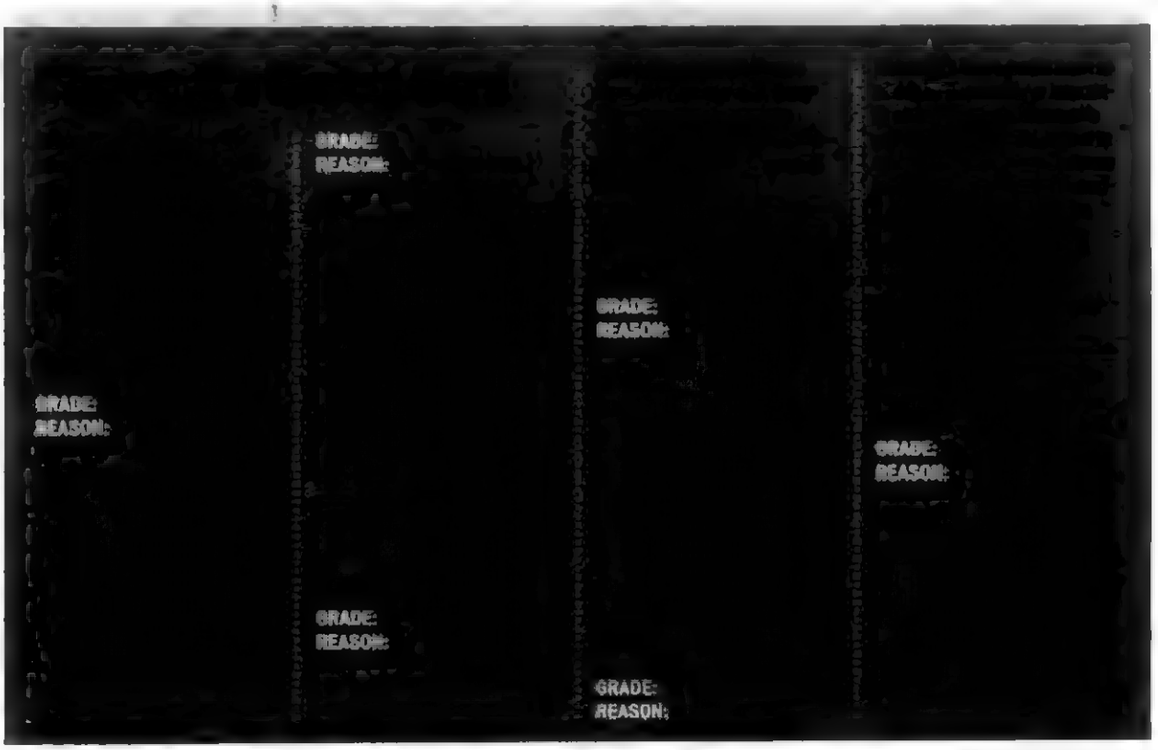
Marc Maiffret, co-founder and chief hacking officer of eEye Digital Security Inc. in Aliso Viejo, Calif., said Microsoft should be devoting more attention to ridding its current products of vulnerabilities. "It seems like they're much more worried about tomorrow, which they should be. But I think today is even more important," he said.

As nice as it would be, reviews of older products may not be a realistic expectation, said Jason Fossen, a SANS Institute lecturer and president of Fossen Networking & Security, a Windows security consultancy in Dallas. "If they're fixing old stuff, there are fewer resources being dedicated to the current version," he said. "It's better to focus on Windows .Net Server and Windows XP."

Indeed, Microsoft is pinning its hopes on its newly renamed Windows Server 2003 operating system to showcase the fruits of its security labors. It shuttered Windows production for 10 weeks last year to do security training and code reviews. One big change is that the Web server and other potentially vulnerable features are turned off by default.

But Walt Smith, chief architect at a large U.S.-based financial institution, is worried that Microsoft will become "easily distracted" from its latest security efforts, which "bring them only delayed gratification in terms of revenue."

"As soon as the next killer application comes along, Microsoft will go chasing after it and forget all about making their infrastructure and product offerings robust and reliable, at least until the next security exposure," Smith said.



Security Focus

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Trustworthy

the BSD Unix operating system. "It is fairly secure, but it is also fairly devoid of any but the simplest of operating system functionality."

Craig Mundie, chief technical officer of advanced strategies and policy at Microsoft, likened the technological challenge Microsoft faces to "chasing a rocket ship."

"We continue to scale up the capability of the systems. As they get bigger and bigger, complexity mounts, and to some extent, those things all work against the idea that, well, can we really get this thing stabilized and improved?" Mundie said. He said he worries about maintaining the balance "between having to make the product and the business go forward and trying to lock it all down."

"If things weren't moving, it would be easier," Mundie said. "But they have to keep moving, or there would be no business."

Looking at it from a business management standpoint, he noted the challenges the company faces in coming up with audit measurements to ensure that "the effort doesn't dissipate," especially since it could take 10 to 20 years to achieve technological success. Yet another problem is the testing issues the company confronts when it decides that it needs to make a security fix that will affect a system as large as Windows, Mundie said.

THE STORY SO FAR
Visit our Web site for a timeline of Microsoft's security moves in 2002
QuickLink 35562
www.computerworld.com

Several IT managers said they think Microsoft's Trustworthy Computing progress should be judged based on the number of vulnerabilities they see in future releases. But many customers may continue to use older products that haven't been the focal point of Microsoft's security push.

"In the short term, I'm resigned to an increasing cycle of patches and updates to existing systems that my already overwhelmed technicians have to implement," said Paul Lanham, senior vice president and chief technology officer at Jones Apparel Group Inc. in Bristol, Pa. "I'm hoping that the next generation of products from Microsoft addresses these issues so that there is a reasonable balance between the features that customers insist upon and basic security measures in the products offered."

Marc Maiffret, co-founder and chief hacking officer of eEye Digital Security Inc. in Aliso Viejo, Calif., said Microsoft should be devoting more attention to ridding its current products of vulnerabilities. "It seems like they're much more worried about tomorrow, which they should be. But I think today is even more important," he said.

As nice as it would be, reviews of older products may not be a realistic expectation, said Jason Fossen, a SANS Institute lecturer and president of Fossen Networking & Security, a Windows security consultancy in Dallas. "If they're fixing old stuff, there are fewer resources being dedicated to the current version," he said. "It's better to focus on Windows .Net Server and Windows XP."

Indeed, Microsoft is pinning its hopes on its newly renamed Windows Server 2003 operating system to showcase the fruits of its security labors. It shuttered Windows production for 10 weeks last year to do security training and code reviews. One big change is that the Web server and other potentially vulnerable features are turned off by default.

But Walt Smith, chief architect at a large U.S.-based financial institution, is worried that Microsoft will become "easily distracted" from its latest security efforts, which "bring them only delayed gratification in terms of revenue."

"As soon as the next killer application comes along, Microsoft will go chasing after it and forget all about making their infrastructure and product offerings robust and reliable, at least until the next security exposure," Smith said.

Microsoft's Report Card

Grades ranged from B+ to D- when *Computerworld* asked IT managers, analysts and security professionals to rate Microsoft's progress on its Trustworthy Computing initiative during the past year. Excerpts follow:

■ Charles Emery, senior vice president and CIO, Horizon Blue Cross Blue Shield, Newark, N.J.

[redacted] B

[redacted] "The automatic updates within the operating system are helpful and timely. Anything that receives as much focus as Microsoft is giving this issue is bound to improve, but sadly, there are people who are constantly trying to find new ways to break in."

■ Paul Lanham, senior vice president and CTO, Jones Apparel Group, Bristol, Pa.

[redacted] B

[redacted] "In the short term, I wouldn't give Microsoft high marks for now focusing on security issues that should have been embedded in their development process to begin with. They have a lot of history to deal with in the short term. Of course, it's easy to criticize their current state, but they at least got a good grade for accepting the current reality that their market position could erode if basic measures in this area are not undertaken."

■ Andre Mendes, chief technology integration officer, the Public Broadcasting Service, Alexandria, Va.

[redacted] B

[redacted] "On one side, they have obviously identified a lot of the problems that existed with their legacy environments and have aggressively addressed them. On the other side, there were a couple of occasions where they still reverted to minimizing the criticality of some of the holes."

■ Steve Cooper, security consultant, TruSecure Corp., Herndon, Va.

[redacted] B-

[redacted] "In my opinion, Microsoft hasn't made any perceivable progress in the last 12 months with respect to security. The security bulletin process has been up and down. Their responsiveness has been great and bad. Windows Update has been augmented by a new latter known as Software Update Services."

■ Jason Fossen, a SANS Institute lecturer and president of Fossen Networking & Security, a Windows security consultancy.

[redacted] B

[redacted] "Never before have Microsoft's future profits been so at risk by the security or insecurity of their products. Microsoft's entire XML/SOAP/.Net project to make the Web services business model a reality will sink if IT decision-makers believe it is insecure. Microsoft is betting the farm on .Net Web services; hence, they're motivated to shape up, and so far, they're following through."

■ Marc Maiffret, co-founder and chief hacking officer, eEye Digital Security, Aliso Viejo, Calif.

[redacted] B

[redacted] "At least when Microsoft makes a claim that they are doing something about security, they are making a little bit of effort. I wouldn't say it's enough to where it needs to be. But the effort they're putting into it is far more than other companies out there. I'd give almost every software company out there an F."

– *Carol Sliwa*

Security Focus

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FRANK HAYES ■ FRANKLY SPEAKING

Not So Obvious

DID THOSE Wall Street investment houses *really* forget about PONI — the price of noninvestment — when they failed to create good e-mail archiving systems and got slapped with a $1.65 million fine per firm, as I wrote in my Dec. 9 column [QuickLink 34878]? Some of you don't think so. "Your example was flat-out wrong: $1.65 million is *nothing* to them if it effectively covers their tracks," one reader wrote to tell me. "In a way, these brokerages did perform a PONI and found it much more profitable to obscure and delete the audit trail, pay the fine and laugh all the way to the bank. To put it another way, these guys played the PONIs and won big."

Or as another reader who did the math pointed out, Merrill Lynch was recently fined $100 million in a case where key evidence came from Merrill's own internal e-mails. He wrote: "It didn't take these guys long to figure out how to save themselves $98.35 million dollars."

They're right, it was a lousy example. And I was wrong to assume pure intentions were involved in that decision. Internal e-mails have been critical evidence in cases ranging from Iran-Contra in the 1980s to Microsoft's recent antitrust trial. Did top management at those Wall Street firms do the math on the costs — and benefits — of not investing in good e-mail archiving systems? I don't know. But it sure looks suspicious, doesn't it?

And it raises another question: How could the IT people at those firms *not* have wondered about such an obviously suspect decision?

We all know the answer to that one. They probably did wonder. Maybe some even suspected the worst. But there's a good chance they were simply kept in the dark. They just didn't know.

Welcome to the no-man's land called IT in 2003. As important as we've become to our companies over the past decade, we're still often kept out of the loop.

To create the best systems and run them optimally, we need to know the hows and whys of the business we work for. We have to understand what the business does — and where it's going.

But that won't always happen. IT may be critical, but that doesn't mean they'll tell us what's going on.

So when good projects — with the right technology and a solid business case — get nixed while loser projects get the green light, we can only make guesses about why the apparently illogical decision was made by management.

Maybe it's politics — a favor called in, an old score settled, a power play. Yeah, executives do that, even when it's not in the best interests of the business. Hard to believe, huh?

Maybe it's technophobia or misunderstanding. Maybe someone with a deciding voice really likes or loathes a particular technology or vendor. Maybe it's history — a similar-sounding project that was a huge flop or a big success years ago.

Maybe the CEO got a great idea from an article in an airline in-flight magazine and hasn't been talked out of it by the CIO and CFO — yet.

Maybe there's a business deal we don't know about — and won't hear about until it's a *fait accompli*. A merger. A layoff. A division closed or sold. A new line of business. Any of those things might make systems obsolete or change IT needs overnight.

Maybe it really is simply a dumb decision. Or maybe it's a case of criminal intent.

FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

We're just not likely to know until long after the decision is made — if at all.

It's still our job to calculate the ROI and PONI and to make the clearest and best business and technical case for our IT projects. Nothing changes that — even when a project is shot down for no apparent reason, and it appears obvious that our executives haven't thought through the costs of not building a system.

Because — with good intent or ill — maybe they already have.

Clue, Clue, Who's Got a Clue?

Nontechie IT director insists on doing the first interview with every technical job applicant – "to determine their technical competence," says database manager pilot fish. "He interviewed one application development candidate for 25 minutes before realizing that he had grabbed the wrong person in the lobby." His first clue? When the interviewee – who was actually applying for a data-entry job – told him, "I've never written a program, but I would like to someday."

SHARK TANK

Could Be

Self-proclaimed computer guru calls consultant pilot fish with a problem: He reset the main server, but now he's being bombarded with error messages telling him that none of the services on the server will run. Fish invites in to diagnose the problem. "The system logs are all pointing to possibly an incorrect log-on on the server," he says. Would-be guru interrupts: "Would it have anything to do with us changing the password?"

Now What?

Users in local newspaper's advertising department receive e-mails telling them they have a virus and instructing them to delete certain files. "We've warned our users about these hoax e-mails," says support pilot fish, "but three of them deleted the files, disabling their machines. Then they called a tech." Fish patiently explains that the messages are a hoax and restores the files. But minutes later he gets another call from one of the users. "I just got that message again in my e-mail," user tells him. "What do I do?"

Mail Call

Local tech-support pilot fish walks into the office at 7:00 one morning to find the entire network down, 70 people unable to work, and the boss in a frenzy. Didn't the network control center contact you? the boss asks him. No, says fish – no page and no call or voice mail on home, office or cell phones. Boss calls network control to find out why no one warned fish sooner. Right fish, "They informed him that they did not use the mail to call me, since they sent me an e-mail explaining that the LAN was down."

Unclear on The Concept

Irate customer calls this bank's customer service center when he can't connect to the Web site. Pilot fish apologizes and explains that there's a technical problem with the server. But the site should be back up within an hour, he says. "Whenever it's unavailable like that," customer tells fish, "you should post a 'Temporarily Out of Order' page on the server so customers will know and not have to call customer service."

FEED THE SHARK! Send your true tale of IT life to sharky@computerworld.com. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

FRANK HAYES ■ FRANKLY SPEAKING

Not So Obvious

DID THOSE Wall Street investment houses *really* forget about PONI — the price of noninvestment — when they failed to create good e-mail archiving systems and got slapped with a $1.65 million fine per firm, as I wrote in my Dec. 9 column [QuickLink 34878]? Some of you don't think so. "Your example was flat-out wrong: $1.65 million is *nothing* to them if it effectively covers their tracks," one reader wrote to tell me. "In a way, these brokerages did perform a PONI and found it much more profitable to obscure and delete the audit trail, pay the fine and laugh all the way to the bank. To put it another way, these guys played the PONIs and won big."

Or as another reader who did the math pointed out, Merrill Lynch was recently fined $100 million in a case where key evidence came from Merrill's own internal e-mails. He wrote: "It didn't take these guys long to figure out how to save themselves $98.35 million dollars."

They're right, it was a lousy example. And I was wrong to assume pure intentions were involved in that decision. Internal e-mails have been critical evidence in cases ranging from Iran-Contra in the 1980s to Microsoft's recent antitrust trial. Did top management at those Wall Street firms do the math on the costs — and benefits — of not investing in good e-mail archiving systems? I don't know. But it sure looks suspicious, doesn't it?

And it raises another question: How could the IT people at those firms *not* have wondered about such an obviously suspect decision?

We all know the answer to that one. They probably did wonder. Maybe some even suspected the worst. But there's a good chance they were simply kept in the dark. They just didn't know.

Welcome to the no-man's land called IT in 2003. As important as we've become to our companies over the past decade, we're still often kept out of the loop.

To create the best systems and run them optimally, we need to know the hows and whys of the business we work for. We have to understand what the business does — and where it's going.

But that won't always happen. IT may be critical, but that doesn't mean they'll tell us what's going on.

So when good projects — with the right technology and a solid business case — get nixed while loser projects get the green light, we can only make guesses about why the apparently illogical decision was made by management.

Maybe it's politics — a favor called in, an old score settled, a power play. Yeah, executives do that, even when it's not in the best interests of the business. Hard to believe, huh?

Maybe it's technophobia or misunderstanding. Maybe someone with a deciding voice really likes or loathes a particular technology or vendor. Maybe it's history — a similar-sounding project that was a huge flop or a big success years ago.

Maybe the CEO got a great idea from an article in an airline in-flight magazine and hasn't been talked out of it by the CIO and CFO — yet.

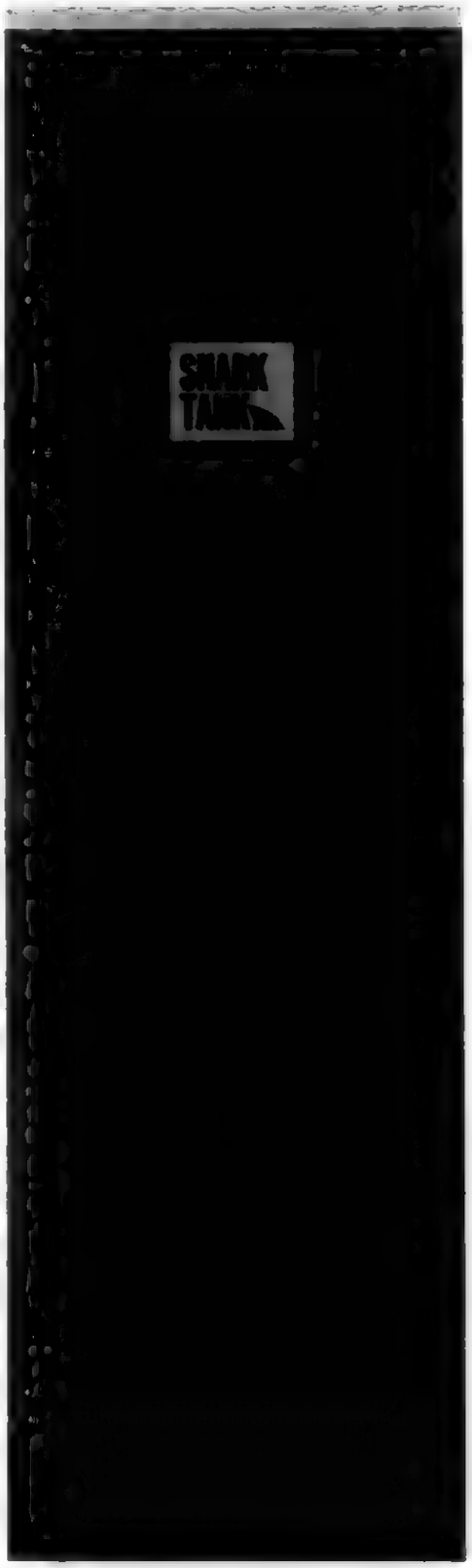
Maybe there's a business deal we don't know about — and won't hear about until it's a *fait accompli*. A merger. A layoff. A division closed or sold. A new line of business. Any of those things might make systems obsolete or change IT needs overnight.

Maybe it really is simply a dumb decision. Or maybe it's a case of criminal intent.

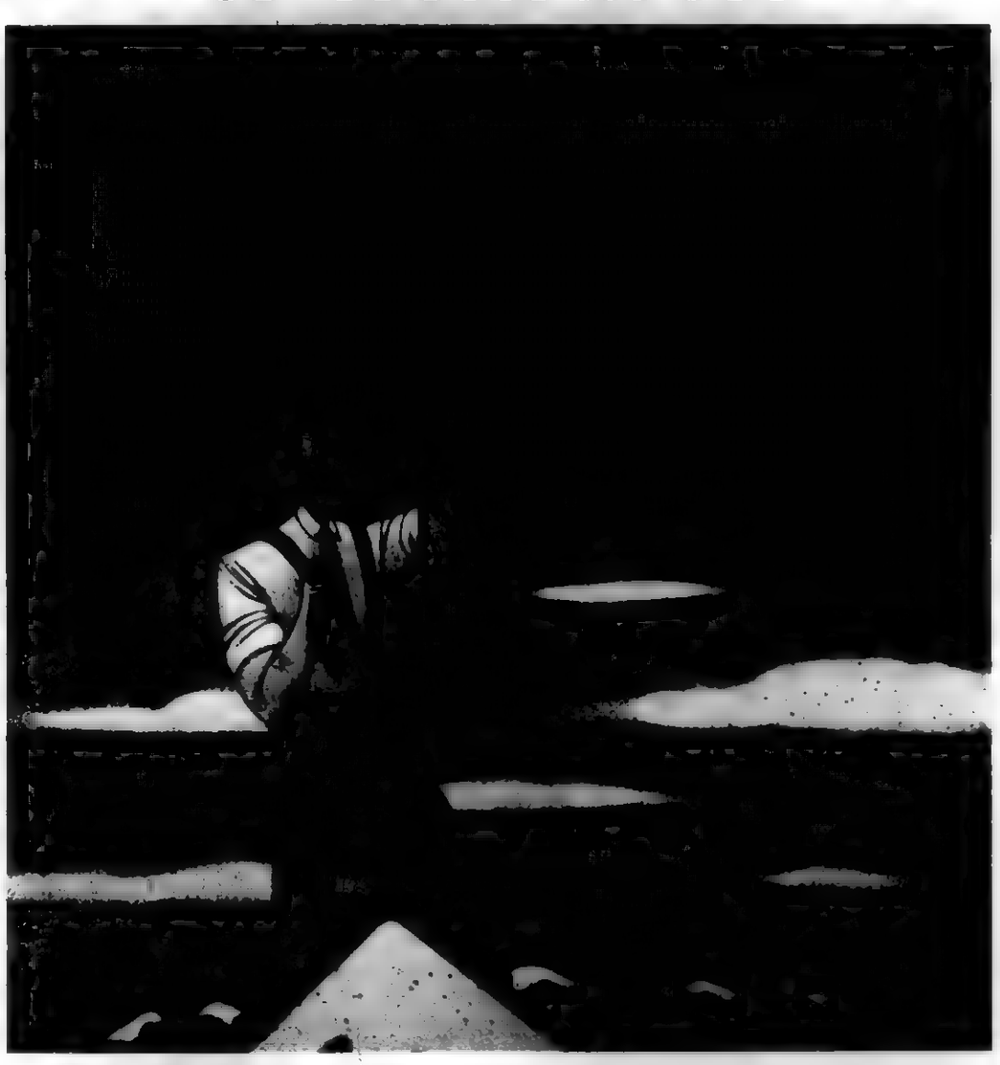
We're just not likely to know until long after the decision is made — if at all.

It's still our job to calculate the ROI and PONI and to make the clearest and best business and technical case for our IT projects. Nothing changes that — even when a project is shot down for no apparent reason, and it appears obvious that our executives haven't thought through the costs of not building a system.

Because — with good intent or ill — maybe they already have. ■



Computerworld's 10th Annual Best Places to Work in IT!



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Retailers dip their toes in the price optimization software waters. Opportunities emerge for Linux professionals to become certified.

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Turbulence Ahead!

RICHARD BORGE

SPECIAL REPORT It's easy to get tangled in the financial turmoil of the telecommunications sector, where even big carriers are filing for bankruptcy. Our special report provides strategies for coping with this mess and spots other changes on the horizon, such as Internet EDI and voice over IP.

STORIES BEGIN ON PAGE 25.

ONLINE EXCLUSIVE

How to prevent the human errors that cause many network outages:

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IBM Takes Steps To Relieve iSeries Pricing Pain

Revamp of former AS/400 line adds high-end models, cuts cost of running green-screen apps

BY JAIKUMAR VIJAYAN

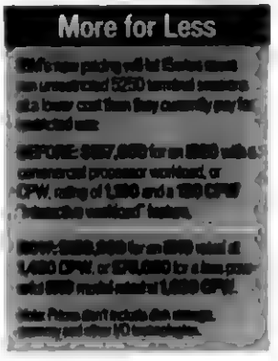
IBM this week will roll out new hardware, pricing and upgrade options for users of its iSeries systems as part of a $500 million effort to revitalize the 25-year-old midrange server line.

The overhaul is aimed at addressing several long-standing user concerns while also making the iSeries machines more appealing to first-time buyers, said Al Zollar, who earlier this month was tapped to head the iSeries business unit at IBM. In addition, IBM plans to invest more in marketing in an attempt to boost interest in the iSeries technology among software vendors and resellers, Zollar said.

Perhaps the most important development, according to users and analysts, is a change in the way IBM charges users that run host-based green-screen applications on machines in the iSeries line, which was previously known as the AS/400.

Under IBM's new Enter-

IBM iSeries, page 51



GPS Jammers Raise Concern

Hacker group offers guide to developing homemade devices

BY BOB BREWIN

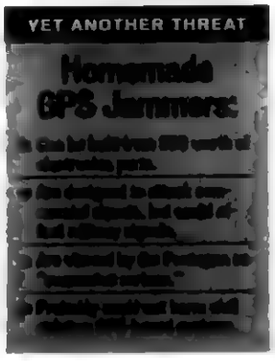
Government officials and communications experts are assessing the public safety and security implications of a newly posted online article that provides directions for making cheap devices to jam Global Positioning System signals.

Information in the article, in the current issue of an online hacker magazine called *Phrack*, potentially puts at risk GPS devices used for commercial navigation and military operations purposes, authorities said.

The *Phrack* article provides a detailed guide to building a low-cost, portable GPS jammer out of components that can be easily obtained from electronics supply houses.

According to the article, the "onslaught of cheap GPS-based navigation (or hidden tracking devices) has made it necessary for the average citizen to take up the fine art of electronic warfare." Electronics and GPS experts who read the article last week called it technically competent and said amateurs with a certain

GPS Jammers, page 16



Terrorist Probe Hobbles Ptech

Employees warn it could happen to other companies, too

BY DAN VERTON

The White House has given Ptech Inc.'s software a clean bill of health, and most of the company's customers and strategic business partners remain committed to its technology. But Ptech, investigated for having an al-Qaeda connection, has still become a casualty of the war on terrorism.

In an exclusive series of interviews with *Computerworld*, Ptech CEO Oussama Ziade and several former employees said the government's investigation of a former investor who is alleged to have ties to terrorism [QuickLink 34970] has crippled the ability of the Quincy, Mass., software company to attract new business. And they fear the same thing could happen to other firms.

Ptech's crisis stems from a Dec. 5 consensual search by

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- Opportunities emerge for Linux professionals to become certified. PAGE 6

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Under IBM's new Enter-

IBM iSeries, page 51

More for Less

IBM's new pricing will let iSeries users run unrestricted 5250 terminal sessions at a lower cost than they currently pay for restricted use:

BEFORE: $457,000 for an i820 with a commercial processor workload, or CPW, rating of 1,100 and a 120 CPW "interactive workload" feature.

NOW: $120,000 for an i810 rated at 1,450 CPW, or $78,000 for a less powerful i810 model rated at 1,020 CPW.

Note: Prices don't include disk storage, memory and other I/O technologies.

GPS Jammers Raise Concern

Hacker group offers guide to developing homemade devices

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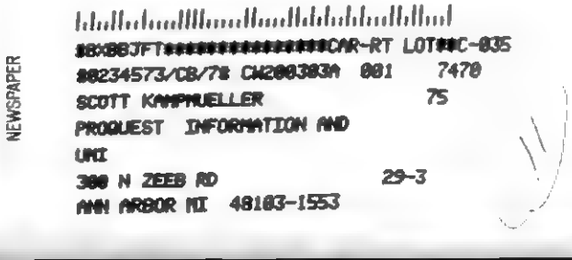
GPS Jammers, page 16

YET ANOTHER THREAT

Homemade GPS Jammers:

- Can be built from $60 worth of electronics parts.
- Are designed to attack commercial signals, but could affect military signals.
- Are viewed by the Pentagon as "somewhat serious."
- Probably could not harm civil aviation GPS-based systems.



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Partnerships and products to further secure your infrastructure today

The Microsoft Gold Certified Partner Program for Security Solutions helps you locate the best providers of security solutions for your IT environment. Microsoft Gold Certified Partners for Security Solutions have proven experience, validated by their customers, in delivering robust, secure implementations of Microsoft technologies. The technologies include key infrastructure security products such as Microsoft Internet Security and Acceleration (ISA) Server 2000, an ICSA-certified firewall; Systems Management Server 2.0, a management tool for distributing security patches; and the Microsoft Active Directory service, a central repository for all user- and resource-identity management information.

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- Developing and refreshing new threat models to help counter constantly evolving security risks.

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—Sunil Misra, Managing Principal, Worldwide Security Practice, Unisys

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10 **Microsoft will pay up to** $1.1 billion to California software license holders to settle a class-action lawsuit, but businesses are wondering how hard it will be to prove ownership.

10 **Roto-Rooter installs** a wireless system that will use Global Positioning System technology and a set of vendor-hosted applications to route its employees to customer sites.

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KNOWLEDGE CENTER NETWORKING

Turbulence Ahead!

Telecom carriers are going belly up, and even more are expected to do so this year. Corporate network managers have to cope with the ugly situation as well as with a variety of shifts in the networking landscape. This special report provides advice on how to navigate this challenging environment.

SPECIAL REPORT

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26 The Story So Far: Charlie Brown, Bill Baxter, Harold Greene and Bill McGowan are the cast of characters in a story that includes the breakup of the Ma Bell system and the consequent intense competition in the long-haul telecom market.

28 Coping With Telecom Turmoil. Users like CIO Zeke Zoccoli (left) are trying to protect their WANs from the troubles of the telecom carriers through diversification, redundancy and shrewd contract clauses.

32 Opinion: Internet2 is up and running — fast. It remains off-limits to commercial users, but there's a lot for IT users to learn from the speed-burners on the I2 raceway, says columnist Mark Hall.

33 Internet Protocol Version 6. IPv6 is replacing the current standard, IPv4, bringing greatly expanded address space and many smaller benefits. Vendors mostly support the move now, but the transition may cause some headaches for users. **ONLINE:** The chairman of the IETF's IPv6 Working Group says IT shops should be holding off on full deployments. QuickLink 24630

34 Field Report: Ethernet metropolitan-area networks offer cheaper, more flexible bandwidth than traditional Sonet-based technologies, but the services are still a work in progress. **ONLINE:** Metro Ethernet Forum President Nan Chen talks about how the group will help metro Ethernet services proliferate. QuickLink 25129

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38 Internet EDI Grows Up. Wal-Mart is switching its EDI traffic from value-added networks to the Internet, using software that complies with the new AS2 standard. It could be a watershed event. But users will find that they need to do a lot of the work that value-added networks used to do.

40 Careers: A roundup of skills, training and salary information for network managers. **ONLINE:** Why the Microsoft and Cisco certifications are now mere prerequisites. QuickLink 25226

42 The Next Chapter: In this collection of industry predictions, pundits say that AT&T will be acquired by a Baby Bell and that only a few megacarriers will survive the telecom depression.

ILLUSTRATION BY RICHARD BORGE PHOTOGRAPHY BY REID HORN AND MARC BERLOW

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The Abusers:
Human error is the No. 2 cause of network outages, and there will be an estimated 60 billion e-mail messages sent per day in 2006. These are among the research tidbits in this month's collection.
QuickLink 25231

User Cuts Telecom Costs by 20%
Putnam Lovell is using WorldCom's Private IP network to consolidate voice, data and video traffic. The move cut costs by 20% and doubled Putnam's available bandwidth.
QuickLink 25243

Where Computers and Telephony Meet
Computer/telephony integration has been plagued by unkept promises and the lack of standards. But the Session Initiation Protocol could be just the thing to finally bring together computers, telephony and the Internet. QuickLink 25240

AT DEADLINE

HP Set to Offer Four-CPU Blades

Hewlett-Packard Co. today plans to announce a four-processor blade server that's based on Intel Xeon MP chips and can be connected to Fibre Channel storage-area networks (SAN). Prices start at $8,999. Server rival IBM said it plans to add four-CPU blade devices with SAN connections later this year. Dell Computer Corp. also has such systems on its road map but declined to disclose its delivery plans.

Income, Revenue Jump at Microsoft

Microsoft Corp. reported a $2.55 billion profit on revenue of $8.54 billion for its second quarter, which ended Dec. 31, up from the year-earlier figures of $2.28 billion and $7.74 billion. The company said it expects up to $7.8 billion in revenue this quarter. "We do not expect to see a significant upturn in global IT spending in the short term," said John Connors, Microsoft's chief financial officer.

IBM's Profit Drops; Sun Reports Loss

IBM said its fourth-quarter revenue grew 7% to $23.68 billion, up from $22.14 billion a year earlier. But its profits from continuing operations fell to $1.91 billion, compared with $2.57 billion a year earlier. Sun Microsystems Inc. reported a net loss of $2.28 billion, fueled by about $2.5 billion in charges, for its second quarter, which ended Dec. 29. Revenue fell 9% year over year.

Orange, Microsoft Fixing Phone Flaw

London-based network operator Orange SA said it's working with Microsoft to fix a security flaw in a mobile phone that's based on Microsoft's Smartphone software. The hole could let users disable a protection against running uncertified applications, Orange said.

SAP Adds Software to Boost App Integration

NetWeaver supports .Net and Java, aims to lower cost of linking applications

BY MARC L. SONGINI

SAP AG LAST WEEK announced the launch of new integration technology that it claims will help users slash the cost of connecting disparate business applications.

SAP said it's standardizing its own applications on the Enterprise Services Architecture blueprint, which is based on the use of Web services. It also announced NetWeaver, an upgraded version of its integration backbone software that's designed to support ties between SAP's applications, third-party products and homegrown software without forcing users to tinker with the underlying technology.

NetWeaver is the next generation of mySAP Technology, a set of integration software announced in 2001. SAP said NetWeaver can function as an integration and application server platform for companies that use either Microsoft .Net or IBM's Java-based WebSphere development tools. The software also supports SAP's proprietary ABAP programming language.

"The ultimate business benefit is reduced total cost of ownership," said William Wohl, a spokesman for SAP America Inc. in Newtown Square, Pa. For many users, he noted, integration is the biggest factor in system costs.

The new technology could greatly simplify integration for SAP users, said Yvonne Genovese, an analyst at Gartner Inc. She said SAP is opening up its applications more widely with NetWeaver than it did with mySAP Technology and xApps, a so-called cross-applications initiative the company announced last June. Many users "need to be able to pull data from IBM WebSphere or a .Net-based application," Genovese said.

NetWeaver sounds like a way to eliminate costly point-to-point connectors between applications through the use of native XML and Web services messaging technologies, said Bruce Decock, CIO at semiconductor maker LSI Logic Corp. in Milpitas, Calif. "Those interfaces cost a lot to maintain," Decock said.

He added that he's particularly interested in a composite application framework that's part of NetWeaver. LSI could use that to share engineering and product design data in its SAP R/3 enterprise resource planning applications with its Microsoft Project scheduling and resource management system, he said.

The composite application capability supports the development of unified processing workflows that involve multiple systems, according to SAP. The company said NetWeaver will also offer master data management services, which can integrate information in different databases (see box).

In addition, NetWeaver includes technologies such as SAP's portal, collaboration and business intelligence software. The integration tools are already shipping with some SAP applications, but the company said the master data management feature won't be available until the third quarter.

NEW FEATURES

SAP's NetWeaver

- A framework that **includes built-in templates, design rules and tools**, such as an object access layer, for creating composite applications.
- Master data management functionality that can **be used to consolidate and centrally control data** stored in multiple systems and physical locations.

Oracle Takes New Steps To Speed Up 11i Rollouts

'Accelerator' bundles target specific tasks

BY MARC L. SONGINI

Faced with sagging new license revenue for its business applications, Oracle Corp. this week plans to expand its efforts to ease user headaches related to installing the latest version of the software.

At its AppsWorld user conference in San Diego, Oracle will announce a set of bundled applications and consulting services that address specific business needs. Called Business Flow Accelerators, the new packages are designed to help users deploy pieces of Oracle's E-Business Suite 11i product line quickly and cost-effectively, said Fred Studer, vice president of E-Business Suite marketing.

"You don't have to adopt the whole E-Business Suite," Studer said. "No question, it's not an easy thing to install. The more we can help automate that process and get people a quick return, the better."

Oracle plans to announce 20 accelerator packages, spanning functional areas such as customer relationship management, supply chain distribution and finance. The move expands on an earlier rapid-deployment offering, called FastForward, that was aimed at midsize users. It continues a campaign to reduce 11i's complexity that Oracle launched at AppsWorld last year.

The simplified bundling plan makes sense to Frank Milano, CIO at Terracon Inc., an engineering consulting firm in Lenexa, Kan. Milano said Terracon is about one-third of the way through a rollout of 11i at its 60 offices, a project that involves installing 25 financial, project management and human resources applications. Bundled packages that combine the applications with software maintenance and other services would be easier to deal with, he said.

Like rival vendors, Oracle has seen its application sales drop because of tight IT spending. The company reported revenue of $251.7 million for its applications in its second quarter ended Nov. 30, down from $290.2 million in the same period a year earlier.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said Oracle needs to bring more of its marketing focus back to the applications side of its business. "Applications have taken a back burner to [database and application server] technology at Oracle of late," Greenbaum said.

APPLICATION AWARE

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Retailers Explore Price Optimization

Early adopters see benefit, but some users still wary of new technology

BY CAROL SLIWA
NEW YORK

Software that can help retailers set initial prices and manage their markdown cycles could see an uptick in adoption this year if the interest expressed at last week's National Retail Federation Conference & Expo here morphs into action plans.

More than 200 attendees packed a Sunday morning conference session on merchandise optimization, and several retail executives said their companies either are piloting price optimization software or exploring its potential to assist their decision-makers, through its sophisticated mathematical modeling capabilities.

"Early results are encouraging. We think there are incremental [profit] margin opportunities associated with it," said Stephen Sadove, vice chairman of Saks Inc., which is testing software from Spotlight Solutions Inc. in Mason, Ohio. Spotlight specializes in software designed to help a company plan the best time to discount seasonal items.

Steve Schwartz, a senior vice president of planning and allocation at Casual Male Retail Group Inc. in Canton, Mass., said markdown optimization software from ProfitLogic Inc. in Cambridge, Mass., eliminated the need for "inches thick" reports showing stock-keeping unit, sales and inventory data that "would take forever to go through."

The men's apparel chain initially sent two years' worth of data to ProfitLogic and now sends weekly sales and inventory figures by store. The optimization software does the number-crunching and produces markdown recommendations based on the region where a store is located. The only IT involvement was getting the data to ProfitLogic, which hosts the software and is paid a monthly fee, Schwartz said.

Schwartz said the ProfitLogic system has helped his company improve its gross profit margin and the liquidation rate of seasonal items, but he declined to provide numbers.

Another type of optimization software is aimed at helping retailers predict consumer demand and set everyday prices of merchandise, with an eye toward a sales or profit target. Two leading vendors are DemandTec Inc. in San Carlos, Calif., and KhiMetrics Inc. in Scottsdale, Ariz.

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Follow the Leader

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Sears CEO Says Company Will Standardize Technology

BY CAROL SLIWA

Sears, Roebuck and Co. is plotting a major systems re-engineering initiative designed to address the company's fragmented technology approach, according to CEO Alan Lacy.

The IT effort is being led by Garry Kelly, who was named CIO in October. Sears had been operating with an interim CIO, Don Zimmerman, a vice president of IT, since the May 17 departure of Garry Miller. Miller's sudden exit came four days after the retailer announced the acquisition of Lands' End Inc. Company officials declined to comment on the CIO change at the time.

Lacy, chairman and CEO since December 2000, last week spoke with *Computerworld* about the retailer's technology plans for this year and the change in IT leadership.

Did the CIO change have anything to do with a change in technology focus that you wanted to make? Well, no. I think that Garry Miller, who was our CIO, did some very fine things for our company, and he was with us for a number of years and really got us to a better level of capability. Garry Kelly, who's come in four or five months ago, is a very good businessman and technology officer. And I think that his ability to get us to the next level is going to be very helpful.

What technology initiatives do you have planned for the year? We've got a major sort of re-engineering of our whole IT function right now in process – structure, systems. We've had a very fragmented approach, and we're basically trying to standardize much more so than we have in the past.

We've got too many point-of-sale systems, too many inventory systems, too many this, that and the other thing, because we basically allowed for many, many years each business to do its own thing, which we're not going to do anymore.

Will you be buying a lot of new technology as you do this standardization? I'd say right now it's basically standardize around what we've got as Phase 1, and in Phase 2, yes, there'd be more coming on board. But I think Phase 1 is basically standardize around the best of what we have and then assess how far that gets us, and then we'll decide how much we want to supplement.

Was the decision affected by the Lands' End merger, or would you have done the standardization anyway? We would have done it anyway.

From a systems perspective, how is the merger going? How much work been done? We're not really doing much merging there. They've got a very capable team up there, and we're letting them do their thing. We're looking for opportunities to leverage where we can, but there's no integration within Lands' End. They continue to have their own shop and run it quite well.

Has there been any integration of systems? No. And there won't be.

AT DEADLINE

HP Set to Offer Four-CPU Blades

Hewlett-Packard Co. today plans to announce a four-processor blade server that's based on Intel Xeon MP chips and can be connected to Fibre Channel storage-area networks (SAN). Prices start at $8,999. Server rival IBM said it plans to add four-CPU blade devices with SAN connections later this year. Dell Computer Corp. also has such systems on its road map but declined to disclose its delivery plans.

Income, Revenue Jump at Microsoft

Microsoft Corp. reported a $2.55 billion profit on revenue of $8.54 billion for its second quarter, which ended Dec. 31, up from the year-earlier figures of $2.20 billion and $7.74 billion. The company said it expects up to $7.8 billion in revenue this quarter. "We do not expect to see a significant upturn in global IT spending in the short term," said John Connors, Microsoft's chief financial officer.

IBM's Profit Drops; Sun Reports Loss

IBM said its fourth-quarter revenue grew 7% to $23.68 billion, up from $22.14 billion a year earlier. But its profits from continuing operations fell to $1.91 billion, compared with $2.57 billion a year earlier. Sun Microsystems Inc. reported a net loss of $2.28 billion, fueled by about $2.5 billion in charges, for its second quarter, which ended Dec. 29. Revenue fell 6% year over year.

Orange, Microsoft Fixing Phone Flaw

London-based network operator Orange SA said it's working with Microsoft to fix a security flaw in a mobile phone that's based on Microsoft's Smartphone software. The hole could let users disable a protection against running uncertified applications, Orange said.

SAP Adds Software to Boost App Integration

NetWeaver supports .Net and Java, aims to lower cost of linking applications

BY MARC L. SONGINI

SAP AG LAST WEEK announced the launch of new integration technology that it claims will help users slash the cost of connecting disparate business applications.

SAP said it's standardizing its own applications on the Enterprise Services Architecture blueprint, which is based on the use of Web services. It also announced NetWeaver, an upgraded version of its integration backbone software that's designed to support ties between SAP's applications, third-party products and homegrown software without forcing users to tinker with the underlying technology.

NetWeaver is the next generation of mySAP Technology, a set of integration software announced in 2001. SAP said NetWeaver can function as an integration and application server platform for companies that use either Microsoft .Net or IBM's Java-based WebSphere development tools. The software also supports SAP's proprietary ABAP programming language.

"The ultimate business benefit is reduced total cost of ownership," said William Wohl, a spokesman for SAP America Inc. in Newtown Square, Pa. For many users, he noted, integration is the biggest factor in system costs.

The new technology could greatly simplify integration for SAP users, said Yvonne Genovese, an analyst at Gartner Inc. She said SAP is opening up its applications more widely with NetWeaver than it did with mySAP Technology and xApps, a so-called cross-applications initiative the company announced last June. Many users "need to be able to pull data from IBM WebSphere or a .Net-based application," Genovese said.

NetWeaver sounds like a way to eliminate costly point-to-point connectors between applications through the use of native XML and Web services messaging technologies, said Bruce Decock, CIO at semiconductor maker LSI Logic Corp. in Milpitas, Calif. "Those interfaces cost a lot to maintain," Decock said.

He added that he's particularly interested in a composite application framework that's part of NetWeaver. LSI could use that to share engineering and product design data in its SAP R/3 enterprise resource planning applications with its Microsoft Project scheduling and resource management system, he said.

The composite application capability supports the development of unified processing workflows that involve multiple systems, according to SAP. The company said NetWeaver will also offer master data management services, which can integrate information in different databases (see box).

In addition, NetWeaver includes technologies such as SAP's portal, collaboration and business intelligence software. The integration tools are already shipping with some SAP applications, but the company said the master data management feature won't be available until the third quarter.

NEW FEATURES

SAP's NetWeaver

- A framework that **includes built-in templates, design rules and tools**, such as an object access layer, for creating composite applications.
- Master data management functionality that can **be used to consolidate and centrally control data** stored in multiple systems and physical locations.

Oracle Takes New Steps To Speed Up 11i Rollouts

'Accelerator' bundles target specific tasks

BY MARC L. SONGINI

Faced with sagging new license revenue for its business applications, Oracle Corp. this week plans to expand its efforts to ease user headaches related to installing the latest version of the software.

At its AppsWorld user conference in San Diego, Oracle will announce a set of bundled applications and consulting services that address specific business needs. Called Business Flow Accelerators, the new packages are designed to help users deploy pieces of Oracle's E-Business Suite 11i product line quickly and cost-effectively, said Fred Studer, vice president of E-Business Suite marketing.

"You don't have to adopt the whole E-Business Suite," Studer said. "No question, it's not an easy thing to install. The more we can help automate that process and get people a quick return, the better."

Oracle plans to announce 20 accelerator packages, spanning functional areas such as customer relationship management, supply chain distribution and finance. The move expands on an earlier rapid-deployment offering, called FastForward, that was aimed at midsize users. It continues a campaign to reduce 11i's complexity that Oracle launched at AppsWorld last year.

The simplified bundling plan makes sense to Frank Milano, CIO at Terracon Inc., an engineering consulting firm in Lenexa, Kan. Milano said Terracon is about one-third of the way through a rollout of 11i at its 60 offices, a project that involves installing 25 financial, project management and human resources applications. Bundled packages that combine the applications with software maintenance and other services would be easier to deal with, he said.

Like rival vendors, Oracle has seen its application sales drop because of tight IT spending. The company reported revenue of $251.7 million for its applications in its second quarter ended Nov. 30, down from $290.2 million in the same period a year earlier.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said Oracle needs to bring more of its marketing focus back to the applications side of its business. "Applications have taken a back burner to [database and application server] technology at Oracle of late," Greenbaum said.

APPLICATION AWARE

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QuickLink k2000
www.computerworld.com

Retailers Explore Price Optimization

Early adopters see benefit, but some users still wary of new technology

BY CAROL SLIWA
NEW YORK

Software that can help retailers set initial prices and manage their markdown cycles could see an uptick in adoption this year if the interest expressed at last week's National Retail Federation Conference & Expo here morphs into action plans.

More than 200 attendees packed a Sunday morning conference session on merchandise optimization, and several retail executives said their companies either are piloting price optimization software or exploring its potential to assist their decision-makers, through its sophisticated mathematical modeling capabilities.

"Early results are encouraging. We think there are incremental [profit] margin opportunities associated with it," said Stephen Sadove, vice chairman of Saks Inc., which is testing software from Spotlight Solutions Inc. in Mason, Ohio. Spotlight specializes in software designed to help a company plan the best time to discount seasonal items.

Steve Schwartz, a senior vice president of planning and allocation at Casual Male Retail Group Inc. in Canton, Mass., said markdown optimization software from ProfitLogic Inc. in Cambridge, Mass., eliminated the need for "inches thick" reports showing stock-keeping unit, sales and inventory data that "would take forever to go through."

The men's apparel chain initially sent two years' worth of data to ProfitLogic and now sends weekly sales and inventory figures by store. The optimization software does the number-crunching and produces markdown recommendations based on the region where a store is located. The only IT involvement was getting the data to ProfitLogic, which hosts the software and is paid a monthly fee, Schwartz said.

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Price Optimization Software

FOR MARKDOWNS:

- ProfitLogic – Users include J.C. Penney, Casual Male, Meijer Stores, Old Navy, Northern Group Retail
- Spotlight Solutions – Users include Saks and Shopko
- i2 Technologies – Users include Best Buy and Payless Shoe Source

FOR SETTING EVERYDAY PRICES:

- DemandTec – Users include Longs Drug Stores, Big V Supermarkets, D'Agostino Supermarkets, D&W Food Centers, H.E. Butt Grocery
- KhiMetrics – Users include Big V Foods, ShopKo, Pamida, Wein-Dixie, Safeway UK

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BY CAROL SLIWA

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Microsoft Opens Source Code to Governments

Hopes to stem open-source adoption by letting them assess security of Windows

BY PATRICK THIBODEAU
WASHINGTON

As foreign governments increasingly move to adopt open-source software policies, Microsoft Corp. last week worked to address one of the concerns prompting that adoption: Windows security.

Microsoft said it would give central governments access to source code, a move seen as an effort to quell the debate over whether open source code has a security advantage over closed code. Providing such access "will help, because it moves Microsoft one inch toward the middle" in that debate, said Martin Hingley, a London-based analyst at IDC.

Governments fundamentally need "to feel that they are developing homegrown expertise and not just inserting CDs and pressing their customization button," said Alastair Burt, a researcher in Germany who is working on one of a number of European Union-funded open-source projects.

Expanded Access

Microsoft has several programs that provide source code to governments, universities and private-sector firms. But the initiative announced last week, called the Government Security Program (GSP), is specifically targeted at central governments and is intended to allow them to assess the security and integrity of Microsoft software.

Craig Mundie, senior vice president and chief technical officer of advanced strategies and policies at Microsoft, said GSP was created after government officials told the company that security is a "primary concern" and that they wanted access to source code and Windows technical information and the ability to collaborate. GSP "demonstrated our commitment to making Windows source code more transparent to customers and increasing customer trust in the security both of our products and the IT industry generally," he said.

Participating governments get online access to source code, an engineering-level understanding of Windows architecture, the ability to build more secure environments, and access to cryptographic code and development tools, said Mundie.

But governments won't get the ability to alter source code. "This isn't about developing or supporting customized versions of Windows," Mundie said. The GSP and other source-code access programs are about "helping build comfort and trust with our key customers on how Windows is deployed, how security is running and how other software is running on top of Windows," he said.

MORE THIS ISSUE
Do governments *want* to examine Windows source code? asks columnist Frank Hayes. Page 52

Russia's Federal Agency for Governmental Communication and Information has signed a GSP agreement with Microsoft, and the company says it's in discussions with about 20 other governments.

Stamford, Conn.-based Meta Group Inc. reported last month that government interest in non-Microsoft software is growing. Germany, China, India, Taiwan, Singapore and Finland are among the countries Meta expects to increasingly adopt Linux on servers.

While central governments are pushing broad open-source adoption policies, practical implementation issues remain.

Microsoft is a major systems vendor for the city of Derby, England. And that's not changing because of broader central government policies encouraging the use of open-source software.

"We are pretty much tied into Microsoft," said Mike Thompson, IT manager for the city, which has 3,000 end users. "At the moment, we don't feel that open source has developed enough . . . if you want to jump ship." ▶

Source Course

Under the GSP, central governments receive:

- Online access to source code.
- Beta releases and service packs for Windows 2000, XP, Windows .Net Server 2003 and Windows CE.
- Greater ability to conduct security and privacy audits.
- Improved troubleshooting and system-optimization capabilities.
- Opportunities for collaboration with Microsoft.

SOURCE: MICROSOFT CORP.

Linux Certification Opportunities Emerge

Open-source movement drives demand for training

BY TODD R. WEISS

The growing adoption of Linux systems by corporate IT shops is generating increasing demand for certified Linux professionals, and opportunities to gain those credentials are beginning to keep pace.

The certification issue will be prominent this week at the LinuxWorld Conference & Expo in New York, the major trade show for Linux.

A number of groups are now providing Linux certification, including the nonprofit Linux Professional Institute (LPI), global IT trade group CompTIA and Linux vendor Red Hat Inc.

Evan Leibovitch, president of Toronto-based LPI, said interest in getting Linux-certified workers has been "just staggering" in recent months.

LPI doesn't supply training but does give written certification exams that test an applicant's knowledge and mastery of Linux systems. About 57% of the exam takers fail the test, Leibovitch said.

"We actually like that," Leibovitch said. "It indicates to the world that this is not an easy exam to pass" and that the certification has real value. "When you pass the exam, it means you know your stuff," he said.

Junior and intermediate levels of certification are available, with an advanced certification still under development. LPI has granted 20,000 certifications worldwide since it began its program in 2000.

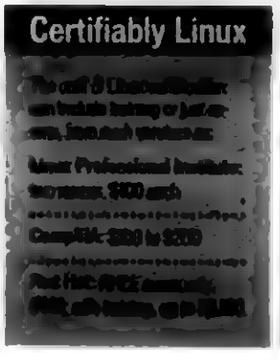
Other Linux certifications under consideration by LPI include security, database administration, enterprise-level administration and even desktop administration.

The certifications are vendor-neutral in order to try to avoid problems experienced in the Unix world in the past, Leibovitch said. "We do believe there have been some lessons learned," he said.

Eva Chen, Linux certification manager at Oak Brook, Ill.-based CompTIA, said that approximately 2,000 IT professionals have been certified so far by the organization.

Raleigh, N.C.-based Red Hat offers the Red Hat Certified Engineer (RHCE) program and the Red Hat Certified Technician certification, which was introduced last November to assess midlevel skills.

Pete Childers, vice president of global learning services at Red Hat, said the company's program includes hands-on testing as well as written work to provide deeper knowledge and skills. Red Hat also provides hands-on Linux systems training. Approximately 7,200 people have received RHCE certification out of about 13,500 who have taken the hands-on exam.



However, not every IT shop sees the need for Linux certification.

Dan Agronow, vice president of technology at weather forecasting service Weather.com in Atlanta, said his company doesn't require Linux certification for new hires or its existing IT staff. Instead, he said, it looks for people with solid Linux skills to run its systems.

But Dan Kusnetzky, an analyst at IDC, said certification is good for companies that want a security blanket as they consider bringing Linux inside their shops.

"Organizations looking at Linux for the first time often feel more comfortable having people with certification," Kusnetzky said. ▶

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WHY NOT TURN YOUR DATA CENTER INTO A PROFIT CENTER?

A data center doesn't have to be a black hole, where dollar bills disappear and are never seen again. Servers don't have to be deployed in ways that utilize less than 20% of their computing capacity. Every application doesn't have to exist on its own dedicated server. And every server doesn't need three people to manage it.

Companies shouldn't have to spend 80% of their data center budgets on administration. Millions of dollars "invested" in operations, consulting and services that supposedly make the data center work.

At Sun, we're not simply trying to "manage" the complexity. Or more precisely, to get rich off the complexity. Our goal is to eliminate it. To innovate new services, software and systems that drive costs down while dramatically reducing complexity.

That's why Corporate Express turned to Sun, a move that saved $10,000 per day in operating costs by consolidating 43 servers onto two Sun Enterprise™ 10000 servers. And why other companies are using Sun's mainframe rehosting solutions to save up to 70% of their annual IT operating costs.

These companies rely on Sun for cost-reduction strategies that ultimately lead to more streamlined, easier-to-manage data centers. Data centers that free their IT staff from the daily management of individual servers, and allow them to refocus on the task of turning information and network infrastructure into a strategic advantage.

If your data center is sucking more money from the bottom line than it's adding to the top line, it's time to turn things around. It's time to reestablish your data center as a competitive weapon. As the means by which you improve customer experiences and relationships, deliver new loyalty-driving services and maximize efficiencies throughout your company.

In short, it's time to reinvent the data center. And the first step is to call Sun.

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Sun microsystems

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BRIEFS

IBM Gets IT Deal From Fluor . . .

Fluor Corp., an engineering and construction services firm in Aliso Viejo, Calif., signed a seven-year deal to have IBM take over management of its global technology operations. The companies said the agreement includes usage-based pricing that will let Fluor add computing resources as needed. About 250 IT workers will be shifted to IBM as part of the deal, which has a potential value of about $351 million.

. . . And Signs New Worldspan Pact

IBM also announced a five-year deal valued at more than $350 million with Atlanta-based Worldspan LP, which operates one of the major travel reservation systems. Worldspan said it plans to use IBM's servers and software, such as its WebSphere middleware and DB2 database, to tie new Java-based Web applications to the mainframes that run the reservation system.

Capellas Readies WorldCom Plans

Michael Capellas, WorldCom Inc.'s new chairman and CEO, said he intends to finalize a plan to lower the company's cost structure by Feb. 1 and complete a new three-year business plan a month later. Capellas also set a mid-April deadline for filing a corporate reorganization plan with the U.S. Bankruptcy Court. More layoffs are likely, he added.

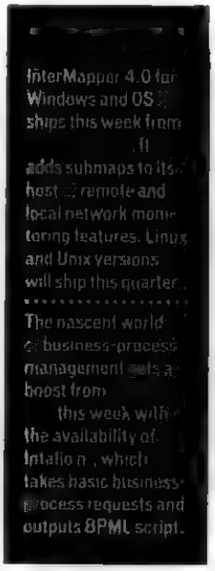
Short Takes

Sunnyvale, Calif.-based ARIBA INC. broadened a planned financial restatement, saying all of its results from January 2000 through last June will be revised. . . . AOL TIME WARNER INC. said CEO Richard Parsons will take over as chairman from Stephen Case, who plans to step down in May (see editorial, page 20).

MARK HALL • ON THE MARK

Linux Bores Deeper Into The Data Center . . .

. . . as IT managers stretch their budgets with the free operating system. That's if you believe analysts at **Wall Street-scandal-tainted** Goldman Sachs, who also claimed in a report last week that the success of Linux will diminish Windows' chances inside the digital holy of holies [QuickLink 35610]. But IT managers aren't going to toss out low-end, well-managed Unix machines or exclude well-understood Windows boxes just because something else is free. That would be an expensive mistake. Luckily for penguin proponents, improvements in both enterprise management and skills are coming to Linux. And soon. For example, Cupertino, Calif.-based CoroSoft Inc. will release its first four products on Jan. 30. CoroSoft Director, CoroSoft Foundation and two application modules make it possible manage a Linux-based infrastructure and add self-configuring, self-optimizing and self-healing features common to Unix and Windows systems. Systems administrators set policies and let the CoroSoft program do the work, **replacing old, time-consuming command-line management drudgery.** And by midyear expect integration with data center stalwart HP OpenView. Beyond that, expect CoroSoft tools for managing LDAP directories and J2EE servers. ■ Possibly more important is that those **scruffy Linux geeks will be getting certified,** and not as the crazy zealots some of you think they are (see related story, page 6). The Linux Professional Institute Inc. in Brampton, Ontario, will be adding a third level to its certification program, targeting enterprise-class skills such as data center security and database administration. Levels 1 and 2 now cover the Linux OS and common open-source applications like Apache and SendMail. According to Evan Leibovitch, LPI's president, the painstaking exam development process won't be complete until at least the end of 2003 because LPI works with the open-source community to create the right knowledge base to test. "We don't just pull questions out of our behind," he says. Which makes us all happy, I'm sure. ■ **If you've transcended geekness,** another Evan who evaluates IT talent, Evan Scott, founder of Evan Scott Group International in Plymouth Meeting, Pa., says the creation of the Department of Homeland Security has created a **crying need for senior IT executives who "understand how to protect information"** and "have strategic and interpersonal skills so they can talk to government customers." Scott argues that this is a long-term play for the career-minded, who might consider a stint inside the government services groups at companies like Lockheed Martin or EDS to get a feel for big, politically sensitive security-oriented projects inside the government. ■ **The limits of stealth marketing.** The problem with being an ASP is that, unlike a packaged software provider that rolls up a lot of itty-bitty product improvements and thumps its drum with a big overall announcement, most ASP product changes happen over time and are simply added to the hosted application as they are ready. Take GrownPeak Technology Inc. in Los Angeles, whose Advantage CMS Web content management hosted software has **secretly been given about 50 new features** in the past year. For example, its new similarity engine, which uses word-pairing AI techniques; and site monitoring, which improves security and helps prevent Web-site defacing, recently were added to the software with no fanfare whatsoever. CEO Jim Howard wonders whether his customers even know these features have been added. "They would have to read our newsletter or talk to us to know," he says. Maybe the company will make a bit more noise when it adds automatic template creation for Web developers later this quarter. That will be a great time-saver for Web geeks who manage tens of thousands of pages on a site. Of course, they'd have to know the feature was there first. ◗



Intel Moves to Broaden 64-Bit Itanium Chip Line

BY BOB BREWIN

Intel Corp. last week detailed a new development road map for its 64-bit Itanium 2 processor, saying it plans to add both a beefed-up version of the server chip and a lower-priced Itanium later this year.

The company also now intends to ship in 2005 a dual-core Itanium device that puts two CPUs on a single piece of silicon, said Lisa Graff, director of Intel's enterprise processor marketing group.

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Also in the plan for this year is a lower-priced processor that's being designed for use in dual-processor servers. Graff said the device, code-named Deerfield, will offer the same clock speed and cache that Madison does. ◗

BRIEFS

IBM Gets IT Deal From Fluor . . .

Fluor Corp., an engineering and construction services firm in Aliso Viejo, Calif., signed a seven-year deal to have IBM take over management of its global technology operations. The companies said the agreement includes usage-based pricing that will let Fluor add computing resources as needed. About 250 IT workers will be shifted to IBM as part of the deal, which has a potential value of about $351 million.

. . . And Signs New Worldspan Pact

IBM also announced a five-year deal valued at more than $350 million with Atlanta-based Worldspan LP, which operates one of the major travel reservation systems. Worldspan said it plans to use IBM's servers and software, such as its WebSphere middleware and DB2 database, to tie new Java-based Web applications to the mainframes that run the reservation system.

Capellas Readies WorldCom Plans

Michael Capellas, WorldCom Inc.'s new chairman and CEO, said he intends to finalize a plan to lower the company's cost structure by Feb. 1 and complete a new three-year business plan a month later. Capellas also set a mid-April deadline for filing a corporate reorganization plan with the U.S. Bankruptcy Court. More layoffs are likely, he added.

Short Takes

Sunnyvale, Calif.-based ARIBA INC. broadened a planned financial restatement, saying all of its results from January 2000 through last June will be revised. . . . AOL TIME WARNER INC. said CEO Richard Parsons will take over as chairman from Stephen Case, who plans to step down in May (see editorial, page 20).

MARK HALL • ON THE MARK

Linux Bores Deeper Into The Data Center . . .

. . . as IT managers stretch their budgets with the free operating system. That's if you believe analysts at **Wall Street-scandal-tainted** Goldman Sachs, who also claimed in a report last week that the success of Linux will diminish Windows' chances inside the digital holy of holies [QuickLink 35610]. But IT managers aren't going to toss out low-end, well-managed Unix machines or exclude well-understood Windows boxes just because something else is free. That would be an expensive mistake. Luckily for penguin proponents, improvements in both enterprise management and skills are coming to Linux. And soon. For example, Cupertino, Calif.-based CoroSoft Inc. will release its first four products on Jan. 30. CoroSoft Director, CoroSoft Foundation and two application modules make it possible manage a Linux-based infrastructure and add self-configuring, self-optimizing and self-healing features common to Unix and Windows systems. Systems administrators set policies and let the CoroSoft program do the work, **replacing old, time-consuming command-line management drudgery.** And by midyear expect integration with data center stalwart HP OpenView. Beyond that, expect CoroSoft tools for managing LDAP directories and J2EE servers. ■ Possibly more important is that those **scruffy Linux geeks will be getting certified,** and not as the crazy zealots some of you think they are (see related story, page 6). The Linux Professional Institute Inc. in Brampton, Ontario, will be adding a third level to its certification program, targeting enterprise-class skills such as data center security and database administration. Levels 1 and 2 now cover the Linux OS and common open-source applications like Apache and SendMail. According to Evan Leibovitch, LPI's president, the painstaking exam development process won't be complete until at least the end of 2003 because LPI works with the open-source community to create the right knowledge base to test. "We don't just pull questions out of our behind," he says. Which makes us all happy, I'm sure. ■ **If you've transcended geekness,** another Evan who evaluates IT talent, Evan Scott, founder of Evan Scott Group International in Plymouth Meeting, Pa., says the creation of the Department of Homeland Security has created a **crying need for senior IT executives who "understand how to protect information"** and "have strategic and interpersonal skills so they can talk to government customers." Scott argues that this is a long-term play for the career-minded, who might consider a stint inside the government services groups at companies like Lockheed Martin or EDS to get a feel for big, politically sensitive security-oriented projects inside the government. ■ **The limits of stealth marketing.** The problem with being an ASP is that, unlike a packaged software provider that rolls up a lot of itty-bitty product improvements and thumps its drum with a big overall announcement, most ASP product changes happen over time and are simply added to the hosted application as they are ready. Take CrownPeak Technology Inc. in Los Angeles, whose Advantage CMS Web content management hosted software has **secretly been given about 50 new features** in the past year. For example, its new similarity engine, which uses word-pairing AI techniques; and site monitoring, which improves security and helps prevent Web-site defacing, recently were added to the software with no fanfare whatsoever. CEO Jim Howard wonders whether his customers even know these features have been added. "They would have to read our newsletter or talk to us to know," he says. Maybe the company will make a bit more noise when it adds automatic template creation for Web developers later this quarter. That will be a great time-saver for Web geeks who manage tens of thousands of pages on a site. Of course, they'd have to know the feature was there first. ▶

Intel Moves to Broaden 64-Bit Itanium Chip Line

BY BOB BREWIN

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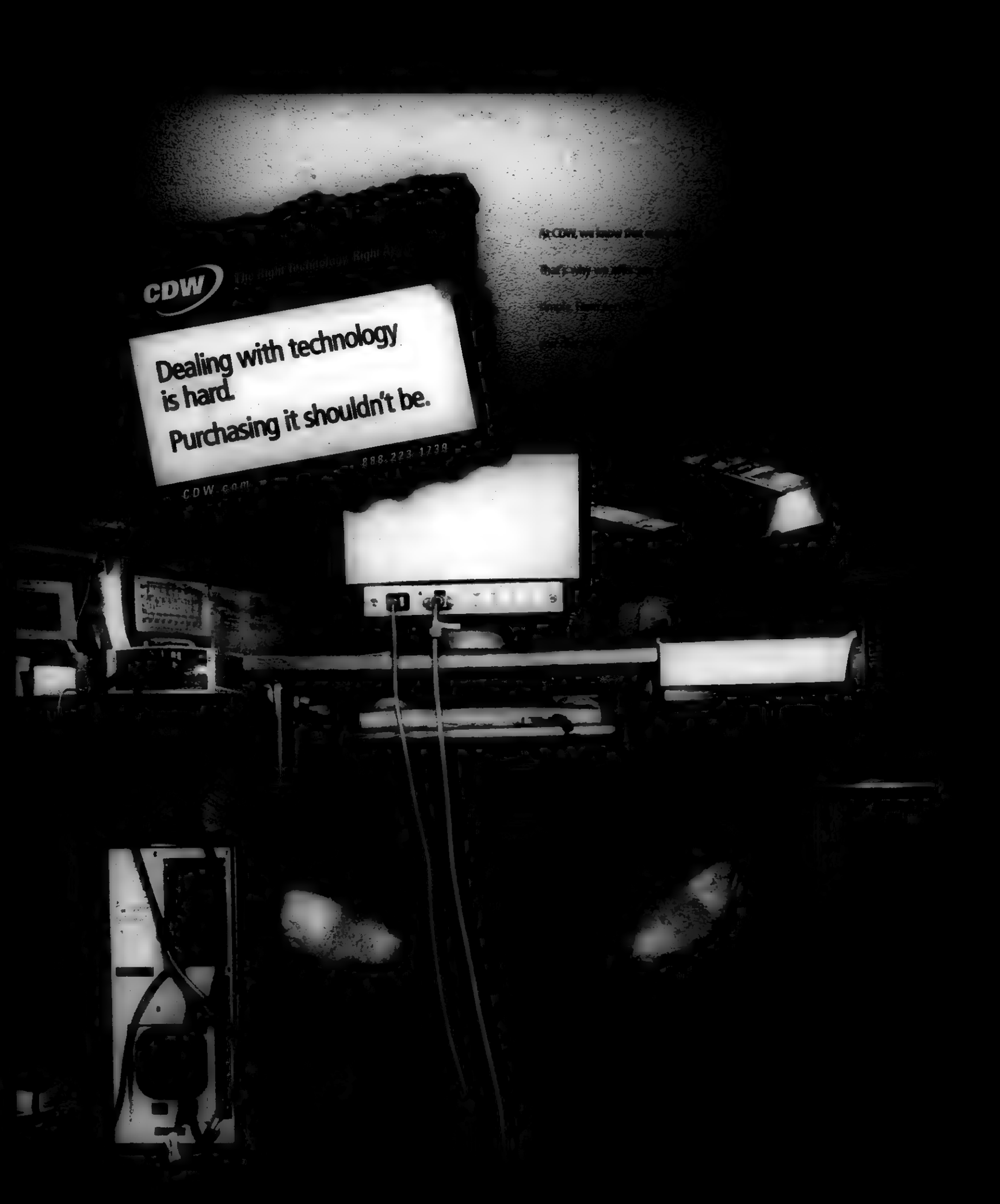
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is hard.
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Microsoft Settlement Could Yield Rebates

But hassles await users who apply for vouchers

BY PATRICK THIBODEAU
WASHINGTON

RICK PELTZ, CIO at Marcus & Millichap Real Estate Investment Brokerage Co., has calculated what Microsoft Corp.'s California class-action settlement might mean for his company: about $18,000.

Peltz kept good records on the 400 computers his nationwide firm, based in Encino, Calif., purchased for its California offices over the nearly seven-year settlement period. But what he doesn't know is how hard it will be for him to prove license ownership when it comes time to claim the money. "Is it going to be a nightmare if they challenge me on this [licensing] number?" asked Peltz.

Under the class-action antitrust settlement reached this month in California state court in San Francisco, Microsoft agreed to pay up to $1.1 billion to software license owners in the state. Approximately 80% of that money, say the plaintiffs' attorneys, will go directly to businesses.

The lawsuit accused Microsoft of violating the state's antitrust laws and overcharging consumers. Microsoft admitted no wrongdoing under the settlement.

The agreement applies to licenses purchased for use in California. But it may become a model for similar pending class-action lawsuits that Microsoft still faces in 16 other states, said the plaintiffs' lead counsel, Eugene Crew of Townsend and Townsend and Crew LLP in San Francisco.

Once the agreement is approved, businesses as well as consumers will be able to apply for vouchers, probably beginning sometime this spring. The vouchers can be used to purchase laptops, desktops, tablet computers, peripherals and software by any maker. An independent person or business will administer claims.

As part of the settlement, Microsoft must let businesses check its seat management records, according to the plaintiffs' attorney.

Rob Enderle, a Giga Information Group Inc. analyst based in California, said pursuing the vouchers may be expensive for firms that purchased systems piecemeal. "You will eat up more in labor getting the rebate than you're going to get back from Microsoft," Enderle said.

Indeed, one IT manager, Mark Jongeward at Bacou-Dalloz Group in San Diego, a maker of protective gear, said his company had probably purchased fewer than 500 PCs. And "the effort to compile the information, dig out all the records, can be more expensive than what I get back," he said.

Jongeward said he would rather see the money go to California schools. Under the settlement, two-thirds of the unclaimed voucher funds will be donated to the schools, with half of that available for Microsoft software and the remainder for use for non-Microsoft computer equipment and software.

Apple Computer Inc., a major supplier of hardware and software for the education market, opposed the agreement. The company said last week that past experience shows that less than 25% of customers redeem vouchers. Apple maintains that all unclaimed funds should be available to schools to purchase any kind of equipment.

Robb Good, vice president and director of IT at Sundt Construction Inc. in San Diego, estimated that the vouchers could deliver anywhere from $9,000 to $25,000 to his firm.

"We are happy to accept anything Microsoft wants to give us for free," said Good, who hasn't been happy with Microsoft's recent licensing changes. He said he plans to use the vouchers to buy non-Microsoft products.

Who Gets What Out of the Deal?

Microsoft's California class-action settlement is scheduled to go before a judge for approval next month.

ELIGIBILITY: Consumers and businesses that purchased a Microsoft operating system, productivity suite, spreadsheet or word processing system between Feb. 13, 1995, and Dec. 15, 2001, for use in California

AMOUNTS: Vouchers of $29 per license for Microsoft Office and $18 for any Windows operating system. Companies that purchased Excel as a stand-alone spreadsheet will get a voucher of $29 per license; those that purchased Word alone will get $5 per license.

DEADLINE: Companies will have four months to apply, starting sometime this spring. Vouchers will be good for four years.

OTHER STATES WITH PENDING CLASS ACTIONS VS. MICROSOFT: Arizona, New Mexico, Kansas, South Dakota, North Dakota, Minnesota, Iowa, Wisconsin, Tennessee, Mississippi, Florida, West Virginia, Montana, North Carolina, Massachusetts, Vermont and the District of Columbia

Roto-Rooter Taps Wireless IT to Dispatch Plumbers

BY BOB BREWIN

No one in need of a plumber wants to wait long for help to arrive, which is why Roto-Rooter Inc. plans to use advanced wireless technology to automate dispatch functions for the 1,500 plumbers and drain cleaners at its company-owned operations.

Steve Poppe, Roto-Rooter's CIO, said the Cincinnati-based subsidiary of Chemed Corp. will also rely on the new wireless system to manage customer billing through the use of mobile credit card terminals and portable printers.

Poppe said the automated billing should reduce the bank fees paid by Roto-Rooter, which has annual revenue of about $280 million — with upward of $80 million coming through credit card purchases. Poppe declined to specify the expected savings, except to say that they should be "significant." Nor would he disclose the cost of the project.

Roto-Rooter is building its wireless system around dispatch application software developed by Minneapolis-based Gearworks Inc. Gearworks, which will announce the project this week, is also hosting the applications and linking them to Roto-Rooter's internally developed back-office billing and customer systems.

The wireless system also includes rugedized Motorola Inc. mobile data phones that are equipped with Global Positioning System (GPS) technology. Data transmissions will be sent to field workers via Nextel Communications Inc.'s wireless network, which supports transfer rates of 20K to 40K bit/sec.

Poppe said Roto-Rooter plans to start deploying the phones to users next quarter. By then, he added, the company will have picked a vendor for the portable printers, which will be connected to the phones via Bluetooth short-range wireless technology.

Weston Henderek, an analyst at ARS Inc. in La Jolla, Calif., said he expects most of the growth in wireless data applications to come from businesses like Roto-Rooter with large staffs of field service, delivery or sales workers.

Gearworks CEO Keith Lauver said the company used XML code that's delivered to the Motorola phones as Java applets to customize its Etrace software for Roto-Rooter. The applets could also run on other mobile devices, such as handheld PCs, he added.

That flexibility was essential to Roto-Rooter so it would have the option of switching to different devices or wireless network operators, Poppe said.

Lauver said the GPS receiver built into Motorola's phones is a key component of the dispatch system. The GPS-derived location of each field worker, pinpointed to within 100 feet, will be displayed on a map that workers at Roto-Rooter's dispatch centers can access on an extranet-based Web page.

Once dispatchers identify the worker closest to a customer calling for service, they will send a message with the customer's address to that employee's phone, Poppe said. When the job is completed, the Gearworks software will guide the worker through the billing process and generate a Java-based invoice that can be printed in the field, he added.

TECHNOLOGY DETAILS

- Motorola's i58sr GPS-equipped data phone
- Gearworks' Etrace dispatch software
- A mobile credit card reader and portable Bluetooth printer
- Nextel's 20K to 40K bit/sec. data network

WIRELESS WAYS

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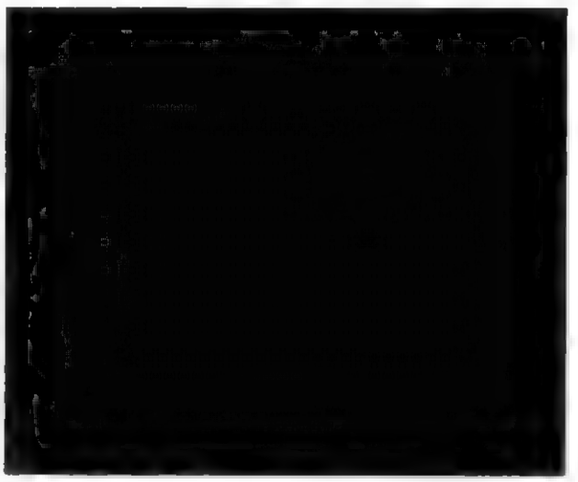

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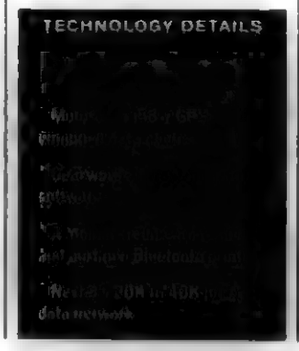

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BRIEFS

Judge Sets Time on Java in Windows

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Two Trade Groups Lose Appeal Ruling

The judge overseeing the government's antitrust case against Microsoft ruled that two IT trade groups can't appeal the settlement deal between the company and the U.S. Department of Justice. Judge Colleen Kollar-Kotelly said the Computer & Communications Industry Association and the Software & Information Industry Association, both in Washington, would have to file their own suits against Microsoft.

Palm Unit Drops Internal Software

Palm Inc.'s PalmSource Inc. unit said it's replacing the handwriting-recognition technology in its Palm OS operating system with software from Communication Intelligence Corp. in Redwood Shores, Calif. A federal judge in late 2001 ruled that Palm's Graffiti infringed on a Xerox Corp. patent, prompting Sunnyvale, Calif.-based PalmSource to look at alternative technologies.

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Cisco's Load-Balancing Product Line Expands

New devices add traffic management and disaster recovery capabilities

BY MATT HAMBLEN

CISCO SYSTEMS INC. last week introduced two content-switching devices, one for mirroring data across distributed data centers and the other for entry-level application server load balancing.

DATA CENTER

The Content Services Switch 11501 is positioned as an entry-level device to round out the CSS 11500 family, first introduced in May 2002, Cisco officials said. The CSS 11501 will provide small-scale data center traffic management. It will ship by Jan. 31.

The Global Site Selector 4480, which is now shipping, is designed for business continuity and disaster recovery tasks. The GSS is especially useful in the banking sector, where remote data centers could be needed at a moment's notice, Cisco officials said.

Prepared for the Worst

The New York arm of Frankfurt, Germany-based Commerzbank AG has been operating a pair of the GSS devices for a month, said David Archetti, a senior network engineer at the bank. Used in data centers in Manhattan and Westchester County, N.Y., the devices would route traffic to 500 area users in the event of a power loss or other disaster. According to Archetti, the GSS devices are intelligent enough to know whether demand for business applications is too great at one data center, meaning that a user might be instantly routed to the other data center to reach the same applications.

"We learned a lot from the 9/11 disaster," Archetti said. The bank's Manhattan data center is near the World Trade Center and went off-line for eight months after the attack.

Mark Fabbi, an analyst at Gartner Inc., said that although the concept of balancing the data load between servers has been around for five years, the GSS product exemplifies a recent movement to expand that concept by sharing loads between data centers. Other vendors, such as F5 Networks Inc. in Seattle and Nortel Networks Inc. in Brampton, Ontario, have products that are competitive with the GSS, although Cisco has "pretty strong" technology that would be used in "sophisticated settings," Fabbi said.

Fabbi said the CSS 11501 is a good product but "is not at the leading edge of innovation." He said F5 is a clear leader in the server load-balancing market, with Cisco No. 2. The trend among load-balancing product makers is to add functions so that they move beyond merely making applications available to users. The aim is to provide intelligence, including the ability to read a user's cookie and move that user to a server with content suited to him.

The market for load balancers and related products is currently at about $500 million and "growing slowly," Fabbi said.

EMC Readies New Symmetrix Arrays

More scalable hardware is first high-end upgrade in two years

BY LUCAS MEARIAN

EMC Corp. next month is expected to usher in a new version of its high-end Symmetrix storage arrays that will sport a significantly modified architecture in a bid to improve performance and scalability.

Sources said Version 6.0 of Symmetrix is also designed to close a capacity gap between EMC's flagship product and its Clariion midrange arrays that competitors such as Hewlett-Packard Co. and Hitachi Data Systems Corp. have been more than happy to fill.

EMC said it plans to introduce the array Feb. 3 in New York. But it wouldn't disclose any details about the planned rollout, which will be the first upgrade to the Symmetrix hardware in two years.

The new offering will likely boost the capacity of a single Symmetrix array from 70TB to more than 100TB, industry insiders said. The sources said EMC also plans to replace its current shared bus architecture with a faster switched fabric, similar to the one Hitachi built into its Lightning 9900V array two years ago.

In addition, the new array will be able to scale downward in a more modular fashion than existing models can, according to sources at EMC.

In a September interview, EMC executives said they wanted to create a more flexible and scalable Symmetrix array. The officials also hinted at plans to add native support for Fiber Connection, IBM's Fibre Channel-based I/O connectivity technology for mainframes, to Symmetrix.

But sources said support for the IBM technology, which is known as Ficon, likely won't be available with the first release of Symmetrix 6.0. That will probably be added next quarter, the sources said.

Sagging Sales

EMC is looking for the Symmetrix rollout to jumpstart its sales, which have been hit hard by the tightening of corporate IT budgets. The weak demand has dragged EMC into the red, although the company this month said its fourth-quarter sales appear to have topped expectations.

"We expect the announcement to be a very important one for EMC's legacy installed base, as well as the midrange market that might not have had an EMC product up until now," said Tony Prigmore, an analyst at Milford, Mass.-based Enterprise Storage Group Inc.

Scalability is the second-most important factor in buying storage devices, after data availability, said Daryl Black, a storage architect at Telus Communications Inc. in Vancouver, British Columbia.

"Scalability is critical because as we change sizes as a corporation, every piece of hardware has to be able to grow," said Black, who recently installed two of EMC's current Symmetrix models as part of a server consolidation project at Telus.

COMPETITIVE JOCKEYING

HP expands capacity of StorageWorks arrays, signs with Cisco for switches.

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The Global Site Selector 4480, which is now shipping, is designed for business continuity and disaster recovery tasks. The GSS is especially useful in the banking sector, where remote data centers could be needed at a moment's notice, Cisco officials said.

Prepared for the Worst

The New York arm of Frankfurt, Germany-based Commerzbank AG has been operating a pair of the GSS devices for a month, said David Archetti, a senior network engineer at the bank. Used in data centers in Manhattan and Westchester County, N.Y., the devices would route traffic to 500 area users in the event of a power loss or other disaster. According to Archetti, the GSS devices are intelligent enough to know whether demand for business applications is too great at one data center, meaning that a user might be instantly routed to the other data center to reach the same applications.

"We learned a lot from the 9/11 disaster," Archetti said. The bank's Manhattan data center is near the World Trade Center and went off-line for eight months after the attack.

Mark Fabbi, an analyst at Gartner Inc., said that although the concept of balancing the data load between servers has been around for five years, the GSS product exemplifies a recent movement to expand that concept by sharing loads between data centers. Other vendors, such as F5 Networks Inc. in Seattle and Nortel Networks Inc. in Brampton, Ontario, have products that are competitive with the GSS, although Cisco has "pretty strong" technology that would be used in "sophisticated settings," Fabbi said.

Fabbi said the CSS 11501 is a good product but "is not at the leading edge of innovation." He said F5 is a clear leader in the server load-balancing market, with Cisco No. 2. The trend among load-balancing product makers is to add functions so that they move beyond merely making applications available to users. The aim is to provide intelligence, including the ability to read a user's cookie and move that user to a server with content suited to him.

The market for load balancers and related products is currently at about $500 million and "growing slowly," Fabbi said.

EMC Readies New Symmetrix Arrays

More scalable hardware is first high-end upgrade in two years

BY LUCAS MEARIAN

EMC Corp. next month is expected to usher in a new version of its high-end Symmetrix storage arrays that will sport a significantly modified architecture in a bid to improve performance and scalability.

Sources said Version 6.0 of Symmetrix is also designed to close a capacity gap between EMC's flagship product and its Clariion midrange arrays that competitors such as Hewlett-Packard Co. and Hitachi Data Systems Corp. have been more than happy to fill.

EMC said it plans to introduce the array Feb. 3 in New York. But it wouldn't disclose any details about the planned rollout, which will be the first upgrade to the Symmetrix hardware in two years.

The new offering will likely boost the capacity of a single Symmetrix array from 70TB to more than 100TB, industry insiders said. The sources said EMC also plans to replace its current shared bus architecture with a faster switched fabric, similar to the one Hitachi built into its Lightning 9900V array two years ago.

In addition, the new array will be able to scale downward in a more modular fashion than existing models can, according to sources at EMC.

In a September interview, EMC executives said they wanted to create a more flexible and scalable Symmetrix array. The officials also hinted at plans to add native support for Fiber Connection, IBM's Fibre Channel-based I/O connectivity technology for mainframes, to Symmetrix.

But sources said support for the IBM technology, which is known as Ficon, likely won't be available with the first release of Symmetrix 6.0. That will probably be added next quarter, the sources said.

Sagging Sales

EMC is looking for the Symmetrix rollout to jumpstart its sales, which have been hit hard by the tightening of corporate IT budgets. The weak demand has dragged EMC into the red, although the company this month said its fourth-quarter sales appear to have topped expectations.

"We expect the announcement to be a very important one for EMC's legacy installed base, as well as the midrange market that might not have had an EMC product up until now," said Tony Prigmore, an analyst at Milford, Mass.-based Enterprise Storage Group Inc.

Scalability is the second-most important factor in buying storage devices, after data availability, said Daryl Black, a storage architect at Telus Communications Inc. in Vancouver, British Columbia.

"Scalability is critical because as we change sizes as a corporation, every piece of hardware has to be able to grow," said Black, who recently installed two of EMC's current Symmetrix models as part of a server consolidation project at Telus.

COMPETITIVE JOCKEYING

HP expands capacity of StorageWorks arrays, signs with Cisco for switches.

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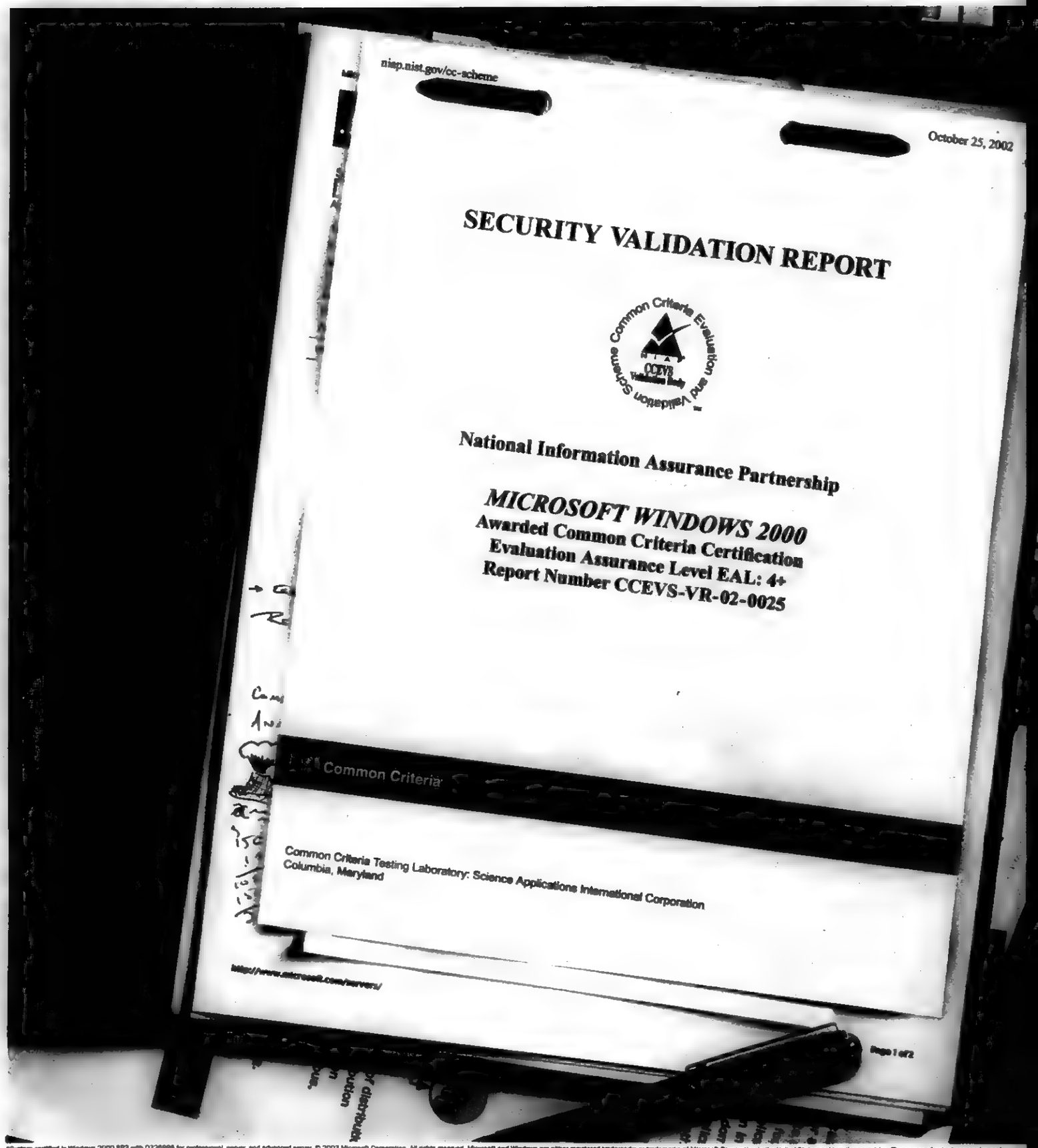

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Continued from page 1

Ptech Probe

federal agents, which was broadly characterized by the media as an early-morning "raid." The search was part of an investigation of the company's relationship with Yassin al-Qadi, a wealthy Saudi businessman and one of Ptech's two "angel" investors who helped get the company on its feet in 1994. Al-Qadi, who was never a shareholder of record in Ptech and who later twice turned down Ptech requests for additional funding, is believed by the U.S. intelligence community to have financial ties to international terrorism.

A Decimated Business

Since that search, Ptech, once a 65-employee company that rarely lost a competitive contract bid, has been reduced to 10 people and has almost no new business on the horizon.

"Almost immediately we lost our revenue for December and January," said Ziade. "Customers who know us and know our product have not walked away. They know there is nothing here related to terrorism."

But soon after the investigation broke, Ziade said, some large customers refused to comment publicly on their trust and confidence in Ptech and its enterprise software, which enables Fortune 1,000 and government customers to visualize and analyze their technology infrastructures and build models to conduct strategic business planning. That situation was confirmed by *Computerworld* in interviews with those customers.

"When you sell to the Fortune 1,000, you are in the business of trust," said Ziade. "But there were directives coming out of the legal departments in those companies that said Ptech is a risk company."

For example, a systems architect at a major forestry products firm that relies on Ptech software to conduct strategic data mining and business planning confirmed the existence of a corporate gag order. Yet the company's relationship with Ptech hasn't changed, said the source, who requested anonymity. "The company is fine, and the software is wonderful," the source said. "There was never any concern about the integrity of the software."

The same holds true for IBM Global Services, which counts Ptech among its strategic business partners. Although IBM initially tried to distance itself from what looked like a major scandal in the making, Jeff Gluck, a spokesman for IBM, said the relationship between the two companies is "unchanged."

IBM placed Ptech's flagship enterprise modeling product, called FrameWork, at the center of its Enterprise Architecture Methodology. In a white paper obtained by *Computerworld*, IBM called the Ptech product "a powerful tool to rapidly collect, analyze, organize and present" information. "Client acceptance of the dynamic live deliverable has been outstanding," it concluded.

"The fact that they're a partner of ours speaks for itself as far as the quality of the technology is concerned," said Gluck.

Too Late

Ptech's business has all but dried up, despite assurances by U.S. government officials that its software is safe:

TOM RIDGE, director of Office of Homeland Security: **"The software in no way jeopardizes the security of our country."**

ARI FLEISCHER, White House press secretary: **"The material has been reviewed by the appropriate government agencies, and they have detected absolutely nothing . . . that would lead to any concern."**

The CIO at a large energy company, who also requested that he and his company not be named, said there was strong concern among senior management when the story first broke. His IT team was charged with documenting the company's relationship with Ptech, including when and where Ptech employees may have been on-site.

The CIO said he polled several user contacts, including in government, to assess their reactions and plans, and also got the government position on the software. That information led his company to decide to stick with Ptech's product.

The CIO added that Ptech's service and support have remained "timely and thorough."

Yet none of that seems to matter now, current and former Ptech employees said. They and security experts warn that what happened to Ptech can happen to any company with an employee or investor whose name shows up on a terrorist watch list.

"Any company doing business in the classified arena must take steps to ensure its employees are fully vetted and monitored over time," said Larry Johnson, a security consultant and former CIA officer.

For Ziade and his company, the future is anything but certain. Ptech's technology is mature enough to remain unchanged for about a year, he said. The company has an unreleased product that will also help buy additional time for Ziade, now one of Ptech's principal coders as well as its CEO.

Hayden Shulz, a former principal engineer at Ptech, said the company will likely face unprecedented pressure to keep the software updated in a reasonable time frame. "If the remaining 10 people sat down and coded for a year, they could do it," said Shulz. "But there's going to be a constant give and pull between who's going to go out to customers and who's going to write code."

Ziade said he's still assessing whether it makes sense to continue releasing products under the Ptech name. "We would love to keep it Ptech, but we don't know what it will be a year from now," he said.

Tim Sloane, a research director at Aberdeen Group Inc. in Boston, lamented Ptech's fall. "I visited Ptech and Oussama Ziade three weeks before this story unfolded," he said. "It is a crying shame that xenophobia induced by a war on America's economic might results in bringing down a high-tech business that was contributing to both our economy and our technological prowess."

PTECH BEHIND THE SCENES

Read more about the series of events that began with a tip from a former employee.

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Continued from page 1

GPS Jammers

amount of technical skill could build a GPS jammer from the plans.

Though the *Phrack* article said the jammer was designed to work only against GPS civil-use signals broadcast on the frequency of 1575.42 MHz and not the military frequency of 1227.6 MHz, James Hasik, an Atlanta-based consultant and author of *The Precision Revolution: GPS and the Future of Aerial Warfare*, disagreed.

Hasik said that while the *Phrack* jammer was targeted against the civil GPS signal, known as the C/A code, it could also threaten military systems, since "almost all military GPS receivers must first acquire the C/A signal" before locking onto the military signal, known as the P(Y) code. He added that GPS receivers are especially vulnerable to jamming because of the low level of the signal after it travels 20,000 miles through space from GPS satellites.

The Department of Defense, which faces the possibility of its GPS-guided weapons encountering Russian-made GPS jammers in Iraq, has antijamming technology at its disposal. Still, the DOD viewed the *Phrack* article with concern.

Air Force Lt. Col. Ken. McClellan, a Pentagon spokesman, called the implications of the homemade jammers described in the Phrack article "somewhat serious." Such jammers "could disrupt commercial operations," he said. He said GPS experts at the Pentagon don't "at the moment" view homemade jammers as a hazard to safety of flight for civil aircraft or ship operations, "but rather a nuisance."

The Federal Aviation Administration is developing a nationwide GPS-based precision landing system. And the Coast Guard operates a GPS-based maritime navigation system on both coasts, the Great Lakes, inland waterways and Hawaii. Bill Mosley, a spokesman for the Department of Transportation, the parent agency of the FAA and the Coast Guard, said his department is well aware of the threat posed by GPS jammers.

The DOT's John A. Volpe Transportation Systems Center in Cambridge, Mass., prepared a report in August 2001 that said, "Some jamming devices/techniques are available on the Internet and proliferation will continue, because a single device that could disrupt military and civil operations worldwide would be attractive to malicious governments and groups."

As a result of that study, Mosley said, Transportation Secretary Norman Mineta last March ordered an "action plan" to protect civil GPS signals and users by, among other things, "the transfer of appropriate antijam technology from the military to civil use." Mosley was unable to say whether that technology transfer has occurred.

"A single device that could disrupt military and civil operations worldwide would be attractive to malicious governments and groups."

AN AUGUST 2001 DOT REPORT

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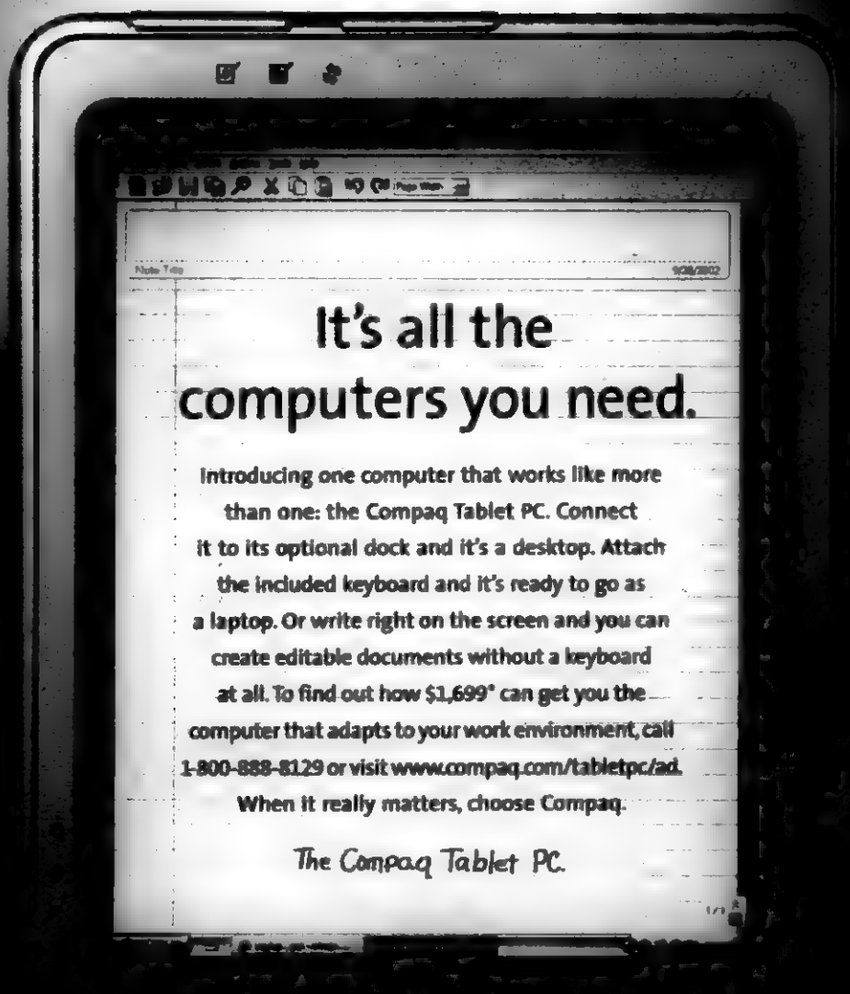
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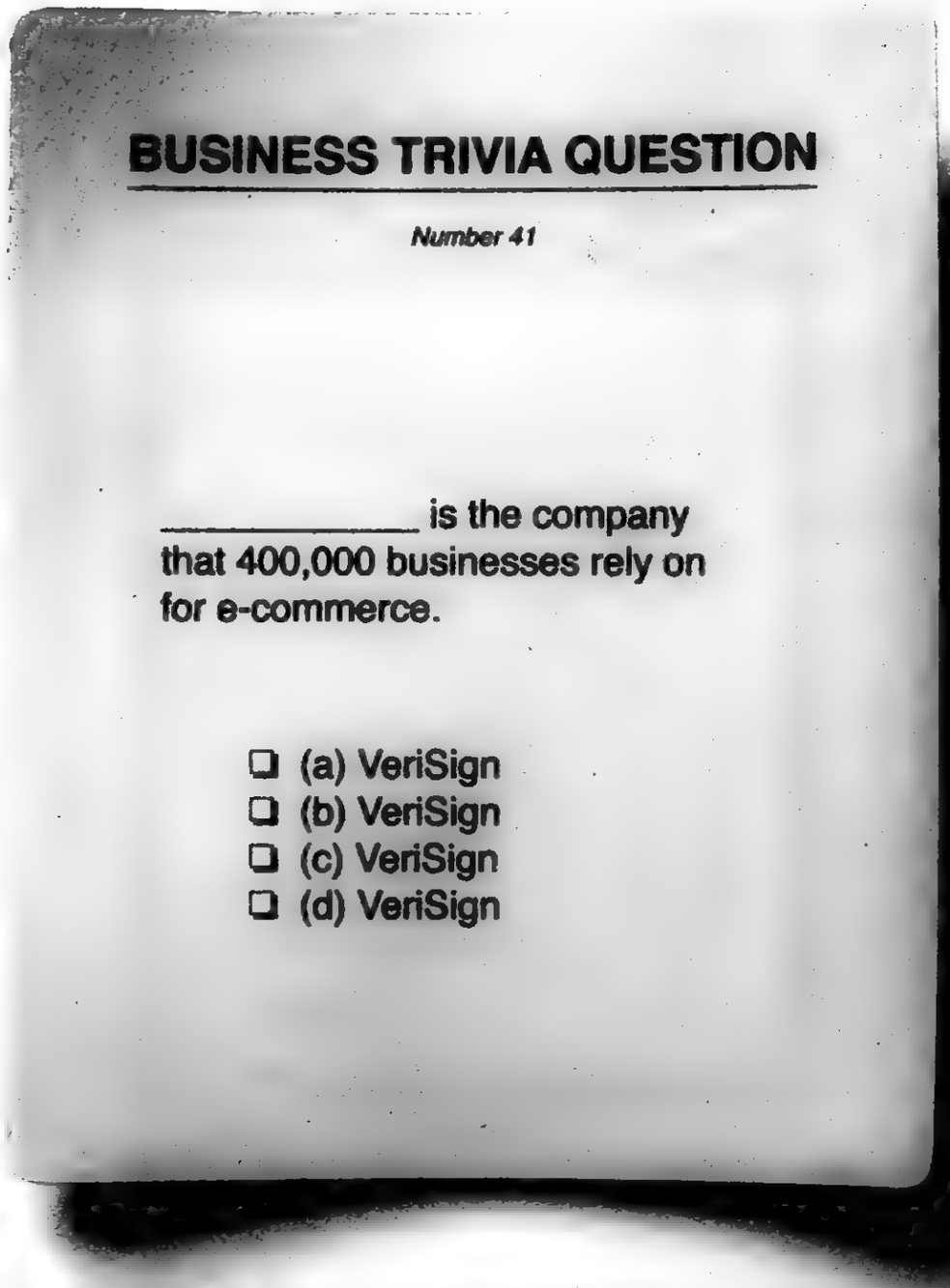

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Start-ups Look to Secure Web Services

BY JAIKUMAR VIJAYAN

DataPower Technology Inc. last week joined a small but growing number of IT vendors offering products aimed at securing XML-based Web services applications.

The Cambridge, Mass.-based company's XS40 XML Security Gateway is a hardware appliance designed to provide a range of security functions, including filtering, authentication, digital signature verification, encryption and validation of data in XML and Simple Object Access Protocol (SOAP) messages.

The XS40 is one of a handful of products from start-ups that are trying to address security concerns related to Web services transactions without slowing down application performance, said Ted Schadler, an analyst at Forrester Research Inc. in Cambridge, Mass.

Reactivity Inc. in Belmont, Calif., and Forum Systems Inc. in Sandy, Utah, offer similar hardware-based approaches, Schadler said. Others, such as Mountain View, Calif.-based Westbridge Technology Inc., have developed software-based engines that can filter XML messages for compliance with Web services security policies set by IT managers.

Simpler Security

The XS40 eliminates the need for coders to embed security functions in individual Web services applications, according to Eugene Kuznetsov, DataPower's president.

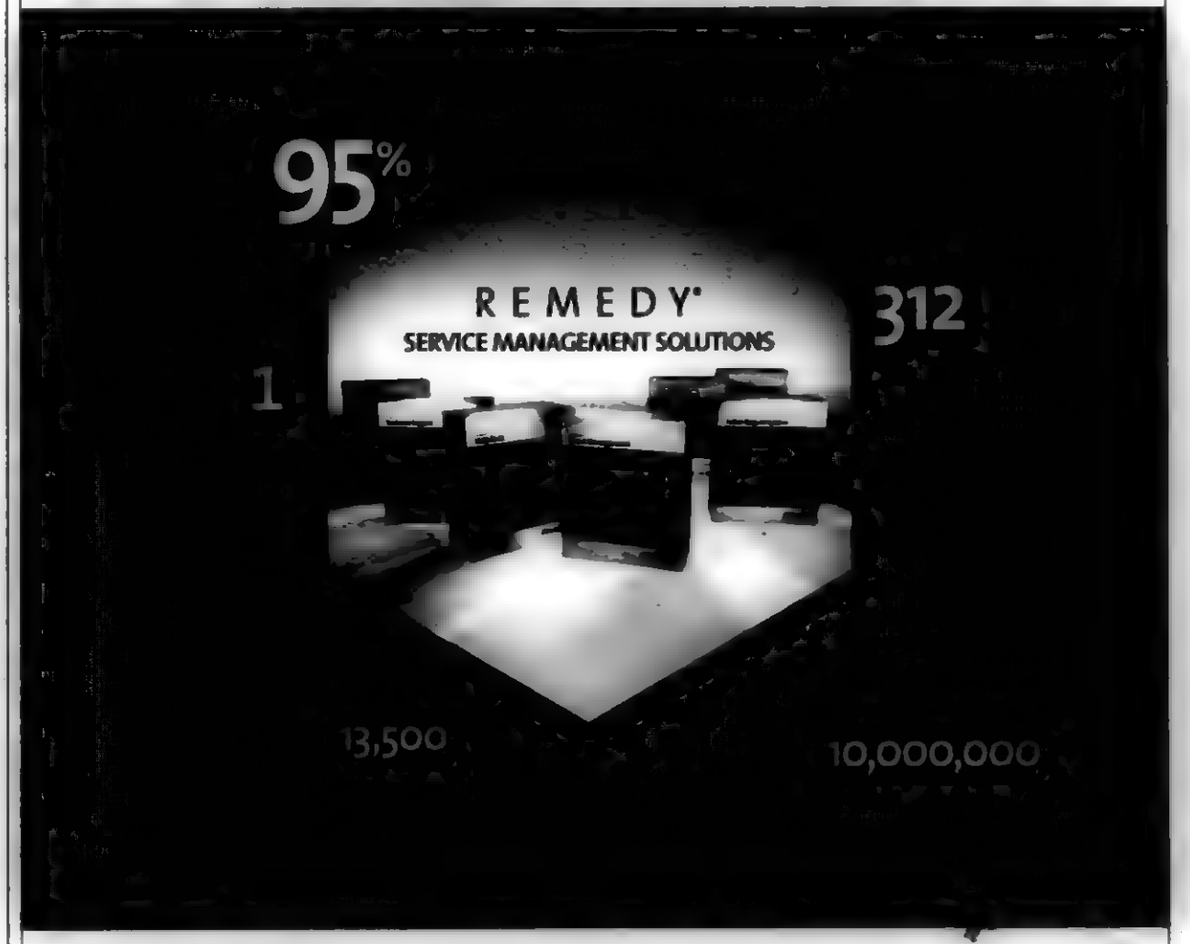
Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa., said users will be able to pass XML-enabled transactions through the XS40 and let it handle the security details.

RouteOne LLC, a joint venture in Southfield, Mich., formed last year by the financing units of DaimlerChrysler AG, Ford Motor Co., General Motors Corp. and Toyota Motor Corp., is using the XS40 to secure a Web-based credit application management system.

RouteOne's system lets automobile dealers and finance companies exchange data about customer loan applications. The XS40 decrypts messages sent to the credit management system via SOAP, validates them and passes them to RouteOne's servers for further processing. It then electronically signs and re-encrypts the messages.

"We needed to have a foolproof way of making sure that a person making a call was who he said he was," said T.N. Subramaniam, RouteOne's chief technology officer. The company was also looking for secure technology that would not degrade performance. DataPower's hardware "fit that bill," Subramaniam said.

Strength in Numbers.



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MARYFRAN JOHNSON

Steve's Other Legacy

WHEN STEVE CASE stepped down in disgrace last week as chairman of AOL Time Warner, the business press leapt onto the story with savage glee. His resignation swiftly became a symbolic moment, a metaphor for the humiliating, crashing finale of the dot-com air balloon that buoyed the late '90s.

Maryfran Johnson is editor in chief of Computerworld. You can contact her at maryfran_johnson@

Only three years ago, the new-media mogul triumphantly acquired the old-media giant, fueled largely by his dazzling vision of the "Internet century," which turned out to be wrong on just about every cocky assumption. His merged megacompany lost 70% of its value from an initial starting point as a $318 billion behemoth. The projected profits were imaginary, while Internet advertisers collectively dove off a cliff and the cable companies swooped in to deliver superior (and cheaper) Internet access. "We didn't innovate and differentiate as much as we should have," Jon Miller, AOL's CEO, acknowledged last week.

Case himself described the online content business as a "grueling, nonstop marathon, risky, expensive and fiercely competitive." It sure beat the hell out of him. But is the merger's failure all that's left of his AOL legacy? To be the last cautionary tale among the dot-com disasters? Absolutely not. I see another legacy here that means a great deal more to corporate IT.

As a purely consumer play, AOL was never central to your strategic plans. But it nevertheless played a critical role — along with the famous, still-successful online players such as Amazon, Yahoo, eBay and Expedia — in constructing the launching pad for your company's e-business.

The meteoric rise of AOL didn't just bring the killer app of e-mail to millions of consumers, making nontechies feel more at ease with Web-based technologies. It also made them comfortable with the concept of spending their money online, which they did with a $13 billion vengeance during the 2002 holiday season.

Along with a fundamental shift in how we communicate with one another came this new expectation that businesses should be serving us across multiple channels.

While IT spending has been in a miserable slump for the past two years, e-business spending has grown by more than 20%, remaining a top investment priority for American businesses, according to IDC. By 2006, retailers and wholesalers in the U.S. are expected to spend $45 billion annually on Web technologies and services, IDC predicts.

"The dot-com crash didn't kill anything except hundreds of ill-conceived companies," John Gantz, IDC's chief research officer, noted last summer. "In fact, it actually helped users in the real 'new economy,' the one where businesses, schools and government agencies from around the world are steadily integrating Internet technologies into their normal business operations."

Why are they doing that? Because doing business online can improve coordination with suppliers, cut costs and improve customer service. We saw that through the experiences of our Premier 100 IT Leaders [QuickLink 34600], who ranked e-business projects among their top five spending priorities for 2003.

This year, worldwide e-business IT spending is projected to hit $245 billion — up nearly 50% from the $164 billion spent in 2002, says eMarketer Inc. Even if the analysts are only half right, that's still cause for optimism.

There are no doubt dozens of lessons in the downfall of Steve Case and AOL that business schools will feast on in case studies for years. But whatever the judgment of history, IT owes him at least a small nod for the change he brought about with his other legacy. ◗

PIMM FOX

No Field of Dreams: VC Gets Real

ONE GUIDE to IT's future is to see where venture capitalists are putting their money. So I went and asked one.

Alex Rosen, a general partner at Sprout Group (founded in 1969 and one of the older venture groups), told me recently, "I don't think there are any great segments in IT right now."

Pimm Fox is a freelance writer in San Francisco. Contact him at

Rosen notes that many investors who were once looking to imaginative IT vendors to make them fortunes have come up short; that was so 1990s. Now, successful IT investments are the result of focusing on companies that offer tangible, near-term tactical business solutions.

The more complex business becomes, the more companies need IT to sort out that complexity, says Rosen. But they don't want to get sucked into technology paradigm shifts or grand implementation visions.

For example, companies selecting storage management software demand quick results and require deployments in a couple of days, not months. Yet even with fast storage management implementations, IT providers need to articulate long-term product road maps offering customers things such as capacity planning and utilization-rate technology.

Rosen says that for IT vendors' products to be effective, they must resonate with a customer's needs now *and* down the road.

Rosen also sees the vertical solutions market as potentially lucrative to venture capitalists like himself. "Many IT firms [have] tried to offer generic products," he says. "But it just doesn't work."

Industries such as financial services and energy are using sector-specific risk-management applications. "Anything that helps companies get a closer connection between their IT infrastructure and business users is getting a real look," Rosen says.

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CONFERENCE AGENDA

SUNDAY, FEBRUARY 23

Noon to 5:00pm
Pre-conference Golf Outing

7:00pm to 9:00pm
Pre-conference Networking Reception

MONDAY, FEBRUARY 24

7:00am to 8:00am
Buffet Breakfast

8:00am to 8:15am
Welcome and Opening Remarks
MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

8:15am to 8:45am

Driving the Digital Factory: DaimlerChrysler's Design Automation Push
SUSAN UNGER, SVP & CIO, DAIMLERCHRYSLER AG

Escalating its use of IT in car design and factory automation, the world's third-largest automaker has embarked on a massive "Digital Factory" project aimed at reducing production costs by up to 30%. CIO Susan Unger will detail how the use of manufacturing simulation and visualization tools is enabling DaimlerChrysler to push IT beyond its traditional roles in the car manufacturing process, but more importantly, how the project is changing the way technology is leveraged for business benefit.

8:45am to 9:30am

Blueprint for Tomorrow's Infrastructure
PANEL MODERATOR: DON TENNANT, NEWS EDITOR, COMPUTERWORLD

PANELISTS INCLUDE: DAMIEN BEAN, VP OF CORPORATE SYSTEMS, HILTON HOTELS; DAVID GUZMAN, SVP & CIO, OWENS & MINOR; DOUG LEWIS, EVP & CIO, SIX CONTINENTS HOTELS

With up to 80% of IT budgets earmarked for infrastructure upkeep and upgrades, attention to trends affecting the data center will continue to intensify in 2003. Major vendors are pushing a variety of utility and autonomic computing models, while disruptive technologies such as blade servers, Linux, wireless and Storage Area Networks (SANs) are also making inroads in enterprise computing strategies. How do you craft a coherent blueprint for optimizing data center spending? Should you be consolidating your computing resources? What role should your vendors play? Where will outsourcing make the most sense? Computerworld News Editor Don Tennant will lead this debate about the best ways to keep your company's IT infrastructure flexible, cost-effective and future-oriented.

9:30am to 10:15am

Creating Business Value Out of Real-Time Information
CURTIS ROBB, SVP & CIO, DELTA AIR LINES

In today's competitive market, businesses must deliver better customer service, turn inventory faster, and respond swiftly to changing circumstances. In this session, Curtis Robb addresses how Delta has leveraged a multi-year investment in a real-time, state-of-the-art infrastructure and the resulting business value it drives. From enhancing the customer travel experience through its self-service kiosks and gate information display screens; to forecasting and optimizing fleets, routes, pricing and inventory; the Delta Nervous System has transformed the business by delivering up-to-date information through a "publish and subscribe" architecture.

10:15am to 10:30am
Break

10:30am to 11:00am

The Vanguard Group: Leveraging the Web Across Multiple Business Channels
TIM BUCKLEY, CIO, THE VANGUARD GROUP

Technological excellence can be a means of helping clients to meet their goals, but the race to embrace new technologies must always make business channels the priority. At Vanguard, IT resources for Web development play a dual role on the business side, improving quality and relative savings for clients. In this session, Vanguard CIO Tim Buckley will examine how the $600 billion financial services firm has leveraged its website technology to integrate systems across multiple business channels, with results that include streamlined business processes, reduced costs, retired legacy systems, and most importantly, seamless service for clients no matter how complex their relationship with Vanguard.

11:00am to 11:30am
Concurrent Sessions
IT User/Customer Case Studies

11:30am to Noon
Concurrent Sessions
IT User/Customer Case Studies

Noon to 12:30pm
Concurrent Sessions
IT User/Customer Case Studies

12:30pm to 1:30pm
Interactive Luncheon

1:30pm to 2:00pm

Thriving in the Virtual Organization: How Merrill Lynch Manages an Intricate Web of Strategic Partners
JOHN MCKINLEY, CIO, MERRILL LYNCH

CIO John McKinley does more than talk about the virtual organization — he lives and breathes it with the 16-18 major service partners who are part of Merrill Lynch's extensive web of outsourced IT services. In this live-action case study, McKinley will delve into the philosophies and the practicalities behind the relationships the Wall Street powerhouse strikes with leading industry vendors, and how those relationships enhance and extend his IT organization. From classic score-carding to measuring the output from service level agreements, McKinley will talk about the range of metrics he uses to determine total cost-of-service delivery, and how he leverages these external resources for ongoing business innovation.

2:00pm to 2:30pm

Brand and Deliver: IT's Role in Creating Killer Brands
ANDREW ZOLLI, LEAD PARTNER, 2 + PARTNERS

Great brands are often the most valuable assets companies own, and in the last few years IT has taken center stage in building some of the world's most important and valuable brands. Yet the relationship between the CIO and the Chief Marketing Officer remains one of the least explored in management. In this presentation, technology and communications consultant Andrew Zolli will share stories of companies creating thriving brands with information technology, and insights on how IT and marketing can amplify each other's value and impact.

CONFERENCE AGENDA

2:30pm to 3:15pm

The Integration Imperative: Where Technology Gets Down to Business

PANEL MODERATOR: PRISCILLA TATE, EXECUTIVE DIRECTOR, TECHNOLOGY MANAGERS FORUM

PANELISTS INCLUDE: ANDRE V. MENDES, CHIEF TECHNOLOGY INTEGRATION OFFICER, PUBLIC BROADCASTING SERVICE; JOHN OUNJIAN, CIO & SVP OF INFORMATION SYSTEMS, BLUE CROSS/BLUE SHIELD OF MINNESOTA; FRED POND, DIRECTOR OF INFORMATION SERVICES, THE SCHNITZER GROUP OF COMPANIES; TONY ROMERO, VP & CIO, INFORMATION TECHNOLOGY, MITSUBISHI MOTOR SALES OF AMERICA

As the lineup of new integration products and emerging Web services keeps growing, so too does the challenge of connecting the right data with the right customers at exactly the right time. Some companies are finding value in combining business intelligence tools with CRM software, while others are creating "digital dashboards" or concentrating on more cost-effective ways to exchange data between complex, disparate legacy systems. Regardless of your company's approach, the task of integrating enterprise applications is always mission-critical for IT leaders. Moderator Priscilla Tate will tap this panel's expertise on a variety of integration projects that have delivered measurable results, cost savings or enhanced customer service.

3:15pm to 3:30pm

Break

3:30pm to 4:00pm

A Tale of Turnaround: Reviving a Culture of IT Project Success at the Chicago Board of Trade

WILLIAM FARROW, EVP & CIO, CHICAGO BOARD OF TRADE

When CIO Bill Farrow arrived at the Chicago Board of Trade, it had been four years since any IT projects finished on time or on budget. The place was overrun with consultants, the technology was a poorly-managed hodgepodge of aging systems, and project management was nonexistent. Today, a streamlined, motivated IT group can point to 40 successful projects completed in the past year. In this compelling account of an 18-month-long IT turnaround, Farrow will detail how he and his staff became catalysts of strategic change at this 155-year-old financial exchange.

4:00pm to 4:45pm

IT Sourcing Faceoff: The View From Both Sides of the Fence

PRESENTATION & POINT/COUNTERPOINT: BART PERKINS, MANAGING PARTNER, LEVERAGE PARTNERS

PANELISTS INCLUDE: CATHY BRUME, SVP & CTO, ALLSTATE INSURANCE; MELANIE HEINTZ, IT STAFF DIRECTOR, FEDERAL RESERVE BANK OF NEW YORK; GEORGE LIN, VP & CIO, DOCUMENTUM

How your organization buys and deploys technology speaks volumes about the effectiveness of your overall IT strategy. With the marked shift from the sellers' market of the late '90s to today's buyers' market, the game has changed substantially on both sides of the fence. Former CIO Bart Perkins specializes in teaching CIOs how to more effectively manage their suppliers, and how to apply the same rigor to sourcing decisions as IT applies to building applications. In this point/counterpoint discussion, he will referee a frank, freewheeling dialogue between technology leaders from both vendor and user companies.

4:45 to 5:15pm

The New Language of Leadership

THORNTON MAY, FUTURIST

Joan Rivers asks, "Can we talk?" but Thornton May's new research poses the question: "Can IT leaders talk effectively?" Are you communicating what needs to be done in a way that gets somebody to do it? Based on an exclusive study of IT communication practices in a variety of venues — in boardrooms, in deliberation with senior staff, in counsel with peer executives, and in encounters with vendors, journalists, researchers and stock analysts — Thornton will detail the new language of leadership necessary for career success.

5:15pm to 5:30pm

Monday Wrap-up Remarks

MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

5:30pm to 8:30pm

Expo Open, Networking Reception and Buffet Dinner

TUESDAY, FEBRUARY 25

7:00am to 8:00am

Buffet Breakfast

8:00am to 8:15am

Opening Remarks

MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

8:15am to8:45am

Cybercrime in Perspective: Leadership Strategies for the Real-Time Information Age

SCOTT CHARNEY, CHIEF SECURITY STRATEGIST, MICROSOFT

Never before in history have our personal lives and professional dependencies on computers, networks and real-time information escalated at such a rapid pace. Yet each week we hear of new attacks on the confidentiality, integrity and availability of those very systems — everything from theft of personal information to distributed denial of service attacks that can cripple business operations. While such attacks can pose an alarming threat to our public safety, national security, economic prosperity and privacy, there are complex social issues and public policy questions raised as we work to prevent or respond to them. In this opening keynote, Scott Charney will cover the history and current state of cybercrime, talk about the challenges IT leaders face in confronting computer abuse, and suggest some options to consider for a safer future.

8:45am to 9:30am

Whose Disaster Is This, Anyway?

PANEL MODERATOR: DAN VERTON, SECURITY REPORTER, COMPUTERWORLD AND AUTHOR OF "THE HACKER DIARIES : CONFESSIONS OF TEENAGE HACKERS"

PANELISTS INCLUDE: ROB CLYDE, CTO, SYMANTEC; ROBERT CRESSEY, FORMER CHIEF OF STAFF, CRITICAL INFRASTRUCTURE PROTECTION BOARD, THE WHITE HOUSE; RA VERNON, CSO & VP, REUTERS AMERICA; DANIEL J. WEITZNER, TECHNOLOGY & SOCIETY DOMAIN LEADER, WORLD WIDE WEB CONSORTIUM

Imagine a scenario that is equal parts physical disaster and massive cyberattack, forcing your company into a worst-case situation that makes business continuity of paramount importance. Now mix in several industry experts and IT leaders, each playing a specific role in this lively, "situation room" roundtable led by Computerworld security reporter and author Dan Verton. This panel will grapple with everything from federal politics and public agency responsibilities to private sector roles and reactions, as the responses of each executive drive the actions of the others in this unfolding disaster response exercise. The wrap-up will reveal the likely aftermath of the panelists' decisions, complete with lessons learned and useful ideas for your own business continuity planning.

9:30am to 10:15am

Session to be announced

10:15am to 10:30am

Break

10:30am to 11:00am

Starting from Scratch: Building CRM from the Ground Up

TONY LOFRUMENTO, EVP OF CRM, MORGAN STANLEY

Tony LoFrumento joined Morgan Stanley's retail organization in 2001 with the mission to implement a world-class CRM infrastructure and environment. In this front-lines account of his experience, Tony will describe how he created an analytical CRM environment and how it has delivered immediate impact throughout the company. He will discuss implementation issues, vendor selection rationale and performance measurement via the "Balanced Scorecard" approach, as he demonstrates how the newly implemented CRM capabilities are enhancing Morgan Stanley's customer connections.

11:00am to 11:30am

Concurrent Sessions

IT User/Customer Case Studies

11:30am to Noon

Concurrent Sessions

IT User/Customer Case Studies

Noon to 12:30pm

Concurrent Sessions

IT User/Customer Case Studies

12:30pm to 2:00pm

Expo Open and Buffet Luncheon

2:00pm to 2:30pm

The Consultant Who Came in From The Cold

STEVE ROMAINE, CHIEF IT ARCHITECT, THE HARTFORD FINANCIAL

Steve Romaine, now chief IT architect for The Hartford Financial, is also the author of "Soldier of Fortune 500," an IT manager's expert guide to getting top work out of consultants. In this fast-paced presentation, he will dispel "The Three Myths of Consulting," provide solid, front-lines advice on selecting the right consultants and reveal his tested methods for getting IT employees and outside contractors working collaboratively and successfully together.

2:30pm to 3:15pm

Beyond Cost-Cutting: IT Projects That Prove Their Value

PANEL MODERATOR: JULIA KING, MANAGEMENT EDITOR, COMPUTERWORLD

PANELISTS: HARRIET EDELMAN, SVP & CIO, AVON PRODUCTS; JOHN C. MOOR, CORPORATE VP & CIO, BAXTER INTERNATIONAL; TASOS TSOLAKIS, VP OF GLOBAL TECHNOLOGY, GXS (GLOBAL EXCHANGE SERVICES); HENRY VOLKMAN, DIRECTOR OF IT & CIO, DEL TACO

Proving that technology spending results in real business value is a perennial challenge for IT leaders, particularly in an extended economic downturn. But now that your staff is streamlined and your budget trimmed to the bone, what next? Computerworld Management Editor Julia King and her panelists will answer that question from several directions, detailing how to fund-track projects for faster payback, more effectively manage the IT portfolio, balance tactical concerns with strategic vision, and identify the best places for IT-enabled business process improvements across the enterprise.

3:15pm to 3:30pm

Break

3:30pm to 4:00pm

Core Principles of IT Leadership

STEVE SCHUCKENBROCK, MANAGING PARTNER FOR CLIENT SERVICES, THE FELD GROUP

The profession of IT is still too much art and too little science, yet business needs clearly call for more exacting, predictable results. Our field needs to mature more quickly into a true profession, a discipline based on solid principles, where IT's potential can be realized. The Feld Group has leveraged the experience of its entire research group to develop 11 core principles that define great IT execution. Based on these field-tested principles, Steve will share his perspective for advancing the profession and creating sustained value for your organization.

4:00pm to 5:15pm

Leading Through Tough Times and Beyond

WARREN BENNIS, DISTINGUISHED PROFESSOR OF MANAGEMENT, USC

The core competencies of great leaders reveal themselves more starkly during tough times, as distinguished author and business professor Warren Bennis will explain in this closing keynote speech. What do people want from their technology leaders? How do great leaders provide that direction? What are the implications for their companies? Based on illuminating interviews with 150 exemplary leaders, the author of such best sellers as "Leaders" and "On Becoming a Leader" will delve into the six core leadership competencies, showing how IT executives can successfully develop those qualities within themselves and their organizations.

5:15pm to 5:30pm

Final Remarks and Conference Summary

MARYFRAN JOHNSON, EDITOR IN CHIEF, COMPUTERWORLD

7:00pm to 7:30pm

Cocktail Reception

7:30pm to 9:00pm

Honoree Recognition, Gala and 'Best in Class' Awards Ceremony

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*IT End-Users are defined as those who are attending Computerworld's Premier 100 IT Leaders Conference with an interest and an IT spending budget to potentially buy/purchase hardware/software and/or services. Those in conference sponsor and exhibitor companies, as well as account representatives/business development from any company, analysts, editorial staff and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this definition and approval of "IT End-User" registrations is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

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Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Sunday, February 23rd (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

Your Organization's Business / Industry?
(Check Only One)
- ❑ Transportation Utilities
- ❑ Mining Oil Gas
- ❑ Non-Profit Trade Association
- ❑ Media Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale Retail (non-computer)
- ❑ Computer Service Provider
- ❑ Advertising Marketing Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Food Industry
- ❑ Government Military
- ❑ Healthcare Medical Services
- ❑ Travel Hospitality Recreation
- ❑ Manufacturing (non-IT)
- ❑ Automobile
- ❑ Transportation Utilities Energy
- ❑ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ❑ Agriculture Forestry Fisheries
- ❑ Other

Your Primary Job Title / Function?
(Check Only One)
- ❑ CIO, CTO
- ❑ Vice President of IT
- ❑ Director, Manager, Supervisor of IT
- ❑ Other IS IT Manager
- ❑ Chairman, CEO, President, COO
- ❑ CFO, Controller, Treasurer
- ❑ GM, VP, Director
- ❑ Other Corporate Business Manager
- ❑ Corporate Business Staff
- ❑ Consultant

Your Personal IT/IS Spending Authority?
- ❑ $5 million+
- ❑ $1 million - $4.9 million
- ❑ $500,000 - $999,999
- ❑ $100,000 - $499,999
- ❑ Under $100,000
- ❑ None

Number of Employees (ALL Locations)?
- ❑ 5,000+
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Under 500

What is your Company IT/IS Budget?
- ❑ Over $1 billion
- ❑ $100 million - $999.9 million
- ❑ $10 million - $99.9 million
- ❑ $1 million - 9.9 million
- ❑ Less than $1 million
- ❑ None

What is Your Organization's Primary Vendor for Servers?
- ❑ Dell
- ❑ Hewlett-Packard Compaq
- ❑ Hitachi
- ❑ IBM
- ❑ Sun
- ❑ Other

Your Organization's Enterprise Standard for Mobile Device Management Software?
- ❑ Aether Systems
- ❑ Altiris
- ❑ Computer Associates
- ❑ Extended Systems
- ❑ Hewlett-Packard Compaq
- ❑ IBM Tivoli
- ❑ Landesk Software
- ❑ Management
- ❑ Marimba
- ❑ mFormation
- ❑ Microsoft
- ❑ Mobile Automation
- ❑ Novadigm
- ❑ Novell
- ❑ OS Technology
- ❑ Pumatech
- ❑ Starfish
- ❑ Synchrologic
- ❑ Wavelink
- ❑ XcellNet
- ❑ Other
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language of their customers. If they're not familiar with the way you do business or your industry, chances are you're in for a headache.

Perhaps the biggest trend Rosen sees is the need to do something with all the data being generated.

The first step was getting ERP and CRM systems to even work, says Rosen. Once that was accomplished, companies had to store the new information in the correct data models and then had to have the right applications on top of those systems. Those business intelligence packages are new and costly and often not aligned with the business process.

That's where Rosen sees the biggest chance for IT-related investment success. "IT buyers and their CFOs are savvier then ever," he says. "Now is a good time for IT to solve their day-to-day business problems."

And maybe for venture capitalists to begin to make money all over again.

CATHY HOTKA AND EDWARD SCHWARTZ

Silence Isn't Golden for Security

LIKE CANCER used to be among friends in the 1960s, security is taboo as a discussion topic among many CIOs today. Superstitious IT executives keep quiet about the subject and hope it will go away. They rarely seek out colleagues to compare notes about managing technology vulnerabilities and the mitigation of risk.

This squeamishness spills over into the structures designed to help companies talk about incidents. The Information Sharing and Analysis Centers (ISAC), which act as sector focal points for threat and vulnerability information, go to great lengths to ensure that participants' submissions are anonymous, and only the nonattributable details of security events are circulated within the ISAC. And sector ISAC members report incidents only if they are of sufficient magnitude that a wider threat is perceived.

This reluctance is predictable. Who wants to risk tanking the company's stock price? Who wants to admit that the money invested in security might not have been wisely spent?

Candor helps companies with nearly every IT issue — except information security, that is. People just don't stand around at industry cocktail parties saying, "We got our voice mail hacked again last week." The fact that so many incidents are inside jobs also dilutes companies' desire to open the kimono.

Another problem for CIOs is that there are few service-level agreements for security and no credible ways to measure ROI or total cost of ownership for security investments. How can a CIO even report effectively to upper management about security posture when typical metrics and rules don't apply?

Companies wishing to determine how serious a given incident is find themselves without a common language of vulnerability. OASIS has 36 different technical committees working to organize XML, but only one related to security, and it covers authentication techniques.

We don't have a common language to communicate vulnerabilities or their severity. If there were a "vulnerability management markup language," it would assist companies in evaluating incidents in heterogeneous environments in real time and choosing new products and services. It could also assist the U.S. government in determining the true state of readiness in private industry.

So let's talk. Let's get the various ISACs to hold joint summits to talk about where the threats really lie and how to manage vulnerabilities effectively. Let's arrive at some metrics whereby user companies can easily figure out how secure they are.

And let's get the government to help us. The "National Strategy to Secure Cyberspace" proposes the concept of sector coordination and collaboration, but it's only a very basic beginning to a solution. The government is putting more money and effort into information assurance than ever before. Let's let it help us. In exchange for voluntary participation in confidential forums for information exchange, let's work to get tax breaks designed to reward proactive homeland security work.

And let's go further than Freedom of Information Act exemptions. Let's take the next step and get the SEC and other regulatory agencies to take special note of companies that are upfront about the actions they take to protect their digital assets.

We have to share security information; if we don't figure out a way as users of security products to talk about information security in a constructive way, we shrink our opportunities to improve the whole information management landscape. It's good business. And it's good government.

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READERS' LETTERS

Don't Fear Linux

IN THE STORY "Home Depot Upgrades Point-of-Sale Systems" [QuickLink 34926], Home Depot's Jill Taylor says that if the company had used Linux, it "would have faced issues such as a lack of drivers and support if it decided to use cross-platform hardware." But if the POS system is written in Java and implemented correctly, it shouldn't have mattered if they ran it on a Palm or an AS/400. This "cross-platform hardware" nonsense sounds more like fear, uncertainty and doubt. I'd be interested in what drivers they would be missing if they ran Linux, or if they bothered to investigate it. POS machines are one of the big areas that SCO (formerly Caldera Systems) makes money in.

Matthew Carpenter
Network/security consultant, Grand Rapids, Mich.

2-Way Replicating

PERHAPS ANALYST Carl Olofson should do a little more research [QuickLink 34903]. He states that the difference between PeerDirect's software and the data replication products sold by database vendors such as Oracle and Sybase is that the new technology supports two-way replication, not just transmissions from a remote site back to a data center. I have worked for Sybase for almost eight years, and in all that time, Sybase Replication Server has supported true bidirectional replication. I am currently on a client site configuring it to do just that.

Mark Lazar
Principal consultant, Sybase Inc., Rockaway, N.J.

My First IT Job

I ENJOYED the sound bites from those youngsters who responded to the question, "What was your first job in IT?" [QuickLink 34786]. I have been in IT since 1959, probably before most of them were out of diapers – or were even thought about. My first job was wiring 407 and 514 boards and sorting cards on an 082 sorter, and then I moved on to programming in seven different languages. Many of the people that I read about just don't seem to realize how much patience and perseverance you needed in those days. Patience and a solid work ethic are still important.

Richard Thurman
Director IT, ARV Assisted Living, Costa Mesa, Calif.

IN 1964, I was a recent math graduate hired to write Fortran II programs for The Boeing Co. at the NASA Michaud facility in New Orleans. The project was led by Werner von Braun to send astronauts to the moon and involved some first-time methods. I haven't used as much of my math background in any position since.

Ronald S. Abbott
Lead programmer/analyst, PMA Insurance Group, Blue Bell, Pa.

Study Flaws

ONE PROBLEM that could flaw the research cited in the article "Study Ties Frugal IT Spending to Good Financial Performance" [QuickLink 35031] is the fact that different companies serve different vertical industries. Therefore, performance is more likely the result of overall industry trends than IT spending. It would be better and more illuminating to compare companies within a vertical industry; for example, how do utilities that invested in IT compare to ones that didn't? In addition, we are still in a lull after the Y2k spending frenzy, and technology-heavy companies spent more and invested more, because they had more at risk. They also had the most dramatic shift when IT spending dried. So there's good reason to believe that downtrends will affect IT-heavy companies the most and performance will be the driver, not the indicator that the researchers wished for.

Alan Gartner
Vice president, Sketchworks.com, Campbell, Calif.

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This reluctance is predictable. Who wants to risk tanking the company's stock price? Who wants to admit that the money invested in security might not have been wisely spent?

Candor helps companies with nearly every IT issue — except information security, that is. People just don't stand around at industry cocktail parties saying, "We got our voice mail hacked again last week." The fact that so many incidents are inside jobs also dilutes companies' desire to open the kimono.

Another problem for CIOs is that there are few service-level agreements for security and no credible ways to measure ROI or total cost of ownership for security investments. How can a CIO even report effectively to upper management about security posture when typical metrics and rules don't apply?

Companies wishing to determine how serious a given incident is find themselves without a common language of vulnerability. OASIS has 36 different technical committees working to organize XML, but only one related to security, and it covers authentication techniques.

We don't have a common language to communicate vulnerabilities or their severity. If there were a "vulnerability management markup language," it would assist companies in evaluating incidents in heterogeneous environments in real time and choosing new products and services. It could also assist the U.S. government in determining the true state of readiness in private industry.

So let's talk. Let's get the various ISACs to hold joint summits to talk about where the threats really lie and how to manage vulnerabilities effectively. Let's arrive at some metrics whereby user companies can easily figure out how secure they are.

And let's get the government to help us. The "National Strategy to Secure Cyberspace" proposes the concept of sector coordination and collaboration, but it's only a very basic beginning to a solution. The government is putting more money and effort into information assurance than ever before. Let's let it help us. In exchange for voluntary participation in confidential forums for information exchange, let's work to get tax breaks designed to reward proactive homeland security work.

And let's go further than Freedom of Information Act exemptions. Let's take the next step and get the SEC and other regulatory agencies to take special note of companies that are upfront about the actions they take to protect their digital assets.

We have to share security information; if we don't figure out a way as users of security products to talk about information security in a constructive way, we shrink our opportunities to improve the whole information management landscape. It's good business. And it's good government. ◗

WANT OUR OPINION?

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READERS' LETTERS

Don't Fear Linux

IN THE STORY "Home Depot Upgrades Point-of-Sale Systems" [QuickLink 34926], Home Depot's Jill Taylor says that if the company had used Linux, it "would have faced issues such as a lack of drivers and support if it decided to use cross-platform hardware." But if the POS system is written in Java and implemented correctly, it shouldn't have mattered if they ran it on a Palm or an AS/400. This "cross-platform hardware" nonsense sounds more like fear, uncertainty and doubt. I'd be interested in what drivers they would be missing if they ran Linux, or if they bothered to investigate it. POS machines are one of the big areas that SCO (formerly Caldera Systems) makes money in.

Matthew Carpenter
Network/security consultant, Grand Rapids, Mich.

2-Way Replicating

PERHAPS ANALYST Carl Olofson should do a little more research [QuickLink 34903]. He states that the difference between PeerDirect's software and the data replication products sold by database vendors such as Oracle and Sybase is that the new technology supports two-way replication, not just transmissions from a remote site back to a data center. I have worked for Sybase for almost eight years, and in all that time, Sybase Replication Server has supported true bidirectional replication. I am currently on a client site configuring it to do just that.

Mark Lazar
Principal consultant, Sybase Inc., Rockaway, N.J.

My First IT Job

I ENJOYED the sound bites from those youngsters who responded to the question, "What was your first job in IT?" [QuickLink 34786]. I have been in IT since 1959, probably before most of them were out of diapers – or were even thought about. My first job was wiring 407 and 514 boards and sorting cards on an 082 sorter, and then I moved on to programming in seven different languages. Many of the people that I read about just don't seem to realize how much patience and perseverance you needed in those days. Patience and a solid work ethic are still important.

Richard Thurman
Director IT, ARV Assisted Living, Costa Mesa, Calif.

IN 1964, I was a recent math graduate hired to write Fortran IV programs for The Boeing Co. at the NASA Michaud facility in New Orleans. The project was led by Werner von Braun to send astronauts to the moon and involved some first-time methods. I haven't used as much of my math background in any position since.

Ronald S. Abbott
Lead programmer/analyst, PMA Insurance Group, Blue Bell, Pa.

Study Flaws

ONE PROBLEM that could flaw the research cited in the article "Study Ties Frugal IT Spending to Good Financial Performance" [QuickLink 35031] is the fact that different companies serve different vertical industries. Therefore, performance is more likely the result of overall industry trends than IT spending. It would be better and more illuminating to compare companies within a vertical industry; for example, how do utilities that invested in IT compare to ones that didn't? In addition, we are still in a lull after the Y2k spending frenzy, and technology-heavy companies spent more and invested more, because they had more at risk. They also had the most dramatic shift when IT spending dried. So there's good reason to believe that downtrends will affect IT-heavy companies the most and performance will be the driver, not the indicator that the researchers wished for.

Alan Gartner
Vice president, Sketchworks.com, Campbell, Calif.

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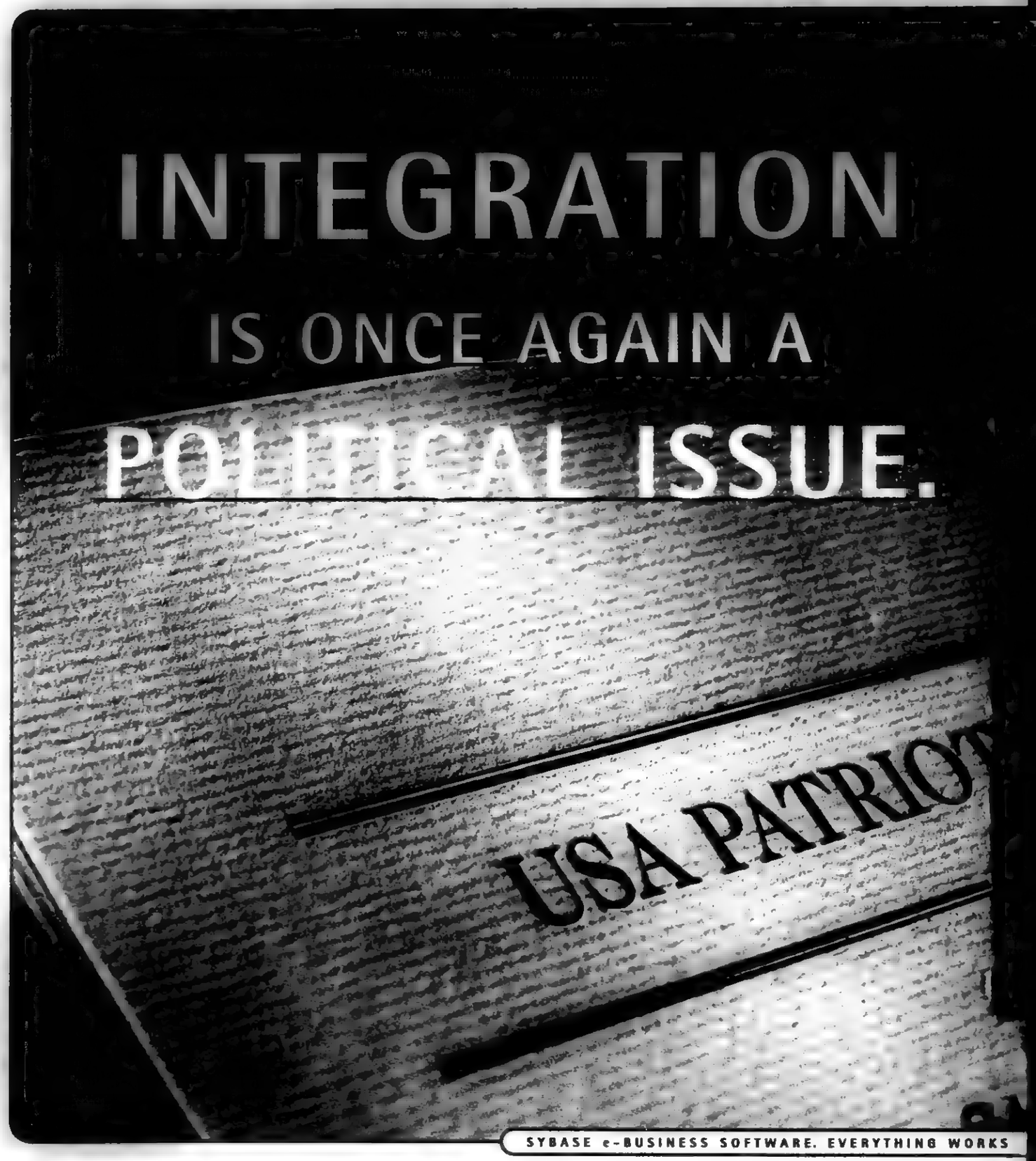

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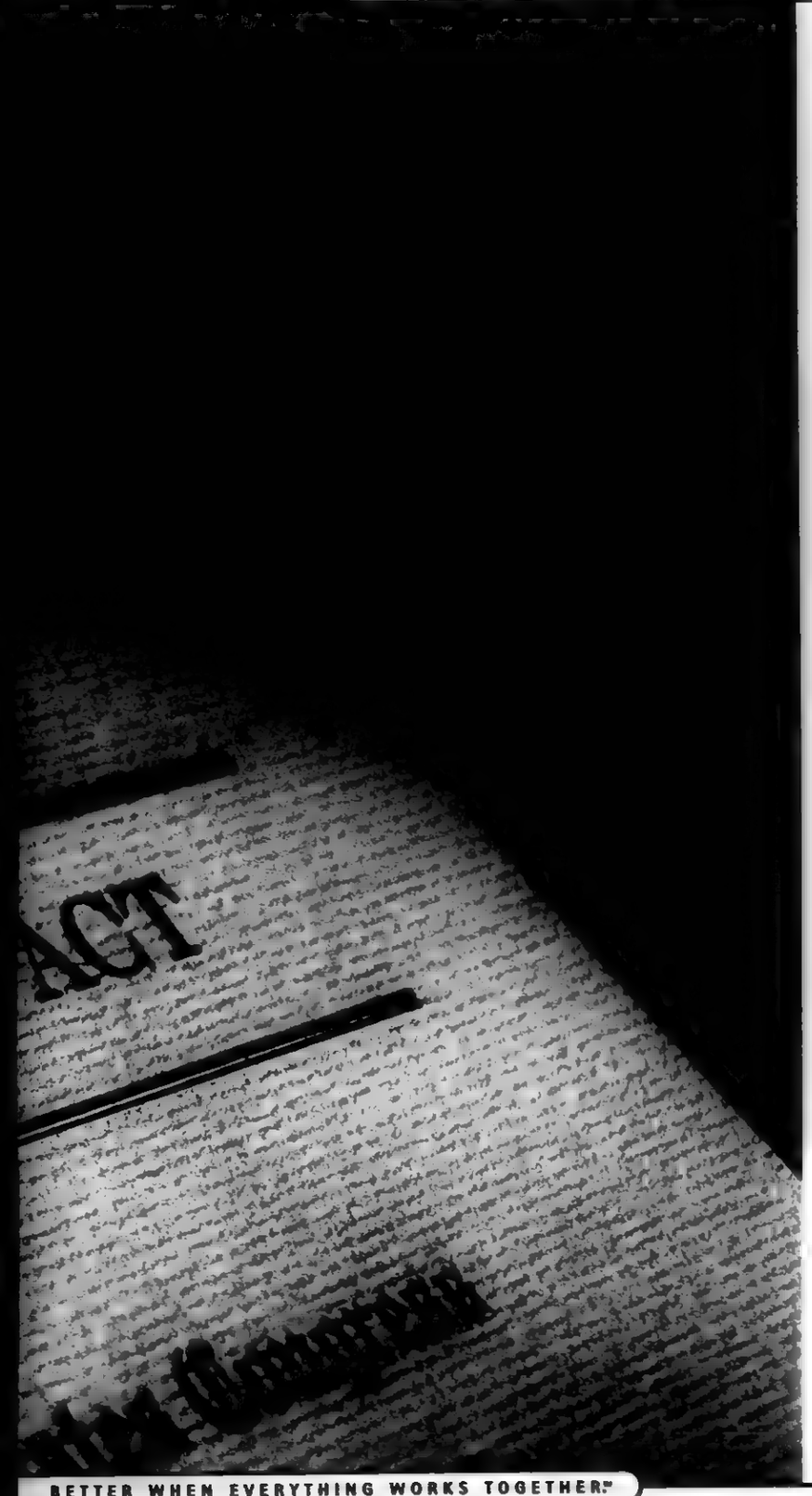

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Coping With Telecom Turmoil
Diversification, redundancy, shrewd contract clauses and a willingness to try new vendors are key to protecting your WAN from the financial troubles of telecom carriers. "Telecom is at the heart of what keeps CIOs awake at night now," says one CIO, Zeke Zoccoli (left). **Page 28**

Ethernet Goes Metro
The promises of Ethernet metro-area networks — lower cost, faster provisioning, granular bandwidth allocation — have yet to result in widespread service offerings. The big carriers are sitting on the sidelines. **Page 34**

EDITOR'S NOTE

I'M SITTING HERE with a stack of 15 research reports on the telecommunications industry, and I'm going to save you some time by boiling it all down to 260 words. But it's an ugly picture.

North American telecom carriers, some of which are reorganizing under Chapter 11 bankruptcy proceedings, face several years of turmoil and will recover only after the market consolidates and the economy recovers. In the meantime, corporate network managers will see price instability and service declines. They'll need multiple carriers, in case one goes belly-up, and they'll need backup plans for their backup plans.

Anyone hoping that 2003 would be better than last year's telecom disaster will be disappointed. There will be additional bankruptcies. Some telecom companies now in bankruptcy will emerge, but they probably shouldn't bother (because they're just delaying the inevitable).

The problem isn't a glut of fiber; it's a glut of companies competing for too few customers, and the related overspending to establish these companies and their networks, says TeleChoice Inc. By 2005, the 10 largest carriers will be reduced to eight, and the next 20 secondary carriers will be reduced to 10, Gartner Inc. predicts.

Is it any wonder that IT managers are looking carefully at making the Internet their WAN? No, it's not as reliable or secure as a private network. But IP networks are "good enough" for many business applications — and the price is right. As a recent Gartner title put it: "Don't Wait for Perfection: Internet Is Business-Class Now."

Mitch Betts (mitch_betts@computerworld.com) is director of Computerworld*'s Knowledge Centers.*

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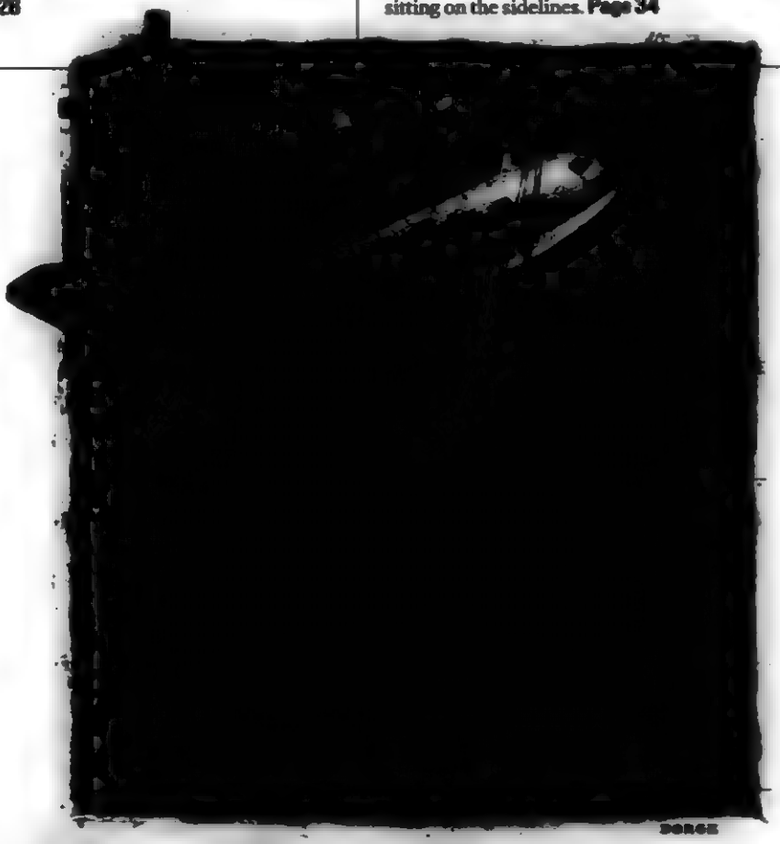
RICHARD DORSE



Turbulence Ahead!

SPECIAL REPORT IT has to cope with a telecom industry in turmoil and major shifts on the networking horizon.

The Story So Far

Charlie Brown, Bill Baxter, Harold Greene and Bill McGowan break up giant AT&T, which continues to tear itself apart. By Mitch Betts

IT WAS A COLD, clear day in Washington on Jan. 8, 1982, when Charlie Brown and Bill Baxter held a noon press conference to announce an antitrust trial settlement that would break up AT&T Corp. and stop Ma Bell's dominance of the telecommunications industry. (It was a busy day: A few hours later, the government dropped its long-running antitrust case against IBM.)

Brown, AT&T's chairman, had concluded that, with his company faring poorly in U.S. District Judge Harold Greene's courtroom, AT&T needed a fresh start so it could compete with upstart MCI Communications Corp. for business customers and enter Information Age markets without burdensome regulations.

Baxter, the Reagan administration's antitrust chief, wanted to deregulate the telecommunications business. He figured competition would flourish in the long-distance market if it was separated from the local monopoly.

Together they struck a deal to end the U.S. government's mammoth antitrust lawsuit against AT&T by splitting off the local telephone companies and leaving AT&T with long-distance service and the Western Electric equipment business. The deal also freed AT&T from a 1956 consent decree so it could get into the computer business.

How did they get to the point of dismantling what was by all accounts the greatest telecommunications system on the planet? Three factors:

■ **AT&T's arrogance had turned policymakers against it.** For years, AT&T's army of lobbyists and hardball tactics had squashed would-be competitors and prevented anyone from connecting non-AT&T devices, such as fax machines or answering machines, to the Bell network.

■ **Creeping competition, encouraged by the Federal Communications Commission.** It started with the Carterfone decision in 1968, which allowed other businesses to attach telephones, equipment and business switchboards to the Bell network. A year later, the FCC gave an embryonic company called Microwave Communications Inc. (later MCI) permission to provide private lines between Chicago and St. Louis for big business customers.

Then, without quite realizing what it had done, the FCC approved MCI's Execunet service, which essentially provided the first competitive long-distance service for U.S. businesses.

■ **Bill McGowan.** Trying to keep his tiny company afloat, the feisty MCI chief worked the government process. He lobbied Congress, filed a private antitrust lawsuit against AT&T, planted the seeds of the government's antitrust lawsuit and got the FCC to approve the "experimental" intercity services that competed with AT&T's.

The AT&T divestiture on Jan. 1, 1984, produced seven regional "Baby Bells" and intense competition among AT&T, MCI and Sprint Corp. in the long-distance market, with millions of dollars spent on campaigns to get people to switch long-distance carriers.

But the breakup also produced its share of unintended consequences. For example, it was widely assumed at the time that AT&T would be a formidable competitor against IBM in the converging computer and communications businesses. AT&T came out with minicomputers and PCs, controlled Unix and made a hostile takeover of NCR Corp., but it eventually backed out of the computer industry.

And the 1984 breakup turned out to be just the first of several for AT&T. In the mid-1990s, AT&T spun off its crown jewels, Western Electric and Bell Labs, as Lucent Technologies Inc. and then divested NCR at a huge loss. AT&T restructured again in 2001, spinning off its wireless company and selling its huge cable TV assets to Comcast Corp.

The irony is that the Baby Bells, which everyone assumed got the raw, unprofitable end of the deal, are relatively healthy and are seeking regulatory approval to enter the long-distance business. Megamergers have turned them into four conglomerates with odd names like Verizon and Qwest.

Meanwhile, MCI, the company that brought down Ma Bell, was swallowed up by WorldCom Inc., which is now trying to emerge from bankruptcy proceedings amid a painful downturn in the telecommunications industry.

And now, on with the story . . .

THE ASSOCIATED PRESS

1950: In an antitrust settlement, AT&T gets to keep Western Electric but can't enter the computer business.

1972: MCI, led by CEO **Bill McGowan,** begins offering point-to-point private-line service between Chicago and St. Louis.

1982: AT&T and the Justice Department sign a settlement that ends the government's antitrust trial and requires divestiture of the local exchange companies.

1999: WorldCom, led by CEO **Bernard Ebbers** (foreground), proposes an audacious merger with Sprint (led by William Esrey, background), but it's nixed by the Justice Department. SBC acquires Ameritech.

1950 | 1960 | 1970 | 1980 | 1990 | 2000

1968: The government's Carterfone decision allows the connection of customer-owned devices to AT&T's network. Microwave Communications Inc. (later MCI) is incorporated.

1974: The U.S. Justice Department files an antitrust lawsuit against AT&T; the case is assigned to U.S. District Court Judge **Harold Greene.**

1984: The AT&T divestiture takes effect Jan. 1.

1996: AT&T spins off Western Electric, which becomes Lucent Technologies.

1997: Bell Atlantic and Nynex merge. So do SBC Communications and Pacific Telesis Group. WorldCom swoops in to buy MCI.

2000: Bell Atlantic and GTE merge into Verizon Communications. Qwest Communications International absorbs US West.

2002: WorldCom makes the largest U.S. bankruptcy filing ever.

Coping With Telecom Tur

How to protect your network while carriers strive to survive.

By Joanie M. Wexler

WHILE THE telecommunications industry licks its financial wounds, customers are taking a long, hard look at their wide-area networking strategies and contracts.

The debauchery of WorldCom and Global Crossing grabbed headlines, but mainstream carriers across the board are battling serious financial setbacks caused by two years of overspending, cooked books and artificially deflated prices. Business customers, then, are challenged to build network contingency plans that are more robust than simply moving from one beleaguered supplier to the next.

"Telecom is at the heart of what keeps CIOs awake at night now," says Zeke Zoccoli, CIO at Plano, Texas-based LifeCare Management Services, which owns 20 acute-care hospitals around the country.

Indeed, the public telephone network, corporate intranets and Internet links have become the lifeblood of large organizations. To avoid network disruptions, Zoccoli and others are lowering their risk with shorter-term deals and special contract clauses that keep them agile in the face of vendor setbacks.

They're also restricting the network traffic volume commitments they make to any single carrier. Instead, they're spreading the wealth across diverse, redundant connections from multiple suppliers.

Diversification racks up additional monthly network service costs, but the cost of not having the protection is far greater, companies say.

"It's more valuable to us to have the network up than to get a bigger monthly volume discount," says Mark Carrier, telecommunications manager at Crate and Barrel. The Northbrook, Ill.-based retailer learned that lesson the hard way in 1999, when WorldCom Inc.'s frame-relay service suffered a notorious 10-day networkwide outage. Crate and Barrel did have backup Integrated Services Digital Network (ISDN) circuits in place. But those links, too, were provisioned by WorldCom and weren't in service.

"We got stung," says Carrier.

So the 100-site retailer has now split its frame-relay traffic loads between the networks of Sprint Corp. and Qwest Communications International Inc. The company still uses ISDN backup links — but they are provisioned, in part, by AT&T Corp. "to further hedge our bets," says Carrier.

Diana Beecher, CIO at Travelers Property Casualty Corp. in Hartford, Conn., agrees that experience has taught her to use diverse routes from multiple carriers. "There have always been risks associated with any one provider being able to continue service," she says. "You just have to make sure you have a plan in place for when that day comes."

This means soliciting bids from several carriers before the dam breaks, says Greg Douglass, vice president of Telecom Media Networks, an industry practice of Cap Gemini Ernst & Young U.S. in Dallas.

"If the lights go out tomorrow, it would take another carrier several weeks just to come back with a bid, let alone get a connection up. Make sure the alternative carrier already understands what you want to do," he recommends.

There's no safe bet about vendors, though. Meta Group Inc., for example, expects 65% of the carriers that have undergone financial reorganization in the past year to be forced back into bankruptcy by 2005.

"Any provider today could go belly-up," asserts Dennis Brixius, director of telecommunications and security at Praxair Inc., a Fortune 500 international maker of industrial gases. He says Praxair has been affected by the financial troubles of WorldCom, the demise of Global Crossing Ltd. and the discontinuation of certain services by Cable & Wireless PLC.

Brixius says IT departments should consider using carriers that they might have overlooked in the past

ARTHUR HORN

> "Telecom is at the heart of what keeps CIOs awake at night now."
>
> ZEKE ZOCCOLI, CIO, LIFECARE MANAGEMENT SERVICES

Telecom Survival Kit

Guidelines for positioning your organization to cope with carrier troubles:

- Make the vendor's financial viability and track record for service quality the top priorities when selecting a carrier.
- Negotiate an aggregate volume discount so you can redistribute traffic loads without incurring penalties.
- Try to negotiate technology-refresh terms in telecom contracts so you can add new services for the lowest rate offered to other customers.
- Back up the backup. Make sure that services from different carriers don't run over the same last-mile cabling and that they terminate in geographically diverse central offices.

but are financially solvent. For example, he says he's evaluating Cincinnati-based Broadwing Inc., a nationwide spin-off of Cincinnati Bell Telephone Co., for this reason.

Others agree with that strategy. "The first thing to falter with financially troubled carriers is service and support," says N. Britton Choi, IT strategic planning and implementation manager at Hogan & Hartson LLP, an international law firm based in Washington. "Newer players are better able to focus on customer service than carriers preoccupied with reducing operational costs."

So the firm is using the inherently redundant IP virtual private network (VPN) services of Denver-based Virtela Communications Inc. The 2-year-old provider offers multihomed connections from different Internet service provider networks. "And we have tertiary ISDN in case the local loop goes down," says Choi. "Virtela is managing it all for us, which has saved us a great amount of administrative time."

But what if Virtela were to disappear? "Then, contractually, the circuits become [under] the ownership of Hogan & Hartson. We can work directly with the carriers at the prenegotiated rates throughout the life of the contract," says Choi.

LifeCare and Crate and Barrel have also signed on with providers that aren't yet household names. LifeCare subscribes to the services of Dallas-based Masergy Communications Inc., a 2-year-old provider of international IP VPN services. "Masergy is not someone I would have gone to in the past," Zoccoli acknowledges. "But these new, smaller companies aren't in cutback mode, and they offer customer tools to improve the management of the network."

Still, he did his due diligence. "I talked to Masergy's backers, called customer references and tested their service before signing on," Zoccoli says.

Crate and Barrel has dropped local phone services from the incumbent local-exchange carriers, where geographically possible, in favor of service from Dallas-based Allegiance Telecom Inc., a nationwide local-exchange carrier. But Carrier, too, says he didn't make this decision lightly.

He engaged Allegiance when SBC Communications Inc. was unable to deliver a range of 700 direct inward dial numbers in a new Crate and Barrel building. "From there, Allegiance had to earn our trust over a period of about a year," says Carrier. "We added them market by market."

Contractual Clauses

If a carrier goes bankrupt, enterprise customers lose their clout. "Telecom contract clauses stating that a customer can terminate if a supplier goes bankrupt are no longer enforceable under U.S. bankruptcy laws," warns Hank Levine, a partner at Levine, Blaszak, Block & Boothby LLP, a Washington-based law firm. Yet when emerging from bankruptcy, carriers can decide whether to retain you as a customer, despite your contract, Levine notes.

So customers need to protect themselves in other ways. "I no longer sign a contract that's longer than 12 to 18 months," says Choi.

Crate and Barrel's telecom contracts allow the company to add sites at the same billing rate. "For example, if Qwest were to go out of business, Sprint would be obligated to fill in the coverage gaps at the same rate it charges for connectivity at our other sites," Carrier explains.

Jim Metzler, vice president of Ashton, Metzler & Associates, a telecom consultancy in Sanibel, Fla., suggests spreading a single aggregate volume commitment across all network services. This tactic avoids penalties if customers fall short in one service area but are at or over their financial commitment in total. Otherwise, for example, companies might move to voice over IP to save money but then get penalized for falling below their long-distance phone service commitment.

Metzler also recommends that you request rate reviews at regular intervals throughout the life of the contract and compare the rates of at least two viable competitors at those times.

"Try to include a clause that if the average of the competitors' pricing is lower than your current pricing, that number becomes your new price," he says.

Wexler is an independent IT and computer networking writer in Campbell, Calif.

COPING STRATEGIES

Link Staffing Services is using an "overlay network" from OpenReach Inc. to insulate its network from the turmoil in the telecom industry.

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How Bad Is It?

In terms of technology, the mainstream carriers run equally robust networks. But most are in the same leaky financial boat.

- On July 21, 2002, WorldCom and most of its active U.S. subsidiaries filed for reorganization under Chapter 11 of the U.S. Bankruptcy Code.
- AT&T is financially strongest of the top three interexchange carriers, but revenue declines are being matched dollar for dollar with expense cuts. AT&T Canada announced in October that it was restructuring. AT&T Latin America Corp. announced the same month that it anticipated a liquidity shortfall starting in the fourth quarter of 2002.
- Sprint reported $500 million in profits in the third quarter – achieved by slashing expenses.
- Qwest's capital spending was 70% lower last year than it was the previous year.

Communications Breakdown

Some of the biggest bankruptcy filings in the communications industry:

COMPANY	ASSETS
[illegible]	
WorldCom Inc.	$104 billion
Global Crossing Ltd.	$30 billion
[illegible]	
360Networks Inc.	$6 billion
Winstar Communications Inc.	$5 billion
PSINet Inc.	$5 billion
Exodus Communications Inc.	$4 billion
[illegible]	
ICG Communications Inc.	$2 billion
[illegible]	
Iridium LLC	$4 billion

SOURCE: BANKRUPTCYDATA.COM, BOSTON

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Visual Studio .net

SNAPSHOTS

WAN Basics

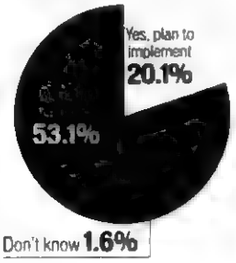
What technology does your company use as its primary wide-area network?

[illegible]	33.3%
[illegible]	25.6%
[illegible]	24.5%
[illegible]	4.7%
[illegible]	11.9%

BASE: 400 U.S. networking managers

IP VPNs

Does your company plan to have an IP-based virtual private network?



BASE: 400 U.S. networking managers

Top 5 Vendors

The market-share leaders in the $19.2 billion worldwide market for network consulting and integration services in 2001:

1. IBM Global Services
2. Electronic Data Systems Corp
3. Compaq (now Hewlett-Packard Co.)
4. Alcatel
5. Getronics NV

MARK HALL

Internet2 and You

LADIES AND GENTLEMEN, start your routers.

Imagine that your network supported a fail-over system that could handle 3.47GB/hr. of data exchange between your primary and backup servers. That would be pretty cool, huh? Now, imagine that the backup server was 3,000 miles across the country. Way, way cool.

That's essentially what the folks at the University of Oregon in Eugene accomplished late last September with their cohorts at NYSERNet, a nonprofit networking organization in Syracuse, N.Y. Oh, and they did this using IPv6, the most advanced networking protocol today.

MARK HALL is *Computerworld*'s opinions editor. Contact him at mark_hall@computerworld.com.

The IT wizards who accomplished this feat bragged (somewhat tongue in cheek) that this was a new "land speed record" for data transfer: 39.81 terabit-meters per second.

The record stood barely a week when in early October, European researchers transmitted all the data from a CD-ROM more than 9,000 miles in 17 seconds for the equivalent of an astounding 5,154 terabit-meters per second.

These "races" have been taking place on Internet2, or I2, as it's called. I2 is the global network being driven by 200 U.S. universities, with some help from affiliated academic institutions, government agencies and IT vendors such as Cisco Systems and Juniper Networks. And these races aren't just for fun. Joe St Sauver, director of user services network applications at the University of Oregon, regularly backs up 60GB of data from Eugene to Syracuse via I2. "It's a daily routine," he says.

I2 came into being because commercial use of the old, clunky Internet was getting bogged down with too many packets slinging Amazon.com book orders, corporate e-mails, AOL chat sessions and the daily chaos that makes it such a lively place. I2 is strictly for noncommercial, serious, state-of-the-art network-related R&D work — with a little data race being held now and again.

There were initial hopes by some companies, such as FedEx Corp., when Internet2 was being created that they, too, would directly benefit from the interconnected high-speed points of presence, or POPs. However, the peering relationships (the links between the broadband WANs) remain distinct for I2 and commercial users. And by all accounts, they'll remain that way.

What I2 Means for You

But just because I2 is reserved for the IT equivalent of an ivory tower, that doesn't mean it won't affect some of us directly and all of us indirectly. For example, if you run IT operations for a medical research center, you'll likely be getting recruited to build I2 links so surgeons on your site will be able to assist or, with robots, even perform operations across towns, continents and oceans. Just last month in Chicago, 60,000 radiologists at the annual meeting of the Radiological Society of North America were treated to a half-dozen real-world applications of I2 in the exciting new world of telemedicine.

Admittedly, such projects today will be rare and expensive. But I2 researchers are on the forefront, using technologies that we will all use soon.

Joanne Hugi, associate vice president for information services at the University of Oregon, points out that I2 has been the testbed for IPv6. "And IT people will follow what I2 has done there," she says.

Furthermore, she points out that the vendors involved are learning new tricks for measuring and improving product performance that will make their way into the systems we buy and deploy.

In the area of security and privacy, I2 researchers have developed software called Shibboleth that uses a breakthrough method for authentication, and I2's distributed storage initiative offers IT planners insight into how to build storage networks bridging vast distances.

All of this comes with the serious caveat that these researchers, unlike most of the rest of us, have access to big bundles of bandwidth. It's the cornerstone of I2. But, thanks to the giddy days of the 1990s Internet, there's plenty of latent bandwidth available.

In Oregon, along the Interstate 5 corridor alone, more than 140,000 miles of fiber-optic cable has been installed, and 95% of it is dark. Of course, lighting it won't come cheap. But the $1 billion investment to lay the basic infrastructure in this single, middle-of-the-pack state is nearly complete.

So when the applications are ready for us to set our own land speed records for commercial data, we know the track is already there, and I2's researchers will have paved the way. ■

SNAPSHOTS

WAN Basics

What technology does your company use as its primary wide-area network?

SOURCE: IDC, FRAMINGHAM, MASS., NOVEMBER 2002

IP VPNs

Does your company plan to have an IP-based virtual private network?

Don't know 1.6%

SOURCE: IDC, FRAMINGHAM, MASS., NOVEMBER 2002

Top 5 Vendors

The market-share leaders in the $19.2 billion worldwide market for network consulting and integration services in 2001:

1. IBM Global Services
2. Electronic Data Systems Corp.
3. Compaq (now Hewlett-Packard Co.)
4. Alcatel
5. Getronics NV

SOURCE: IDC, FRAMINGHAM, MASS., SEPTEMBER 2002

MARK HALL

Internet2 and You

LADIES AND GENTLEMEN, start your routers.

Imagine that your network supported a fail-over system that could handle 3.47GB/hr. of data exchange between your primary and backup servers. That would be pretty cool, huh? Now, imagine that the backup server was 3,000 miles across the country. Way, way cool.

That's essentially what the folks at the University of Oregon in Eugene accomplished late last September with their cohorts at NYSERNet, a nonprofit networking organization in Syracuse, N.Y. Oh, and they did this using IPv6, the most advanced networking protocol today.

Mark Hall is Computerworld's opinions editor. Contact him at mark_hall@computerworld.com.

The IT wizards who accomplished this feat bragged (somewhat tongue in cheek) that this was a new "land speed record" for data transfer: 39.81 terabit-meters per second.

The record stood barely a week when in early October, European researchers transmitted all the data from a CD-ROM more than 9,000 miles in 17 seconds for the equivalent of an astounding 5,154 terabit-meters per second.

These "races" have been taking place on Internet2, or I2, as it's called. I2 is the global network being driven by 200 U.S. universities, with some help from affiliated academic institutions, government agencies and IT vendors such as Cisco Systems and Juniper Networks. And these races aren't just for fun. Joe St Sauver, director of user services network applications at the University of Oregon, regularly backs up 60GB of data from Eugene to Syracuse via I2. "It's a daily routine," he says.

I2 came into being because commercial use of the old, clunky Internet was getting bogged down with too many packets slinging Amazon.com book orders, corporate e-mails, AOL chat sessions and the daily chaos that makes it such a lively place. I2 is strictly for noncommercial, serious, state-of-the-art network-related R&D work — with a little data race being held now and again.

There were initial hopes by some companies, such as FedEx Corp., when Internet2 was being created that they, too, would directly benefit from the interconnected high-speed points of presence, or POPs. However, the peering relationships (the links between the broadband WANs) remain distinct for I2 and commercial users. And by all accounts, they'll remain that way.

What I2 Means for You

But just because I2 is reserved for the IT equivalent of an ivory tower, that doesn't mean it won't affect some of us directly and all of us indirectly. For example, if you run IT operations for a medical research center, you'll likely be getting recruited to build I2 links so surgeons on your site will be able to assist or, with robots, even perform operations across towns, continents and oceans. Just last month in Chicago, 60,000 radiologists at the annual meeting of the Radiological Society of North America were treated to a half-dozen real-world applications of I2 in the exciting new world of telemedicine.

Admittedly, such projects today will be rare and expensive. But I2 researchers are on the forefront, using technologies that we will all use soon.

Joanne Hugi, associate vice president for information services at the University of Oregon, points out that I2 has been the testbed for IPv6. "And IT people will follow what I2 has done there," she says.

Furthermore, she points out that the vendors involved are learning new tricks for measuring and improving product performance that will make their way into the systems we buy and deploy.

In the area of security and privacy, I2 researchers have developed software called Shibboleth that uses a breakthrough method for authentication, and I2's distributed storage initiative offers IT planners insight into how to build storage networks bridging vast distances.

All of this comes with the serious caveat that these researchers, unlike most of the rest of us, have access to big bundles of bandwidth. It's the cornerstone of I2. But, thanks to the giddy days of the 1990s Internet, there's plenty of latent bandwidth available.

In Oregon, along the Interstate 5 corridor alone, more than 140,000 miles of fiber-optic cable has been installed, and 95% of it is dark. Of course, lighting it won't come cheap. But the $1 billion investment to lay the basic infrastructure in this single, middle-of-the-pack state is nearly complete.

So when the applications are ready for us to set our own land speed records for commercial data, we know the track is already there, and I2's researchers will have paved the way.

Internet Protocol Version 6

The standard is ready. The vendors are ready. Are you?

By Gary H. Anthes

THE SKY MAY NOT BE FALLING just yet, but it's not too early for IT managers to start thinking about migrating their networks to Internet Protocol Version 6 (IPv6), the new version of IP with greatly expanded addressing capability.

Smaller companies with activities only in the U.S. can safely leave IPv6 out of their 2003 budgets. But companies with global operations should start experimenting with IPv6 and planning their migrations from IP Version 4, the current standard, says Joe Mambretti, director of the International Center for Advanced Internet Research at Northwestern University in Evanston, Ill. "The biggest pitfall is ignoring it," he says.

There are 4.3 billion unique 32-bit Internet addresses supported by IPv4, and about half of those are as yet unused, though they have been claimed by U.S. Internet service providers. Because U.S. network service companies were Internet pioneers, they were allocated a large fraction of the IP addresses early on, and they face no shortage anytime soon. "But countries like China and India sort of showed up when the address cupboard was bare," says Craig Partridge, chief scientist at BBN Technologies in Cambridge, Mass.

A big spike in demand for IP addresses everywhere in the world over the next few years is likely to accompany the networking of cell phones, automobiles, appliances and many other noncomputing devices. The answer will be IPv6, which supports 128-bit addresses, enough for every computer, cell phone, car, lamppost and toaster in the world for many years to come.

While the expanded address space is by far the biggest advantage of IPv6, the new standard improves on IPv4 in a number of other ways. IPv6 supports automatic configuration, so a computer can be plugged in and made Internet-ready without laborious manual entry of address information.

"It allows better plug and play," says Scott Bradner, a senior technical consultant at Harvard University. "If you have a pallet of computers on the loading dock, it could take you quite a while to get them running with Version 4."

In addition, IPv6 includes IP Security (IPsec) for sender authentication and data encryption by default, whereas it is an optional extension to IPv4. "There are a bunch of little things like that, maybe 50 or so little changes for improving security and manageability," says Bradner, also an area director for the Internet Engineering Task Force (IETF).

Size May Not Matter

So with all those improvements, should users be rushing to IPv6? "There is no huge carrot, other than the big address space," Bradner says. "And if you already have address space, why do you need bigger address space?"

Nevertheless, many products are IPv6-ready now. Cisco Systems Inc.'s routers include software support for IPv6, and those of Juniper Networks Inc. have the protocol stack in the router hardware. Microsoft Corp. ships Windows XP with IPv6 — turned off — and Microsoft recently announced support for the protocol in Windows CE .Net. Windows CE .Net also includes IPv6/IPv4 "coexistence and migration" utilities. Apple Computer Inc.'s Mac OS X has IPv6 — turned on — as do Sun Microsystems Inc.'s Solaris 8 and various versions of Linux.

The only real downside to IPv6 is the effort required to move to it, Partridge says. "Rolling out IPv6 means dealing with compatibility issues with IPv4. The IETF concluded it wasn't possible to come up with a transition strategy that was completely painless," he says.

Companies that mix IPv6 and IPv4 in an intranet, extranet or across the Internet may encounter these compatibility issues. For example, not all the attributes of IPv4 — such as multicasting — have yet been fully implemented in IPv6. And Bradner says companies that use Network Address Translation software in a router or firewall to convert between 32-bit and 128-bit addresses may experience difficulties with some things, such as voice over IP and peer-to-peer applications like music sharing and grid computing.

Bradner says companies that want to operate in Asia or tie their systems into the new third-generation IPv6-based cell phones should be planning their migration strategies now. Others might wait for the next generation of client Windows, in about three years, "where the [IPv6] stack is more mature and has more supporting applications around it."

ADVICE FROM THE TOP

Co-Chairman Bob Hinden of the IETF's IPv6 Working Group says IT shops should be doing pilot programs, not full deployments yet.

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Getting From IPv4 to IPv6

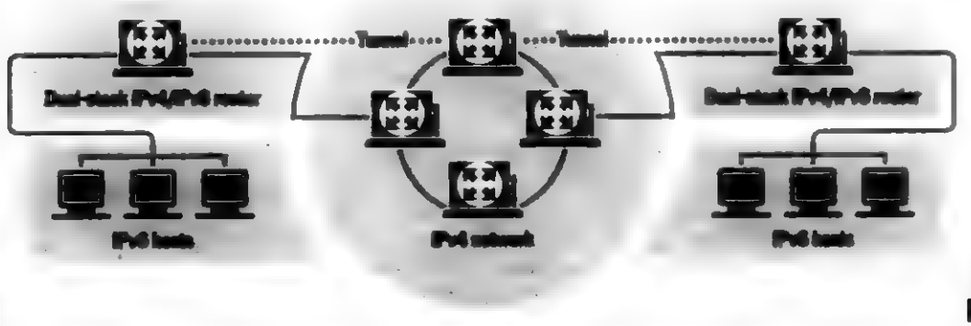
Most migrations from IPv4 to IPv6 will occur gradually over networks that contain a mix of IPv4 and IPv6 routers and hosts. Companies wishing to facilitate the transition should ensure that all new hosts and routers support dual IPv4 and IPv6 protocol stacks.

But if an IPv6 host sends a packet to another IPv6 host over the Internet, there's no way to ensure that it won't be routed through an IPv4 network. One way to make that work is via IP tunneling, where IPv6 packets can more or less seamlessly pass through IPv4 networks.

In "configured" IP tunneling, addresses are converted at the tunnel endpoints based on IPv4/IPv6 mappings in router tables maintained by administrators.

In "automatic" tunneling, hybrid IPv4/IPv6 addresses are created by extending 32-bit IPv4 addresses to 128 bits by adding leading zeros. IPv6 packets are encapsulated within IPv4 headers, so that one address can be converted to the other automatically at the tunnel endpoints.

– Gary H. Anthes



Ethernet Goes M

The promise of Ethernet metropolitan-area networks – lower cost, faster provisioning, more granular bandwidth allocation – has yet to materialize in the form of ubiquitous service offerings. As incumbent carriers sit on the sidelines, the potential cost savings have businesses turning to geographically limited services from smaller players – or lighting their own fiber networks.

METROPOLITAN-AREA NETWORKS (MAN) built on Ethernet over fiber promise to deliver faster, cheaper and more flexible bandwidth than ATM/Sonet-based technologies. But IT professionals contemplating the deployment of a native metro Ethernet network for interconnecting corporate LANs have found limited options. That will change eventually, analysts say, but the transition could take years because the incumbent local exchange carriers (ILEC) have such a large investment in Asynchronous Transfer Mode (ATM) and Synchronous Optical Network (Sonet) infrastructures.

Ethernet MANs have several advantages. They can plug into enterprise-class Gigabit Ethernet switches or routers, eliminating the need for channel service units and other equipment required for traditional ATM/Sonet services. A native Ethernet design is easier to support, the equipment costs less than that of an ATM/Sonet network, bandwidth can be provisioned more quickly and efficiently (in increments as small as 1M bit/sec.), and the networks can scale to 10G bit/sec. But the biggest benefit is cost savings. "The Ethernet solution tends to be 50% cheaper than Sonet," says analyst Jay Pultz at Stamford, Conn.-based Gartner Inc.

The ILECs have, however, been hesitant to deploy native metro Ethernet services. "The carrier-class switches aren't mature enough to roll out services," says Doug Barnes, director of optical services at Atlanta-based BellSouth Corp., adding that the 50msec fail-over times Sonet offers are essential for the voice and data traffic it carries. The Metro Ethernet Forum is working on carrier-class standards, says Nan Chen, president of the Newport, Calif.-based industry consortium, and switch vendors say their products already offer such capabilities.

But that's an issue for carriers that must handle a mix of voice and data traffic types, not for IT, says David Passmore, an analyst at Burton Group in Sterling, Va. "Most people aren't running voice over metro networks, and the data running over them tends to be tolerant of the second or two of restoral times you find with IP networks," he says.

BellSouth, like many other ILECs, offers 10M bit/sec., 100M bit/sec. and Gigabit Ethernet transparent LAN (TLAN) services running over its ATM/Sonet service architecture. But users and analysts say that TLAN services are more expensive than native metro Ethernet offerings and don't scale in small increments. In addition, bandwidth upgrades require equipment changes that can take a week to several months to complete, users say. And these services aren't available everywhere.

Don Shackley, IT director at Steinberg Diagnostic Medical Imaging Centers in Las Vegas, says Sprint Corp. could offer him only ATM service over copper to connect three locations that needed high bandwidth. "Once they installed it, we were going to be stuck at 155M bit/sec," he says. "And it could take months — literally months — to do an upgrade."

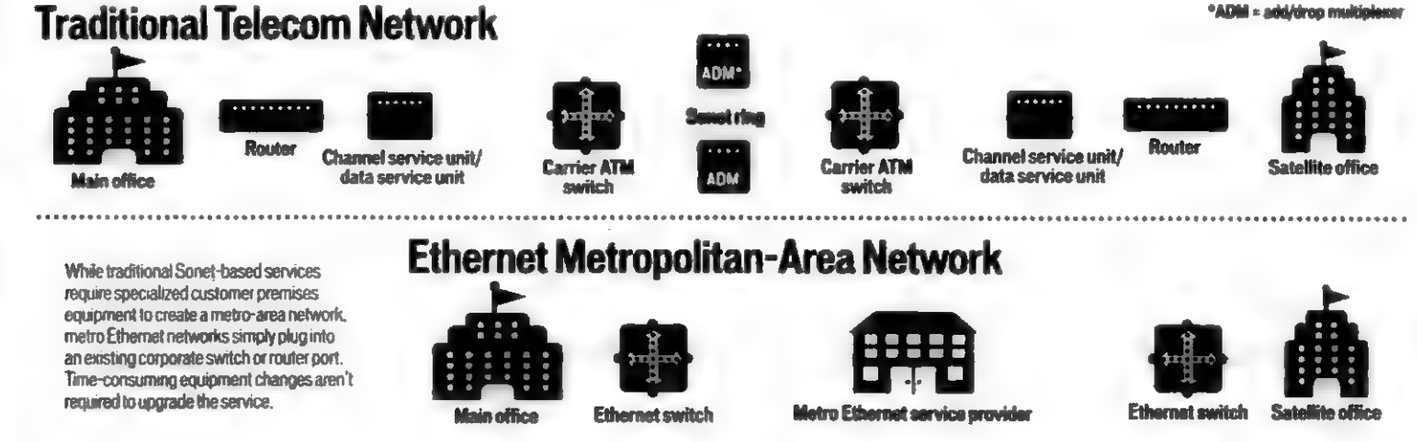
That has left second-tier vendors, including cable companies, public utilities and start-ups, as the sole providers of native metro Ethernet services. Shackley, who went with Atlanta-based cable service company Cox Communications Inc., pays $10,000 per month for 100M bit/sec. service to three offices. ATM would have cost 50% more, he says, adding that upgrades can now be completed in a single day.

But provider coverage is spotty at best, users say, and many vendors are in dire financial straits. Yet corporations are still turning to these players. "It's the only way they can get the bandwidth they need," Passmore says.

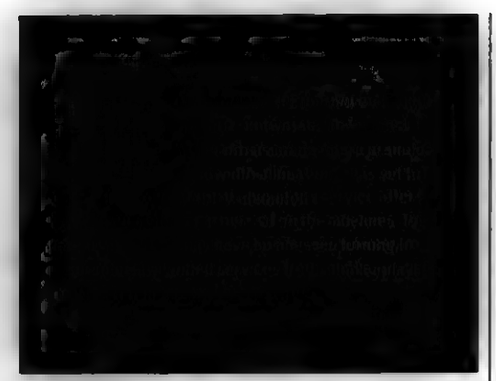
Lighting Up

There is one other way. Some organizations have leased or laid their own "dark fiber" and built metro Ethernet networks. But this option isn't practical for most organizations.

"You're responsible for network reliability and availability. And Ethernet doesn't have a lot of testing tools if the link should fail," Passmore says. That's assuming you can get the fiber, which reaches only 10% of business offices, he says. And even when it's in place, the high cost of the last-mile connection to the street can sink the idea fast. Lighting dark fiber makes sense only for high-bandwidth applications in excess of T3 speeds, says Jim Slaby, an analyst at Giga Infor-



Ethernet Goes M



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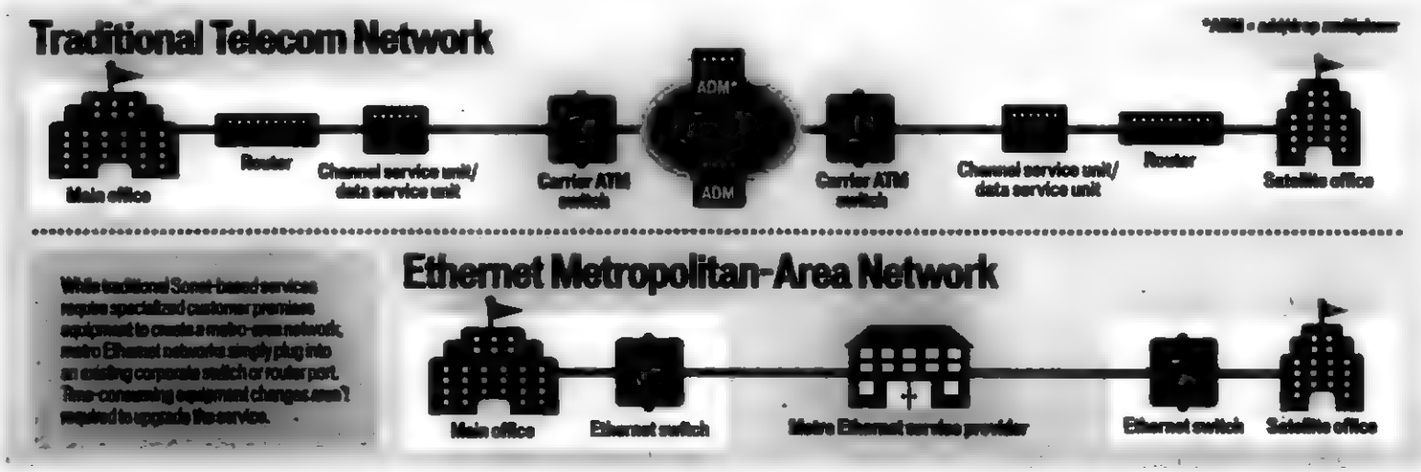

Metro

Metro-Grade Offerings

Metro Ethernet service subscriptions will grow rapidly through 2006, according to Framingham, Mass.-based IDC, but most services used for interoffice LAN connectivity today don't run over native Ethernet backbones. The players fall into two camps:

TRANSPARENT LAN SERVICES
The ILECs' TLAN services are the most commonly available option for Ethernet MAN connectivity, according to IDC. TLANs present an Ethernet interface to the customer while routing data over existing ATM/Sonet infrastructures. Last-mile connections may be fiber or copper and typically require special equipment. BellSouth, AT&T and many other ILECs offer variations of these services.

METRO ETHERNET SERVICES
Competitive local exchange carriers such as Yipes Enterprise Services Inc. in San Francisco, OnFiber Communications Inc. in Austin, Texas, and Cogent Communications Inc. in Washington offer end-to-end metro Ethernet services using carrier-class Ethernet switches. Cable companies, such as Atlanta-based Cox Communications Inc., and utility companies with fiber capacity also offer metro Ethernet services, and the ILECs are experimenting.

Although these offerings are aggressively priced – Cogent advertises a 100M bit/sec. connection for $1,000 per month – they're typically limited in geographic reach. And many vendors are small companies that are struggling financially or in bankruptcy, says Giga analyst Jim Slaby. "At last count, there were 30 start-ups going after metro Ethernet. Most of those guys won't be around when metro Ethernet finally has its day," he says.

mation Group Inc. in Cambridge, Mass., adding, "We don't think it makes sense for most large enterprises."

That leaves IT with few choices and many trade-offs. Gartner's Pultz suggests that organizations consider using a second-tier metro Ethernet service provider as the primary vendor, where available, and provisioning lower-bandwidth ATM or Integrated Services Digital Network services from an ILEC as a backup.

"You have less bandwidth for the backup, and the primary service is a lot cheaper," he says. "We're big on carrier redundancy." ◗

PUSHING THE STANDARD

Metro Ethernet Forum President Nan Chen talks about how the group plans to help metro Ethernet services proliferate:

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Roanoke Builds On Sonet Reliability

CASE STUDY

City of Roanoke, Va.
Joe Slone, director, department of technology

WHAT IT IS: Municipality

IT GOAL: Create a highly reliable, converged MAN that can handle critical 911 voice traffic as well as geographic information system (GIS) and other data among 14 locations.

STRATEGY: Slone didn't trust IP telephony systems or native metro Ethernet designs to securely and reliably handle 911 voice traffic. So Roanoke purchased a digital private branch exchange from Nortel Networks Ltd. and implemented a Sonet-based "optical Ethernet" system that uses an emerging technology called Resilient Packet Ring to integrate voice and data over an OC-48 (2.46 bit/sec.) link. The system includes OPTera Metro 3500 Multiservice Platforms with T1 and Gigabit Ethernet line cards to accommodate voice and data traffic for each location. Two fiber pairs run to each building for redundancy; the network's fail-over rate, at 50 msec., is the same as that of traditional Sonet.

CHALLENGES: Roanoke bargained with a local telecommunications company to run dark fiber for the city when laying its own fiber. Pulling the fiber from the street to each building added $4,000 to $22,000 per site. But Slone says the alternative – using Sonet-based services – was cost-prohibitive. He says his team underestimated the effort required to get the staff up to speed on Sonet and recommends starting training early on.

PAYOFF: Eliminating its original Centrex PBX service has saved the city $50,000 to $100,000 per year. Because Roanoke owns the infrastructure, it can reallocate bandwidth as needed. "We made the transition to better manage bandwidth," says Slone. Roanoke just completed its GIS project, and departments can now access map images without choking the network. "It's a major data-burner, so now we're ready," says Slone.

COMMENTS: "Reliability is a key issue with us. I wanted to build in some degree of security and redundancy without having to break [voice and data] apart," says Slone. "This [technology] gave us the opportunity."

Flexibility Clinches Metro Ethernet Decision

CASE STUDY

Calpine Corp., San Jose
Sean Curry, communications engineering manager

WHAT IT IS: Energy wholesaler and trader

IT GOAL: Create a fast, reliable and rapidly scalable network to connect 1,500 employees across four downtown Houston offices. The network must support voice-over-IP traffic for interoffice call routing, and multicast video for training and presentations.

STRATEGY: Calpine installed 100M bit/sec. metro Ethernet service from San Francisco-based Yipes Enterprise Services Inc., ran two fiber pairs to different switches at each location for redundancy, and backed up service with 1.5M bit/sec. interbuilding Asynchronous Transfer Mode links from AT&T. Curry used routers instead of Ethernet switches to block any potential unwanted traffic. "I was skeptical about other people's data running over the same backbone," he says.

CHALLENGES: Curry initially contacted Sprint Corp., which responded with an inadequate 1.44M bit/sec. T1 service offering. He also considered AT&T Corp.'s Sonet-based Local Network Services but was turned off by long installation and upgrade lead times. Curry also had concerns about native metro Ethernet services. "We were iffy on the reliability. We were positive that Sonet was going to run," he says.

PAYOFF: The system cost about the same as other service offerings, but Curry was able to increase bandwidth from 100M to 200M bit/sec. in 30 minutes. "The big advantage I see is the responsiveness of the vendor and the speed at which they can alter the network to meet my needs," he says. He cites another benefit: "[Metro Ethernet] allows my staff to focus on other things than running a Sonet network in downtown Houston."

COMMENTS: Yipes filed for bankruptcy protection last year, so Curry was forced to research alternatives. Yipes has since received additional funding, and service has continued without interruption. Curry says he has one regret: "I might have put in more packet-shaping devices to better control bandwidth so I didn't have to raise it so high."

Wringing Savi From V

Getting a payback from voice-over-IP investments isn't easy, but these users have managed to pull it off.

By Barbara DePompa Reimers

MARC BERLOW

> **"We really wanted our geographically dispersed sales teams to be able to communicate more quickly and easily, enabling us to provide faster, more flexible service."**
>
> KEVIN LOPEZ, NATIONAL MANAGER OF TELECOMMUNICATIONS, GRANT THORNTON INC.

ACHIEVING A SPEEDY return on investment from voice-over-IP (VOIP) technology has proved difficult, in part because upfront costs can be high and traditional long-distance phone charges have dropped in recent years.

It's also easy to forget to include some of the behind-the-scenes expenses involved in VOIP when calculating its ROI. That's because so many companies have underestimated the complexity of running voice applications on corporate IP networks. Adding voice requires that all elements of the corporate network be tested — and in some cases replaced or upgraded — for VOIP applications. Companies may even need additional staffing to manage the converged traffic on IP networks.

ROI

Nevertheless, users and analysts say that a return can be achieved — though it may require more careful planning, and the payback may take longer than first expected. Most analysts have pushed out the time it takes to gain a return on VOIP to an average of 19 months, compared with earlier estimates of less than a year.

Chicago-based Grant Thornton Inc., a global accounting and auditing firm, has set up a converged network in the U.S. featuring centralized management, five-digit dialing for calls between offices and employees, hub-based voice mail and unified messaging. With 51 offices and 2,800 employees nationwide, "we really wanted our geographically dispersed sales teams to be able to communicate more quickly and easily, enabling us to provide faster, more flexible service," says Kevin Lopez, national manager of telecommunications at Grant Thornton.

The new network has been in place since last spring. Grant Thornton has cut communication costs by routing voice traffic over its wide-area network and eliminating toll charges. It has also reduced network management requirements and consolidated 28 stand-alone systems into four hubs — all without replacing its existing private branch exchange (PBX) and digital phones.

The payoff? Grant Thornton has saved $800,000 in its first year on intracompany long-distance toll charges and $160,000 on equipment lease payments, Lopez says.

The company had already imple-

ngs OIP

mented a wide-area data network based on frame-relay circuits and routers from Cisco Systems Inc., along with an Avaya Inc. PBX and 28 Octel Corp. voice messaging systems. The firm added Avaya Cajun routers for VOIP when it consolidated the systems into four primary hubs, to handle voice and data traffic. And to guarantee the quality of service, a permanent virtual voice circuit was provisioned for each office location.

Grant Thornton selected Avaya to provide VOIP functions because the supplier was best able to leverage its existing PBX and digital phone investments, and because of an aggressive leasing plan that lowered the firm's monthly costs, Lopez says.

For Grant Thornton, the savings in administration and monthly recurring costs were too great to ignore. Now, says Lopez, the company is looking to enhance the network so it's more robust and to improve visibility into the network by using specialized systems management tools. "And in the next year, we hope to boost bandwidth for audio- and videoconferencing, which will further reduce our costs," he says.

According to analysts and corporate customers, the key to achieving an ROI on VOIP is to plan carefully. Businesses should conduct an IT audit of their network infrastructures, including current data and voice traffic patterns. If users skip this step and don't know their current costs, they won't know whether the VOIP migration has saved them money.

Stephen Leaden, president of Leaden Associates Inc., a telecommunications consultancy in Washingtonville, N.Y., says users seeking an ROI from VOIP should start with the WAN, where you can "expect 20% savings from Day 1." That's because VOIP capabilities are more mature in WAN products than they are in localized customer premises equipment and PBXs, he says.

A recent report by Gartner Inc. says that IP PBXs typically lack several of the richer features offered on circuit-switched PBXs. If IP PBXs offer 90% of the features available on traditional PBXs, that will equal 100% user dissatisfaction, as well as trouble tickets that the IT help desk can't fix, according to Gartner.

Leaden advises VOIP users to distinguish between their WAN and local PBX implementations. "These are separate, independent projects that need never merge. It's best to go with mature WAN-based VOIP implementations first, to gain a slow, steady, yet clear return," he says.

ROI Strategies

Analysts say the best way to increase the ROI of voice/data networks is to layer on various benefit-producing applications, including fax, audioconferencing and videoconferencing.

For an even faster ROI, use VOIP as the wide-area transport mechanism between multiple internal locations, because that reduces T1 costs and doesn't require the addition of specialized digital phones.

Cutting T1 costs was the key at Rye, N.Y.-based catalog retailer Lillian Vernon Corp., for example. In late 2001, Lillian Vernon replaced an aging automated call distribution (ACD) system with a VOIP-enabled multimedia contact center, reducing the number of T1 lines used from six to two.

That move saved the company $100,000 during 2001's peak holiday sales season, says Ellis Admire, director of MIS operations. "By converting voice calls from analog to digital signals, we can carry up to 72 calls on a single T1 line, vs. the previous high of 24 simultaneous analog voice calls," Admire says.

The eQueue multimedia contact center from eOn Communications Corp. in Atlanta lets customer service representatives handle e-mail and Web contacts with the same ease as a phone call. Admire says eOn's VOIP-enabled ACD system was chosen because it uses open, Linux-based technology that is up to date and reliable. "[EOn] was able to show us customer examples, while others, such as Aspect and Rockwell, weren't," he says.

Besides monthly savings in T1 leasing fees, Admire says the added skills-based routing features, along with the ability to converge voice and data over T1 lines, make VOIP-enabled ACDs worth a close examination. (Skills-based routing is used to route calls to customer representatives with specific skills, such as the ability to speak Spanish or offer specialized support.)

H.B. Fuller Co. in St. Paul, Minn., expects a payback on its new VOIP deployment in about a year, says Kevin Wetzel, manager of global network services at the manufacturer of adhesives, sealants, coatings and paints.

VOIP technology finally proved reliable and sturdy enough for use this past summer, Wetzel says. The reliability comes from the addition of centralized processing, which reduces the overhead of having multiple local processing locations and provides remote-site recoverability. So if a WAN circuit fails, the calls can still be completed.

H.B. Fuller uses VOIP at 30 sites globally, incorporating about 3,500 digital phones. Most of the sites are in the U.S., with the remainder scattered throughout Europe, South America and the Asia-Pacific Rim, in places where the cost savings were almost immediate, Wetzel says. The network uses Cisco's CallManager and other related call center and unified-messaging products.

The savings vary dramatically — from 20% to 80% — depending on the application and the age of the analog phone systems replaced. But Wetzel says the average savings delivered by switching from traditional analog phone services to VOIP has been about 50%.

By the end of this year, H.B. Fuller hopes to expand the VOIP network to 41 locations in 30 countries. That will mean more toll-bypass savings — where international regulations permit — and will reduce travel and long-distance bills when employees use the internal audioconferencing capability.

Over the next four years, Wetzel estimates that H.B. Fuller will save about $2 million because of its VOIP investment, thus proving that it's possible to achieve an ROI with this challenging technology. ▶

VOIP PORTALS

For more information on voice-over-IP technology, visit the following Web sites:

- www.tmcnet.com/it
- www.itecn.com
- www.pulver.com
- www.voipwatch.com
- www.protocols.com/voip.htm

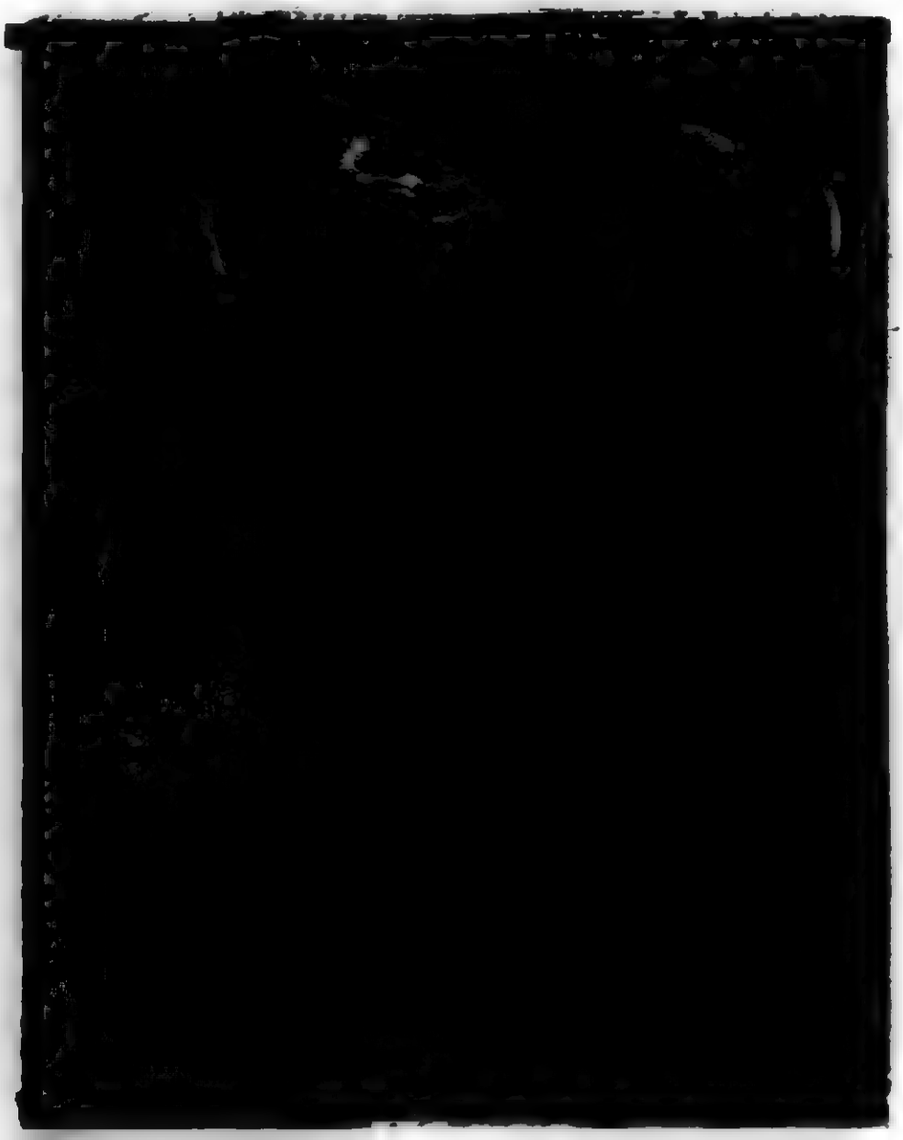
DePompa is a freelance writer and editor in Germantown, Md. Contact her at bdepompa@aol.com.

VOIP Best Practices

Here are some tips from customers and analysts for a gentler migration to voice-over-IP technology:

- **Conduct an audit of existing technology.** Include hardware vintage; cabling infrastructure, from the desktop to the closet to the backbone; the network architecture; redundancy, uninterruptible power and security requirements; and policy management for multiple types of traffic.
- **Recognize that voice trumps data.** Because voice quality must be high to persuade users to accept VOIP, data networking professionals must learn to accept that voice traffic must be prioritized over data on corporate networks – a difficult cultural leap for some.
- **Determine bandwidth requirements, and don't be greedy about compressing voice calls.** Some suppliers hype 3-to-1 compression, but be satisfied with 2-to-1 or 2.5-to-1 in order to keep service quality high.
- **Understand global government toll-bypass regulations.** It may not be legal to offer five-digit dialing for international calls to and from certain countries.
- **Increase network visibility.** Use centralized, consolidated network management tools to manage performance.
- **Stick with a single VOIP provider.** That will help to avoid finger-pointing among vendors when performance problems erupt. Plus, integrating IP telephony products from multiple vendors is difficult, users say.
- **Keep it open.** Choose equipment that's interoperable, and support an open architecture environment. But beware: Some vendors claim that their products are open and interoperable when in fact they're not. So challenge them and get customer references upfront.

– *Barbara DePompa Reimers*



RICHARD BORGE

Internet EDI Grows Up

Using the new AS2 protocol, Web-based EDI saves thousands of dollars, but you have to become your own VAN. By Robert L. Scheier

WHEN A COMPANY as big as Wal-Mart talks, everybody listens.

When the retailer announced in September that it would do electronic data interchange (EDI) with suppliers over the Web instead of using value-added networks (VAN), it was a signal that EDI over the Web is ready for heavy-duty corporate use after years of development.

Driven by the prospect of saving thousands of dollars a month, more and more trading partners are sending EDI messages over the Internet — the closest thing in networking to a free lunch — rather than over third-party network services, according to vendors and analysts.

Although such a move can pay for itself in as little as two months, it requires customers to do some of the work the VAN used to do, such as making sure the proper person is notified if a purchase order or invoice doesn't get through. However, if customers can cost-effectively become their own VANs and choose the right Web EDI tools, the savings can be compelling.

Wal-Mart Stores Inc., which declined to comment for this story, is using Commerce Suite software from iSoft Corp. in Dallas to do EDI over the Internet. It's something iSoft CEO Christian Putnam says "some of Wal-Mart's largest trading partners have been doing" for almost a year.

Jewelry and eyeglasses distributor AAi.Foster-Grant Inc. in Smithfield, R.I., has so far moved only four of its 30 customers to EDI over the Web, but its VAN bills have already dropped 8% to 10% per month, says IT director Martin Temple. And office furniture manufacturer Haworth Inc. expects to save $3,000 per month by moving EDI traffic at headquar-

ters from a VAN to the Web, says Steve Wilkins, a manager of application support and development at the Holland, Mich.-based company.

Of course, it has been possible to do EDI transactions over the Web for years. But it often meant installing software from the same vendor at both ends of the transaction, something that's hard to do for thousands of trading partners, many of which are small businesses. But over the past year, two things have greatly boosted acceptance of EDI over the Web, says Pete Abell, director of retail research at AMR Research Inc. in Boston.

One is the widespread adoption of AS2, the Electronic Data Interchange Internet Integration Applicability Statement 2 protocol. AS2 provides certificate-based encryption for security and data compression for better performance.

The second is interoperability testing of AS2 products. The testing is sponsored by Lawrenceville, N.J.-based Uniform Code Council Inc. and performed by Fort Worth, Texas-based Drummond Group Inc.

So far, more than a dozen vendors have made the Drummond cut, including bTrade Inc., iSoft, Cyclone Commerce Inc. and Sterling Commerce Inc. This means a large supplier can buy a single Web EDI package and be sure it will work with all of its customers, rather than having to buy different software for use with the various VANs its major customers use.

AS2 also eliminates the need to install proprietary software at supplier sites, because suppliers can conduct EDI either through a Web browser or by using AS2-compliant client software, often provided free or at a nominal cost by a supplier's customer or a software vendor.

With AS2, managing the certificates that encrypt and decrypt EDI documents "is not real difficult," because TDPeer from bTrade provides a "structured library" to track and manage the keys used by trading partners, says Eileen Newell, a systems analyst at AAi.FosterGrant.

Newell says she's not too worried about security, especially after seeing an EDI document a trading partner had encrypted using the wrong key. The message was totally unrecognizable — just as it would be to a hacker who used the wrong key.

Addressing Concerns

Not everyone is so confident. John Semenek, manager of strategic technology at Levy Home Entertainment LLC, is used to doing EDI transactions with customers using the earlier AS1 protocol, in which security is managed by the Simple Mail Transfer Protocol and EDI transactions flow to a specific mailbox on his system. When the Hillside, Ill., book distributor moves to AS2, as required by Wal-Mart, he'll need to open his internal systems to HTTP traffic coming directly from his customers.

"Obviously, I'm going to try to lock that down as tightly as I can," by allowing inbound traffic only from specific IP addresses, he says.

"But it becomes very dangerous if they change IP addresses or have a range of IP addresses," Semenek says, which would require him to constantly reconfigure his firewall to maintain security.

One early concern — that the Web is slower and less reliable than VANs — doesn't seem to be a big issue for IT shops. Customers say they've seen dramatic performance increases by moving trading partners from dial-up connections to high-bandwidth Web connections. The data compression provided by AS2 doesn't hurt, and neither do capabilities such as load balancing and queuing, which are offered by vendors such as iSoft.

Another service typically provided by VANs is nonrepudiation, that is, proving a customer sent a transaction in case of a dispute. Nonrepudiation is handled by the AS2 protocol and isn't much of a problem in the business-to-business world, says Putnam, since suppliers typically "don't argue with their major customers" over such issues.

One job that can take extra time, though, is configuring firewalls to make sure that only the right traffic gets through. Tasks such as this are why it takes longer to bring a new trading partner into the EDI loop, Newell says.

When Newell used a VAN, bringing up a new business partner on EDI took only about eight hours. But doing the same thing for one new customer on the Internet, along with testing EDI Web links for two other customers, "has been my full-time job" for the past two months, she says.

PASSING THE TEST

Drummond Group Inc. provides a list of products that have passed its AS1 and AS2 interoperability tests at:

- www.drummondgroup.com/html-v2/products-as1.html
- www.drummondgroup.com/html-v2/products-as2.html

Time Eater

Other problems can arise when steps that improve security cause data formatting problems, says Kerri Apple, vice president of development and operations at bTrade in Irving, Texas. One example: Putting a Windows-based AS2 server outside the corporate firewall will help keep the internal network secure, but then you'll have to translate that data into a form that can be read by an AS/400 behind the firewall.

According to Newell, monitoring EDI transactions to make sure that the proper transactions went through over the Internet takes an extra half-hour per day on top of the hour she already spends monitoring transactions done over a VAN.

Vendors build alerts into their software that trigger when a trading partner fails to send a "message-disposition notification" to the sender, says Apple, but the sender must still have someone who knows "what to do in the event of these failures."

Semenek is also concerned that he'll lose control over when he receives and must respond to EDI transmissions from his trading partners. "If they just start banging out transactions whenever they choose and as often as they choose, they might expect an immediate response," he says, which could interfere with other scheduled systems work, such as backup or maintenance.

But Frank Kenney, an analyst at Gartner Inc., says most companies are turning to EDI over the Web to cut costs, not to process transactions more quickly. Even if it's not a free lunch, it's plenty appetizing for many former VAN customers.

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

Web EDI: Tools and Services

Technology that lets you become your own VAN is available from a variety of vendors as software, services or a combination of the two. Available software tools include the following:

- Bizness Transact Tools from **IPNet Solutions Inc.** in Newport Beach, Calif.
- Interchange from **Cyclone Commerce Inc.** in Scottsdale, Ariz.
- Commerce Suite software from **iSoft Corp.**
- TDNgine, TDPeer, TDAccess and TDBrowser software from **bTrade Inc.**

Meanwhile, integration vendor **webMethods Inc.** in Fairfax, Va., offers AS2 support as an option in its Integration Platform, as does **Tibco Software Inc.** in Palo Alto, Calif., with its Business Connect AS2 Transport product. Lexington, Ky.-based **Owens Direct LLC** offers Web-based EDI as a service to small and midsize suppliers doing business with large customers. Owens Direct claims that it can EDI-enable such customers in as little as one day and for as little as $25 per month – in addition to the cost of their existing Internet connections.

Slam Dunk Networks Inc. in Redwood City, Calif., offers AS2 connectivity as a service that includes redundant hardware, round-the-clock support and adapters to bridge various protocols such as FTP, the SWIFT financial services industry protocol and the ISO 8583 protocol used in credit card transactions.

"There is no recognized leader" among the vendors, says Gartner analyst Frank Kenney, because "every company is going to approach integration and B2B differently."

Some of the VANs themselves are moving into the AS2 space, he says, including **Sterling Commerce Inc.** in Dublin, Ohio, with its Integrator and Information Broker, and **GE Global Exchange Services Inc.** in Gaithersburg, Md., with its Enterprise System.

To avoid overbuying, Kenney advises customers to decide which of the VAN-like services they need before choosing a vendor. In some cases, he says, the Web EDI technology can be bought as an add-on to infrastructure software the customer already owns.

– Robert L. Scheier

Orchestrating The Network

What you need to do to land a job and keep your skills fresh as a network manager.

By Sharon J. Watson

IF A CORPORATE NETWORK were an orchestra, network administrators would be the section leaders, ensuring that their links in the network were ready to play their parts. The network manager would be the concertmaster, responsible for tuning the entire orchestra so it could deliver whatever the conductor — the CIO — required of it.

CAREERS

But in today's pared-down IT departments, some network managers find themselves managing basic administration tasks as well as taking responsibility for overall network operations, project implementation and long-term infrastructure planning. "It's almost double duty," says Nat Dodge, chief operating officer at Directfit, an IT recruiting firm in Irvine, Calif. "Network managers should be prepared to wear a lot of hats."

Bob Dulski, director of information services for the Brookfield Zoo in Brookfield, Ill., was recently in the market for just such a person. "[We were] looking for someone with a lot of breadth," says Dulski. The previous network manager left to manage Active Directory at a corporation. At the zoo, the network manager is required to oversee many different systems and users, says Dulski.

A job opening like the Brookfield Zoo's is a rarity these days. "There's not a lot of hiring going on," says Dodge. And when a company does have a job opening, he says, employers try to hire workers who are overqualified for the available positions. That may work if there's a growth path, says Dodge, but the risk is that the employee won't stay with the company or won't be happy and productive in a mission-critical position.

"We've had people turn down such jobs even when they've been out of work 12 months," Dodge says. His recommendation to job seekers: Look for contract work, because it will be the first area to pick up when the economy improves.

Skills

Understanding network and Internet protocols like TCP/IP and HTTP is a basic requirement for network managers. Wireless, security, voice over IP and other convergence skills continue to gain importance. Employers also look for expertise in technologies relevant to their specific network implementations, such as Windows XP, Active Directory, Exchange and Cisco routers. Communication and client management skills are especially important for network managers, who often have to work with both IT staffs and end users. Project management skills can help network managers map and manage user expectations, says the CIO at a large Midwestern motorcycle manufacturer who asked not to be identified.

Training

Most employers require a bachelor's degree in computer science, and many prefer a master's degree. Hiring companies look for Microsoft and Cisco network certifications but also want hard evidence of a job candidate's hands-on experience. Most require five to 10 years of experience and expect network managers to keep up with the latest technologies, often through vendor training programs.

Salary

According to *Computerworld*'s 2002 Salary Survey, total compensation for network managers ranged from about $61,000 in the health care industry to $94,000 in computer services and consulting. The average total compensation for network managers surveyed was $70,864.

NEW SIGNALS AHEAD

Find out why the Microsoft and Cisco certifications are now mere prerequisites in the networking game:

QuickLink 35226
www.computerworld.com

Employer Spotlight

Name: BOB DULSKI
Title: Director of information services
Employer: Brookfield Zoo in Brookfield, Ill., a 200-acre facility that serves 2 million-plus visitors annually and is open 365 days a year.
Number of IT professionals: Six
Recently filled IT position: Network manager

Most network managers worry about keeping their human users content. At the Brookfield Zoo, the IT network serves not only 500 full-time workers and approximately 1,000 seasonal employees, but also endangered animals ranging from golden lion tamarins to Humboldt penguins to western lowland gorillas.

"Our animals need care every day," says Dulski, noting that the zoo's network includes animal-life safety and environment-monitoring devices, as well as systems used by the zoo's geneticists and conservationists, retail and food outlets, zoo visitors and administrative departments. "We get to work on a lot of interesting projects," Dulski says.

The new network manager at the zoo reports to Dulski. Basic prerequisites for the position included a master's degree in computer science, Microsoft NT and Cisco network certifications, proficiency in configuring and troubleshooting Cisco switches and at least two years' experience at a similar-size operation.

In addition, the network manager recommends bandwidth, storage and security measures. He also must manage a mix of older and cutting-edge network technologies. Potential projects include designing the network to encompass more wireless devices to be used by visitors or the zoo's scientists. The manager also must juggle the various needs of the Brookfield Zoo's wide range of end users.

Dulski says managing the network of an always-open institution with demanding clients can be stressful. Work hours can be long and irregular. Furthermore, while the zoo offers good benefits, as a nonprofit it can't offer the highest salaries. Pay for this position is in the range from the high $60ks to low $70ks.

Still, competition was stiff: A single online ad for the position brought in 500 résumés in just a few days. Salary requests also were more in line with skills than they have been in the past, Dulski says.

One hard-to-value reward the position offers is far more variety than a typical network manager might find in a corporate setting, Dulski points out. "You won't be doing the same thing twice," he says.

Sharon J. Watson is a freelance writer in Chicago. Contact her at sjwatson@interaccess.com.

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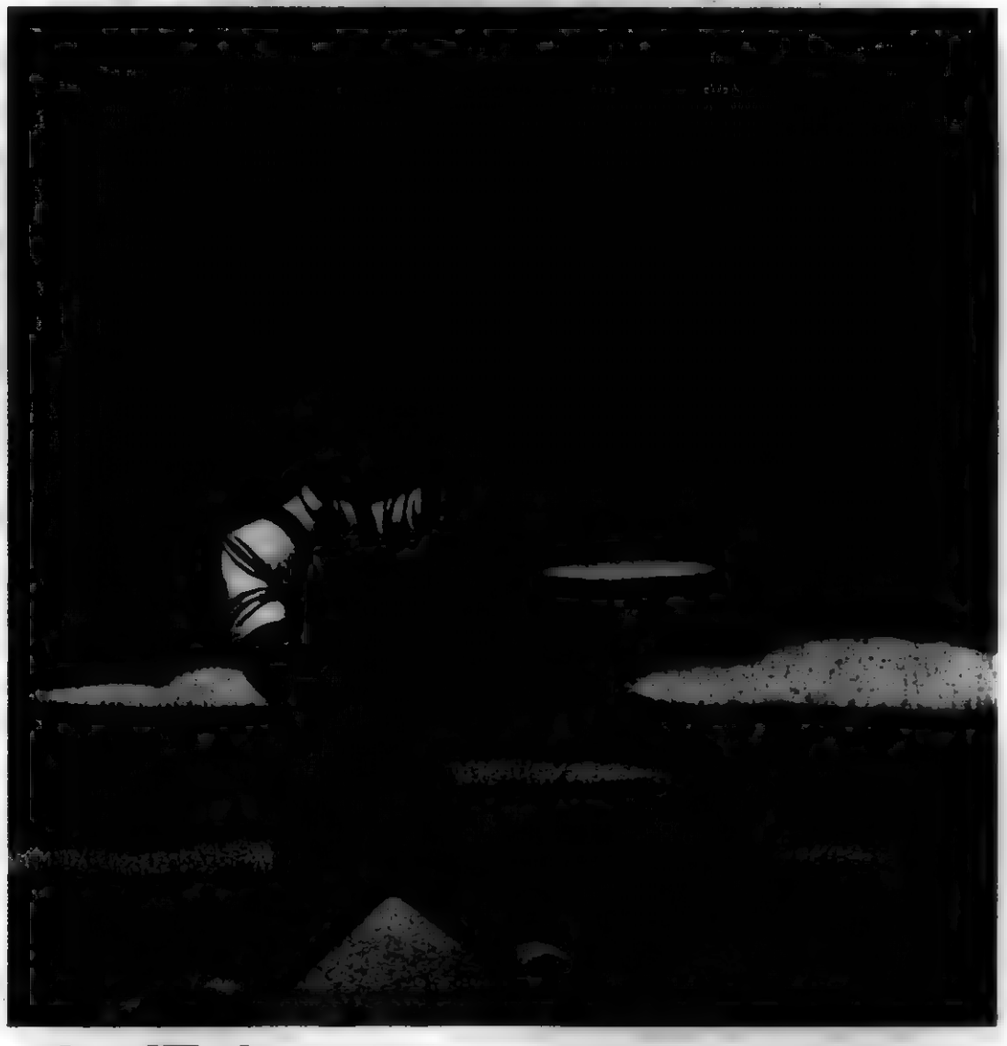

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The Next Chapter

Predictions: AT&T will be acquired by a Baby Bell, and only a few megacarriers will survive the telecom depression.

■ CLOUDS AHEAD
Private wide-area networks are dead; long live the public cloud. With the advent of inexpensive, secure, easy-to-manage public connections that reach the entire range of available IT devices, businesses will run, not walk, to put their WANs over the public cloud.
■ *Sheldon Laude, chairman, CenterBeam Inc., Santa Clara, Calif.*

■ ONLY A FEW SURVIVE
After the dust settles in three to five years, I see three to four megacarriers surviving in each local market in the U.S. These megacarriers will offer progressive pricing based on packet usage, flat rates or simplified bundles. They'll each offer long distance, local service, cable, broadband Internet access and wireless in each market, as well as new enhanced services.
■ *Mike Scheele, managing partner, Telecom Asset Management Group, San Francisco*

■ DATA INTEGRATION NETWORKS
Ubiquitous gigabit bandwidth within buildings and campuses will make "logically distributed databases" feasible in the next two to three years for early adopters. At gigabit speeds, networks start to look like disk I/O channels. This means that much finer-grained data operations can occur over loosely coupled data components instead of a huge central database. This is a very powerful way of looking at the enterprise data integration problem. But it will generate a lot of traffic on the network, so get ready.
■ *Alden Hart, chief technology officer, The Adrenaline Group, Arlington, Va.*

■ UNIFIED MESSAGING WINS
By 2005, voice mail will cease to be a business and will be 100% replaced by unified messaging. The voice mail installed base will be completely replaced by 2010.
■ *Mark C. Straton, senior vice president, Siemens Enterprise Networks, Reston, Va.*

■ GIGABIT ETHERNET PREVAILS
The LAN has adopted Gigabit Ethernet, the MAN is following suit, and the WAN will experience the Gigabit Ethernet revolution over the next two years. Why? Large enterprises are now facing the ultimate IT challenge: to deliver anything business line managers require over the existing network. With the help of technologies like Dense Wavelength Division Multiplexing, WAN managers will embrace Gigabit Ethernet for the high bandwidth, efficient provisioning, scalability and ease of use.
■ *Robert W. Norton, founder and vice president, Select Inc., Westwood, Mass.*

■ THE BIG YEAR: 2005
Corporate IT spending will start to grow by the end of 2003, followed by increased telecom spending toward the end of 2004. I think 2005 will be a big year for networking: Carriers will offer Ethernet data services over copper, wireless service providers will offer 802.11 data services on a wide scale, and video-on-demand over IP services will be available.
■ *Ray Kao, CEO and CTO, Polaris Networks Inc., San Jose*

■ PRIVATE LINES, R.I.P.
Virtual private networks will become the dominant means for interconnecting corporate networks. Increasingly, we'll see VPNs overtake traditional approaches such as private lines.
■ *Hossein Eslambolchi, CTO, AT&T Corp.*

■ SECURITY ABSORPTION
By the year 2005, intrusion-detection systems, packet filtering, and firewall and VPN appliances will be almost completely absorbed into devices such as switches, routers and wireless access points. This is driven by the fact that the devices are becoming more intelligent, as well as a critical need to make security services reach all points of connection in an enterprise network.
■ *John Roese, CTO, Enterasys Networks Inc., Rochester, N.H.*

■ AT&T ACQUIRED
In 2003, AT&T will be acquired by one of the Baby Bells — most likely BellSouth, but SBC Communications will still be in the running. WorldCom will sell off its frame-relay and telephone businesses and focus on IP, recognizing that its only sustainable assets are its customers and the UUnet backbone.
■ *Mark Tuomenoksa, chairman and founder, OpenReach Inc., Woburn, Mass.*

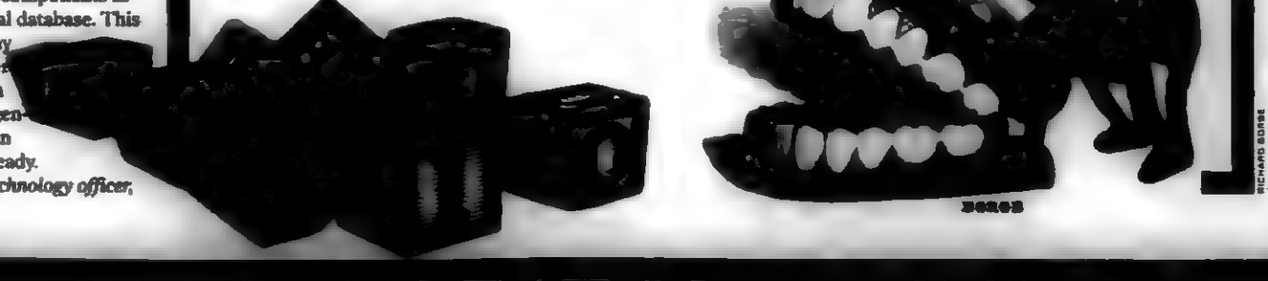
■ SMART REDUNDANCY
Because of the turbulence in the telecom market, prudent businesses will take advantage of plummeting prices for data lines and always have redundant lines from two vendors, both for reliability purposes and for protection if a carrier goes bankrupt. Turns out it's a cheaper way to pay for business continuity. Remember what happened when several DSL vendors closed their doors and left their customers high and dry. So move to public nets, but use both suspenders and a belt!
■ *Sheldon Laude, CenterBeam*

■ FIREWALLS 2.0
Firewalls as they are now employed will become irrelevant by 2006 [QuickLink 34749]. Because of the increasing adoption and rollout of Web applications, which flow over Port 80, today's firewalls will become increasingly ineffective unless they evolve to inspect at the content layer. Next-generation firewall-like security must be able to inspect, filter and deny access at the application content level, not just the network layer.
■ *Erik Giesa, director of product management, F5 Networks Inc., Seattle*

IP Devours All

The Internet Protocol is like Pac-Man, and it will eat everything within the next 10 years.
- Hossein Eslambolchi, CTO, AT&T

Frame relay will become obsolete and be replaced by IP within 10 years. Already, 50% of companies are now planning to move to IP. As with most trends, large companies will make the transition first, followed by midmarket and small businesses.
The transition will occur because all of the applications in the computing world use IP. Today we have to convert that protocol into frames, and we don't have the flexibility to give frames different priorities. IP offers the flexibility of establishing different priorities based on the application or the user.
- Andrew Borgstrom, CEO, T-Systems North America, Lisle, Ill.



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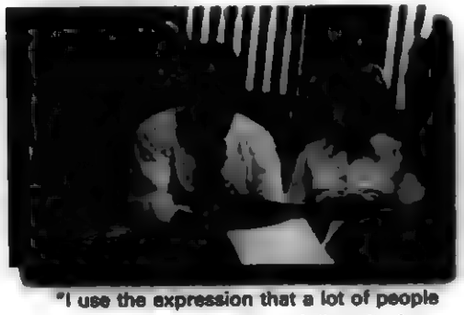
IT CAREERS: PANEL ADDRESSES DIVERSITY ANEW

When Robert Knowling, chairman of SimDesk Technologies, reviews information about diversity and the IT industry, he has two reactions. The first is a sense of overwhelming as he scans the reams of data and studies compiled over the past 10 to 15 years. The second is a sense of urgency.



"I use the expression that a lot of people have been enjoying the issue of diversity for a long time," he says.

"I've seen a lot of assessment and generic, rather benign recommendations. What I have not seen are profound ideas that can be embraced by the business community and help us eradicate the problem."

Knowling and a group of his peers plan to develop those profound recommendations as members of a Blue Ribbon Panel on Diversity convened by the Information Technology Association of America. Knowling and his fellow panelists have reviewed data and studies. Panel members began work last fall, meeting in December to begin articulating an action plan. One fact that stood out: 11 percent of those enrolled in IT-related university studies are African-Americans. However, only 3 percent of them land jobs in the industry. Knowling is asking for parallel data on other minorities and women, but believes it will be comparable.

A final plan will be ready in time for ITAA's Workforce Convocation in May. Already, the plan hints of something different – including a look at the issue of workforce development and diversity in the same manner that a business would a product or business life cycle, from grade school introduction through diverse representation on high tech companies' boards of directors.

"Diversity in the high tech and IT industries has long been a problem," says Knowling. "The challenge has been made more difficult with the downsizing of the high tech sector. At the end of the day, we plan to present an action plan that will increase the number of diverse candidates going forward. If in two years we haven't changed the profile, then we haven't succeeded."

Others represented on the Blue Ribbon Panel on Diversity are ITAA, Catalyst, Computing Research Association, The Benton Foundation, ITT Educational Services Inc., PricewaterhouseCoopers LLP, OpNet Community Ventures Inc., Plugged In, AOL/Time Warner, Education Development Center Inc., U.S. Department of Labor, Columbia University, WorldCom, the National Urban League, Unisys Corporation, Women Work!, University of Iowa, Oracle Corporation, Howard University Television, Northrop Grumman Information Technology, Dice Inc., Career Communications Group Inc., and SRA International.

For more information on the panel's work and the May Convocation, go to www.itaa.org and select Workforce Development.

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Programmers
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Database Admin's

Sunrise Systems Inc., an information management consulting services organization has multiple openings in NY, NJ & PA areas for professionals with exp. in Database Admin/Analysts, Database Dev/Designers, System/Prog Analysts, Software/Computer Eng., Unix/Network/NT Admin in the areas of Oracle, Unix, C/ C++, Windows NT, Java, Web Development, SAP plus other related systems. We offer competitive salaries based on experience.

Please send resume to:
Sunrise Systems Inc.
PO Box 4647
Metuchen, NJ 08840

ALGORITHM DEVELOPMENT ENG – Designs and develops pattern recognition algorithms for medical applications. Master's degree in Elec./Computer Eng. Will pay prevailing wage. Send resume to Ziling Huo, Beckman Coulter, Inc. 11800 SW 147th Ave., Miami, FL 33196 or fax to (305)-380-3647.

DEVELOPMENT ENGINEER

Responsible for automated generation of 3D geometry from EDA electronic layouts. Unstructured grid generation for MEMS, Microfluidics and Micromechanic devices. Distributed computation with CORBA and programming in Python, Fortran, C++

Requirements:
PhD or MS in EE plus technical software development experience.

40.0 hrs/wk. 8:30 –5:30

Send resume to:
CFDRC
Kathy Short, HR Manager
ATTN: DEV ENG CW
215 Wynn Drive
Huntsville, AL 35805

Software Engineer/Project Manager (Systems)/Systems or Programmer Analyst: National IT contractor with clients throughout US seeks project oriented IT consulting w/the following skills:

System Integration/migration/ financial interfacing/data warehousing using GUI/AGL/RDBMS

Enterprise Resource Planning (ERP), SAP-Financial, business and logistic applications

Financial Applications-Unix/ Sybase/SQL/Java

Send resume to Caron Katz, Sr. Recruiting Director, Genesis 10 Corp., 950 3rd Avenue, 20th Floor, NY, NY 10022

Seeking qualified applicants for the following positions in Memphis, TN: Senior Technical Analyst (Decision Support/Systems), Research, evaluate, implement and coordinate changes to large, complex computer systems/applications. Requirements: Bachelor's degree or equivalent in computer science, math, engineering or related field plus 5 years of progressive experience in systems/applications development, including programming. Experience with one or more of the following required: Natural, Adstara, airline scheduling systems, airline training systems, Java, J2EE APIs: J2EE, Java Swing, Oracle database, Sybase database, Visual C++. Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Stki George, FedEx Corporate Services, 1999 Summit Tower Blvd., Suite 1499, Orlando, FL 32810 EOE M/F/D/V

For over 20 years, **Syntel** employees across North America, Europe, and Asia have helped build advanced information technology systems for leading Fortune 500 companies and government organizations to improve their efficiency and competitiveness. Today, Syntel professionals are building rewarding careers by providing solutions in e-business, CRM, Web Design and Data Warehousing.

Come discover why Forbes magazine placed Syntel second on its list of "The 200 Best Small Companies in America" and Business Week ranked us #11 on its list of Hot Growth Companies.

Due to our rapid growth, we have immediate, full-time opportunities for both entry-level and experienced Software Engineers, Consultants, Programmers, Programmer/Analysts, Project Leaders, Project Managers, Supervisors, Database Administrators, Computer Personnel Managers and Computer Operations/Account Managers/Account Executives with any of the following skills:

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- IMS DB/DC or DB2, MVS/ESA, COBOL, CICS
- Focus, IDMS or SAS

DBA

- ORACLE or SYBASE
- DB2

Client-Server/WEB

- Siebel
- Websphere
- Com/DCom
- Web Architects
- Datawarehousing
- Informix, C or UNIX
- Oracle Developer or Designer 2000
- JAVA, HTML, Active X
- Web Commerce
- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
- WinNT
- Sybase, Access or SQL server
- PeopleSoft
- Visual Basic
- PowerBuilder
- IEF

Account Executives, Account Managers and Business Development

Positions available.

Some positions require a Bachelor's degree, others a Master's degree. We also accept the equivalent of the degree in education and experience.

With Syntel (NASDAQ: SYNT), you'll enjoy excellent compensation, full benefits, employee stock purchase plan and more. Please forward your resume and salary requirements to: **Syntel, Inc., Attn: Recruiting Manager-LD01, 525 E. Big Beaver, Suite 300, Troy, MI 48083. Phone: 248-619-2800; Fax: 248-619-2980.** Equal Opportunity Employer.

SYNTEL
www.syntelinc.com

Positions are available for a Vice President, Products and Professional Services and a Consulting Manager in Atlanta with an e-business technology company. The company provides solutions that enable corporations and software providers to leverage emerging technologies to more effectively compete in the global market.

The Vice President has worldwide responsibility for professional services and product management of the Company's entire suite of products. Specific responsibilities include profit, loss, planning, and budgeting for professional services organizations with a quarterly quota of several million dollars.

The Consulting Manager is responsible for technical architecture and design, management and implementation of multiple global client projects, relationships, and initiatives, including developing strategic relationships at Fortune 2000 companies.

Candidates for the Vice President's position should possess a Master's degree in a Computer field and at least five years' experience managing development staff and/or consultants, including two years' experience in project management and development of AS/400 (COBOL, RPG) systems and mainframe (COBOL, PL/I, IMS, or DB2) systems; implementing large-scale web-based systems (HTML, or Java); and development of programmatic interface to legacy systems.

Candidates for the Consulting Manager's position should possess a Bachelor's degree in Computer Science or a related field and at least three years' experience in IT solution design including design of infrastructure, data communication, software and databases; two years' experience in technical training, third generation programming including C, C++, and Assembler languages; and two years' experience in project planning and management of technical solutions for middleware projects.
Apply by mail with resume to:
Lisa Wannamaker
Jacada Inc.
400 Perimeter Center Terrace
Suite 195
Atlanta, Georgia 30346

Technical Recruiter and Resource Specialist who will review, screen, recruit and place specialized technical IT consultants. Will interview applicants to match skill, knowledge and experience with client requirements. Will conduct reference and background checks. Will negotiate client and candidate contracts and ensure compliance with company and legal standards. Will create and maintain databases of client and applicant information. Will generate database reports for strategic planning and client development. Applicant must have at least four years work experience as a Technical Recruiter and Resource Specialist. Applicant must have a Bachelors degree in Business Administration or Human Resources. Applicant must have knowledge of IT systems, networks and languages, including Siebel, CRM, Actuate, E-Business, PeopleSoft, SAP and data warehousing. Applicant must have working knowledge of US immigration laws. Work involves extensive travel. $44,500/year, 40 hours/week, 9:00am-5:00pm. Send resume, listing Job Order Number WEB 295700 to Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324.

Senior Developer Greenwich, CT. Collaborate with firm's software engineers, quantitative analysts and traders to build equity trading infrastructure to support company's investment management activities. Deploy systems on Solaris systems and conduct real-time implementations in C++ on UNIX platform, utilizing knowledge of messaging middleware systems, TCP/IP, market data feeds, Sybase, high frequency financial trading systems, European electronic exchanges, front office functionality, GUI programming and order routing systems. Responsible for researching, designing and testing operating systems level software, setting operational specifications, and formulating and analyzing software requirements. Bachelor's degree or foreign degree equivalent in Computer Science, Software Engineering or Engineering plus 5 yrs exp in the job offered or 7 yrs. exp in related position of Software Engineer or Software Developer. Related occupation must include experience with high frequency financial trading systems and European electronic exchanges. Fax resume to: Jose L. Marquez, Telic Management LLC at (203)861-4841.

Senior Application Technical Specialist. Design and implement video and audio processing modules, digital signal processing algorithms and portable software for Sun/Solaris and Intel/Linux. Utilize XML, CORBA, Sybase, C++ and Java to implement data processing software. Perform object-oriented design and documentation using UML and Rational Rose. Utilize C++ and Java to implement image processing algorithms and image format conversion software. Implement solutions using JPEG, MPEG and AVI formats. Create release software using Solaris and Linux package management utilities. Lead design and code reviews. Responsible for system design and coding in UNIX. Provide production support. Must have Bachelor's degree in Computer Science, Engineering or equivalent, 2 yrs exp., and knowledge of Sun/Solaris, Intel/Linux, CORBA and XML, JPEG, MPEG and AVI formats, and analog and digital TV signals. Must have knowledge of UNIX interfaces including memory map, shared memory, Posix threads and driver APIs. Must have knowledge of C++, Perl, and Unix shell scripting. Send resume with cover letter to Nielsen Media Research, Attn: P Lyons, 375 Patricia Ave., Dunedin, FL 34698.

Sr Systems Engineer/Project Manager, Keene NH. Lead a team responsible for software eng'g, systems development & arch., maintenance & customization for legacy insurance system, using COBOL, Assembler, CICS, mainframe & client server technologies. Manage client projects on-site. Perform project development, resource management, application design & development, QA & debugging. Req's: BS in CompSci or IT + 5 yrs exp in job offered or in systems development & software eng'g for mainframe legacy systems in insurance or banking industry, using COBOL, Assembler & CICS, with at least 3 years as team lead or project manager, & knowledge of JCL & Mainframe suite of tools. Will accept 2 years additional relevant exp in place of any missing yr towards required 4 yr BS. 40 hrs/wk, $70/hr, no benefits. Send two (2) resumes/letter of application to Job Order #2003-077, PO Box 989, Concord NH 03302-0989.

SYNAPSE GROUP, INC., a leading computerized magazine marketing company, is looking to hire qualified candidates for the following positions:

PROGRAMMER ANALYST to plan, develop, test, document and update computer programs to increase operating efficiency; to enter program codes into computer systems, to evaluate user requirements, and to monitor performance and provide technical assistance to program users. At minimum, a Bachelors degree in Computer Science or it's equivalent required. Sound knowledge in internet applications, HTML, SQL, ASP and ORACLE preferred.

BUSINESS DEVELOPMENT ASSOCIATE to research potential markets, analyze statistical data to forecast future marketing trends, initiate and produce timely and accurate reports/analysis to improve business results, and to develop and maintain sales and account management reporting systems. At minimum, a Bachelors degree in Business, Finance or related discipline required. Strong PC skills and good financial/accounting background preferred.

The company offers a competitive compensation/benefit package and an environment where achievements are recognized & professional growth is encouraged. Qualified applicants are encouraged to mail resumes to: HR Department, Synapse Group, Inc., Four High Ridge Park, Stamford, CT 06905

SAP Information Systems Consultant

Initiate, plan & investigate ways to improve business operations using SAP platform & other advanced software systems. Develop plans & criteria for variety of projects related to finance & business functions. Analyze internal user requirements, procedures & problems to improve existing computerized information systems. Design/develop SAP queries for use in general ledger, daily balances & profit/loss report functions. Assess feasibility & soundness of proposed approaches & techniques. Configure new segments to fit customized needs. Provide technical leadership & training to wide range of staff. Must be willing to travel to project sites throughout US on short or long assignments. Must have BS in Comp Sc, Engineering, Business, Accounting or related field + 3 yrs exp in job offered or SAP Systems Analyst. 8am-5pm, M-F. Overtime as needed. $87,022/Yr. Reply to Job Order #WEB 293342, Manager, Beaver County Team PA CareerLink, 2103 Ninth Ave, Beaver Falls, PA 15010-3957.

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IT careers.com

Programmer/Analyst sought by NC based manufacturer and delivery company. Must possess Bachelor's degree or equivalent in engineering or directly related field and 2 years exp. in Software/systems development/design/analysis including C++, Java. Respond to: Human Resources Department, MacLeod Construction Inc., 4333 Racing Drive, Denver, North Caroline 28037.

Oracle Applications Practice Manager required. Applicants must have at least 3 years experience managing all aspects of a national Oracle practice. A bachelor's degree in Business Administration or similar is required. Ovation Group offers competitive compensation and benefits to all its employees. Please send resume to J. Rodriguez, Ovation Group LLC. 8200 NW 41 Street, Suite 325, Miami, Florida 33166 Fax: (786) 866-2731

NetWorks Communications dba Eon Business has an opening in our Centennial, CO office for a E-Commerce Developer to design and develop e-Commerce software applications. Successful candidates will have a bachelor's in computer science or related field (including computer engineering) and at least three years experience in the design and development of software applications using VB, ASP, COM and Net technologies. Candidates must also have working knowledge of data warehousing, data mining and on-line analytical processing in a SQL Server 2000 environment. Interested candidates should send resumes to Nico Brooks, Eon Business, 7430 East Caley Ave., #200, Centennial, CO 80111.

Systems Administrators needed at client sites for e-commerce telecom systms & s/ware dvlpmt using CONNECT:Direct, BEA Message Queue, SRM, Tivoli DM, & Axent, etc. Send resume to: Global Consultants, 601 Jefferson Rd, Parsippany, NJ 07054

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development in a mainframe environment. Experience with Cobol, IMS DB/DC and Xpeditor also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Software Engineer: R/D & develop computer telephony software systems using knowledge of C, C++, UNIX, MGCP, SIP, H323, MEGACO. Mail resume to Mass Soft Services, Inc., 500 Clark Road, Tewksbury MA 01876

Industrial Engineering (College Station, TX): Designs computer simulation models to solve industrial engineering problems using ARENA and Witness. 1 yr. related exp. Contact: Mr. Benjamin of Knowledge Based Systems, Inc. at 1408 University Drive East, College Station, TX 77840; 409-260-5274(T); 409-260-1965(F).

Customer Service Representative with computer support experience. Send resume to Adamant Computers, Att: Victor, 4572 Renaissance Pkwy., Warrensville Hts:, OH 44128. Please reference job code CSR.

Sr DBA lead teams to perform Oracle database admin on Sun Solaris, UNIX, Linux, Windows NT; design/develop client server appls using Oracle, PL/SQL, Dev 2000, Crystal Reports; perform data migration; design/review logical/physical data model using ERWin, setup & maintain OLAP databases on Oracle & SQL Server using replication tech; propose/implement methodologies/ best practices. Require M.S or foreign equiv in CS or Buss Admin with 2 yrs exp in IT. High salary. F/T. Travel reqd. Resumes to HR, ChannelWave Software, Inc., One Kendall Square, Suite 200 Cambridge, MA 02139

Talent is the fuel of the new economy.

SYSTEMS ANALYST (2 positions) - Analyze, design, code, test, and deploy computer software programs & databases. Req'd: BS in Electrical Eng., CS, or Math; 2 yrs. exp. in job/software development job; exp. w/ Oracle, XML, & PL/SQL; extensive exp. w/ database design and development. Send resumes to Forest Laboratories; 500 Commack Rd., Commack, NY 11725. Reference #12.

Sr. Network Administrator - Responsibilities incl but not limited to Install & administer Windows & Unix based TCP LAN & WAN. Use VPN solutions across Internet. Implmt security components. Optimize traffic using Cisco Works, MS Baseline Security Analyzer, Kiwi Syslog, & Network Analyzer. Use Observer sniffers & MRTG to monitor network. Configure Cisco PIX firewall & routers. Edu & exp req'd. Send resume to Utility Automation Integrators Inc. Human Resource Dept., 307 Wynn Drive NW, Huntsville, AL 35805. EOE

Manager, Software Development sought by NJ based Securities Dealer for position in Chicago, IL office. Must possess Bachelor's degree or equivalent in Computer Science or directly related field and 5 years exp. in software/systems development and design including C/C++, JAVA, PL/SQL. Respond to: Human Resources Department: KFP02-095; Knight Financial Products, 130 Cheshire Lane, Suite 102, Minnetonka, MN 55035.

Database Computer Consultant needed by a Computer Service & Integrator company in Lincolnwood, IL. Must have at least a Bachelor's Degree in Computer Science with 6 months experience in the job offered or positions in database consulting/development/management. Reply to President, Compuelectronics, 6512 North Lincoln Ave., Lincolnwood, IL 60645.

Programmers, Jr. Programmers, Software Engineers & DBAs: Design, develop, test and implement specialized software apps. in (a) Oracle Financials and Manufacturing 11i and related tools, Enwn. Cognos Suite, Business Objects, and MF Cobol (b) SQL DBA, Unix Admin., VB, Sybase, Cobol, C, Cold Fusion and related technologies. (c) J2EE and related technologies, Rational ClearCase, CORBA, MQSeries and related tools, (d) BDF, JPROBE, Test Factory, Requisite Pro, CORBA, Patrol, DB, LDAP Server, and Silk Pilot; (e) EAZYTRIEVE+, Xpedio Server, SQL Backtrack, PatrolDB, NetIQ, Infopac, Netview and Gauntlet Firewall; (f) PeopleSoft HRMS (HR, Payroll and Benefits Administration) Application Engine, SQR, Cobol, DB2, CICS, nVision, Crystal Reports and related tools, (g) Java and related tools, CORBA, Sybase, Swing and Rational Tools (h) Oracle Database Admin in Oracle 11i, Oracle Enterprise Manager, Solaris AIX, VB, C++, SQL*Plus and related tools, (i) Cold Fusion and related tools, ASP, XML, DHTML, Crystal Reports, Java VB, DCOM, MS SQL and Oracle 8i, (j) Oracle Financials and PeopleSoft, Tuxedo, Developer/Designer 2000 and related tools, (k) Hyperion Essbase Apps. and related tools, (l) Oracle, Peoplesoft, ASP, Java and related tools, SQA Robot, Mercury Test Director and Silk; (m) Clarify and related technologies, (n) JDK, ASP, CORBA, Oracle, SQL Server Linux, VB and HTML (o) SAS and related packages, Java, Business objects and Oracle. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to HR, SSG, 2005 Concord Pike, Suite 209, Wilmington, DE 19803, identifying interested position(s). No Phone calls please.

TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals.

Sr. Software Engineers: BS in CS, or equivalent with more than 5 years of recent programming experience or MS in CS with more than 3 years of such experience. Duties entail programming, gathering user requirements and customization of software in either of: a) Database Systems which involves database design, data modeling working in both front end as well as backend applications on Unix and Windows platforms. Or in b) systems side programming in Unix, C, C++ which involves product development, working on telecom protocols or development of device drivers.
Both positions require knowledge of allied Internet technologies like Java, JSP, XML, J2EE and ASP.
Unix Systems administrators: BS in Computer Sciences or equivalent with atleast five years of experience in an enterprise environment. (i.e. more than 500 users) Duties include extensive use of Network implementation and Administration, System Integration, Backup and recoveries, shell scripting and System Securities. Experience in Management of Enterprise Network Storage devices (SAN or NAS), HP and Solaris Servers, switches, HUBs and in Veritas NetBackup systems.

TechNation provides onsite consulting services to clients across the United States and hence a key requirement for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Madhukar Gangadi, 300 N. Dakota Ave. Suite #208, Sioux Falls, SD 57104 or email to madhukar@tnsconc.com. Fax 605-338-7507

Boehringer Ingelheim Pharmaceuticals, Inc. has an immediate opening in its Ridgefield, Connecticut facility for the position of Principle Systems Engineer.

Provide leadership and expertise in support of all application development efforts for purchasing; analyze, design, develop, maintain and support Ariba Purchasing system and Ariba Buyer eProcurement application and make technical and functional configuration changes and customizations.

Must possess a Master's degree or its equivalent in Computer Science, Computer Engineering or a related field and relevant experience with e-procurement applications, Ariba Buyer (ORMS, 7.0.4/7.0.6), TIBCO, AML, AQL and XML and customizing/creating Aribe-SAP, Aribe-CSV and Aribe-Oracle interfaces for successful implementation of Custom E-forms.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC1602 or it will be rejected.

Forward resume to: BI Staffing Center, PO Box 534, Waltham, MA 02454. Fax number: (781) 663-2431. Email: BIPI@BI-careers.com

Systems Analyst (Information). Design/develop web-based apps.to integrate locally & globally the fin. & acct. systems. Developing E-Commerce apps. w/use of Microsoft & JAVA tech. Req: MS in Info.Sys.or Comp. Sci. 40hr/wk. Job/Interview Site: Sun Valley, CA. Send resume to Exotic Granite & Marble,Inc., 8924 Lankershim Blvd., Sunvalley, CA91352.

Sr. Programming Analyst (multiple positions). Design customized techn appl programs. Install & config program prod. Determine tech infrastructure & comm. Req. Test appl. Analyze, design & develop app. Interfaces using IBM AS400, RPGLE, CL400 & Java/400. Req. BS in Comp. Sci., Comp Eng. Or Elect. Eng. And 5 yrs exp as Programmer. 40 hr/wk. Job/interview site: Irvine, CA. Send resume to SVI Solutions, 5607 Palmer Way, Carlsbad, CA 92008.

V.P. Of Marketing for fiber optics telecommunications component manufacturer located in Woburn, Massachusetts. Requires MBA and minimum 2 years experience directing the marketing activities of an optical telecom company including researching and identifying new technical requirements and specifications for products, communicating strategic and tactical product requirements to engineering, working with engineering to develop new product specifications, researching potential target markets for products, developing pricing strategies to maximize market share, and directing and administering company marketing program. The position is located in Woburn, Massachusetts with 50% domestic/international travel. Send resume to Marshall Parker, Polychromix, 10 State Street, Woburn, Massachusetts 01801.

Simulation Analyst. Develop workforce staffing models for Request For Proposal support in new business development. Design and develop call center simulation models using ARENA, SIMAN, and CallSIM software to replicate client network. Database analyses of call center metrics to improve decision-making process. Must have Bachelor's degree in Engineering, Mathematics, Statistics or equivalent, one year experience, and knowledge of ARENA v 5.0 or higher, CallSIM and SIMAN in Windows environment, C++ programming, VB 5.0 or higher; and TCS/MEX/Blue Pumpkin. Send resume with cover letter to Cindy Cortesy, APAC Customer Services Inc., 6 Parkway North Center, Deerfield, IL 60015. EEO/AA
APAC CUSTOMER SERVICES, INC is not affiliated with APAC Inc., the road paving and construction materials company.

Director of IT (Network Sys. Mgr.). Atlanta, GA. Lead IT teams in U.S. & Romania for datacenter admin. & mgmt. Respon. for network & system mgmt./design/implem./coord. of data betw U.S. & Romania. Respon. for datacenter infrastructure mgmt., incl. dvlpg & implem. maintenance procedures & security policies & deploying web & DB svcs. Respon for maintaining communications betw. U.S. & Romanian offices & maintaining secure connection for transmittal of proprietary info betw. offices in the 2 countries. Liason w/ Romanian offices for datacenter issues. Maintain customer relationships. Req: Bach. degree (or for equiv.) in CS, Telecomm, or Electronics, 5 yrs exp. as Network Engr. or Network Sys. Engr.; exp. as follows (may be concurrent): 5 yrs. exp. in network & sys design/implem./admin., working knowl. of Windows NT/2000/XP, Linux workstation & server OS, Cisco Routers config. & maintenance, PBX admin & maintenance, Apache Web Server, Microsoft IIS, DNS BIND, MS Active Directory, SQL 7.0/2000 & Informix, and MCP and CCNA certifications. Proficiency in Romanian. Resume to: Ms. Denise Glenn, NWS LLC, 1000 Circle 75 Pkwy., Ste. 300, Atlanta, GA 30339.

Next Generation Professionals seeks applicants for position as Software Engineer in Denver CO to engage in Oracle database programming. Requirements for position must have a bachelor's in Computer Science, Engineering Science or related field (including Botany) and at least 3 yrs exp in Oracle database programming. Requirements also include a working knowledge of Unix (Shell Programming), Developer 2000, ERWin, C, SQL (Tuning and Optimizing), PL/SQL and Oracle Enterprise Manager. Respond by resume to Next Generation Professionals, 10 Valencia, Irvine, CA 92619.

SENIOR APPLICATION DEVELOPER to design, develop, analyze, implement and maintain web-based software applications using VB.net, JavaScript, ASP, ASP.net, COM/DCOM, HTML, C++, SQL and MS SQL Server, integrate Microsoft web-enabled products with front-end systems and back-end systems. Require M.S. in Computer Science/Information Systems. Competitive salary and benefits. Apply with resume to: Vice President, McKing Consulting Corp., 2900 Chamblee Tucker Road, Building 11, Atlanta, GA 30341 (Job# GL601).

Associate Director of Records and Technology. Develop & maintain existing complex data sys. such as degree & audit student records sys. oversee integral implementation of Advisement Reports; design and implement queries to meet internal and external reporting needs; provide training for staff trainers. Must have BS in info. sys. or equiv. & 5 yrs exp. in sys. analysis and application development. Respond to: Luz Agosto, HR Dept. DePaul University, 1 E. Jackson, Chicago, IL 60604.

Sanmlo is a Chicago based IT company looking for computer professionals and engineers. Candidates must have degree with some IT experience, must have US work permit. We offer competitive wage with full benefits. Please apply at san@sanmlo.com. EOE

Minnoflack has openings for system/programmer analysts or software/project engineers. We are small but relatively stable. Applicants must have BS plus experience in IT field. Skills in Java, JDBC, HTML preferred. Please send resumes to hrd@minneflach.com. EOE

NETWORK SYSTEMS ADMINISTRATOR

Quincy Public Schools is seeking a Network Systems Administrator to maintain network services, hardware systems and software applications for a 500+ computer network system in an educational environment. Must have a BS in computer science or a related field and at least one year of experience using: Network Configuration, Visual Basic, Visual C, Database Maintenance and Administration, Unix and Windows 2000/NT. Interested applicants should send resume to: hps172w@qps.org EOE

Systems Analyst – Analyze client's system requirements & specification analysis, software development, implement & integration testing, conduct system installation & maintenance, work w/ MS SQL 7.0, ASP, Cold fusion, Crystal report. Bachelors in Computer Science or Mathematics & 2 yrs exp. in job offered. 40 hrs per wk, 9AM-5PM. Fax Resume to Accelerated Ecom, Inc. Attn: Martha Lange (954) 370-9127.

The Fujitsu Group has the following opportunities available within its U.S.operations -

IT Infrastructure Consultant (multiple openings) with Fujitsu Transaction Solutions Inc. (Dallas, TX): Provide consultancy on deployment of Peregrine products. Analyze business & IT problems & produce systems solutions. Identify systems, software & staffing requirements for customer projects. Requires IT infrastructure consulting exp. with Peregrine Infrastructure Management Suite (ServiceCenter/AssetCenter), IT assessment & rqmts definition & design/development of client solutions.

Sr. Development Engineer with Product Technologies Inc. (telecommute, report to PTI office in Fairfax, VA): Implement software/systems solutions for clients in Utilities sector; lead development of core GIS product & Java client/server applications. Develop Solaris & Linux plotting systems & customize code to support PCL, HPGL & TIFF-based plotters. Requires exp. with C/C++, Java/Java2, Javascript, JDBC, XML; writing support scripts in Perl, Bourne, Python, Bash & tcsh shell; Sybase & Postgres RDMBS in client/server GIS environment.

Please forward your resume with salary requirements to humanresources@fbs.fujitsu.com

Computer Technical Consultant: Analysis, design, development (coding), testing & implementation of eCommerce & eBusiness solution. Develop software code using language & tool e.g. Siebel, C, C++, Corba, Java. Interface w/client. Require travel throughout U.S. Send resume to Envisage Solutions Inc., 18101 Von Karman Ave., Suite 1480, Irvine, CA 92612.

Computer

As a $180 million industry leader, we are able to provide our people with the kind of work environment, opportunities, benefits, growth potential and progressive training others can't match. We are looking for IT professionals with a minimum of 1+ years experience for the following job titles:

- PROGRAMMER/ANALYST
- SYSTEMS ANALYST
- SYSTEMS PROGRAMMER
- DATABASE ADMINISTRATOR
- DATABASE ANALYST
- LAN ADMINISTRATOR
- SOFTWARE ENGINEER
- WEB DEVELOPER / ARCHITECT
- DATA WAREHOUSING ARCHITECT
- IT PROJECT MANAGER
- BUSINESS ANALYST
- SAP FUNCTIONAL AND TECHNICAL EXPERTS
- HIGH LEVEL SOLUTIONS SALES EXECUTIVES
- QA/TESTER
- TECHNICAL RECRUITER

Our skill sets include:
- CLIENT/SERVER
- ERP - SAP, ORACLE, PEOPLESOFT
- INTERNET
- E-COMMERCE
- MAINFRAME
- MID-RANGE, AS/400
- CRM - SIEBEL
- DATA MODELING

Contact the Corporate Headquarters for positions available in the following areas: Arizona, Colorado, Connecticut, Florida, Georgia, Illinois, Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Southern California, Texas, Virginia/DC.

For consideration please reference Job Code: RIRCW13 and send your resume to: RCG Information Technology; Attn: National Recruiting, 379 Thornall Street, Edison, NJ 08837; FAX: (732) 744-3583 or email to: recruit@rcgit.com. We are an Equal Opportunity Employer. M/F/D/V.

www.rcgit.com

RCG Information Technology

Principal Software Engineer: Design, develop and administer two-tier Oracle client/server applications and databases and Web development to address a single business function, process or service using Oracle Design, develop, test and implement GUI based applications using Visual Basic and Oracle developer. Develop backend access using ODBC with database such as MS SQL server, MS Access, Javascript, PL/SQL, HTML and Crystal Reports. Requires: Bachelor of Science in Comp. Sci., Eng. or related field. Must have 2 yrs experience in Software Development, including knowledge of Oracle 7.x. 40hrs/wk (9:00 a.m. to 5:00 p.m.); $86,000.00/yr. Send two resumes/responses to: Case Number 200114988, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114

Programmer Analysts/Software Engineer needed. Seeking qual. candidates possessing relevant work exp. 3 years of the req. rel. exp. must include working with Natural Construct. Duties include: Prepare program specifications & Design, develop, and implement software applications. Mail res. and sal. Req. to Bernhardt Furniture, 1839 Morganton Blvd., Lenoir, NC 28645. ATTN: HR

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HP Demos Grid Computing App

But business use far from a reality

BY JAIKUMAR VIJAYAN

HEWLETT-PACKARD Co. last week demonstrated new software that potentially could let corporate users take advantage of grid computing to run business applications. But a lot more pieces need to fall into place before that becomes a reality, HP and analysts said.

Grid computing technology is designed to let users harness the computing power of numerous systems. For example, grids made up of thousands of linked computers are being used to run large engineering and scientific applications, mainly by universities.

HP's demonstration at the GlobusWorld grid computing conference in San Diego is a step toward delivering the same capabilities in a commercial application environment, said Sharad Singhal, a principal engineer at the company's HP Labs research unit.

HP showed how users could link its Utility Data Center software to a grid computing environment, enabling data center resources to be used by grid users and vice versa. Singhal said HP hopes to eventually be able to support gridlike networks on which business users looking to increase the computing power available to them will be able to tap into a vast pool of shared resources.

As part of the demonstration, HP also showed a tool that uses drag-and-drop techniques to let users define and advertise their resource requirements in such a network.

But increased security requirements and the complexity of adapting commercial applications to take advantage of the grid computing model means it will be quite some time before the approach is used in business environments, Singhal said. "These things will begin to take shape in the next year to a year and a half," he said. "But how quickly they become a commercial reality is anybody's guess."

Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H., said the much higher I/O and application performance requirements of commercial data processing environments will also limit grid computing's appeal to business users.

"We need to stop talking as though the traditional database application is going to be distributed over a grid," Eunice said. Instead, he said, he expects to see companies adopt the technology to power large analysis applications involving corporate data.

Continued from page 1

IBM iSeries

prise Edition pricing model, companies will be charged flat fees, varying by model, that let them use the full capacity of their machines for running 5250 terminal sessions.

The approach replaces a complex and very unpopular pricing scheme under which IBM charged iSeries users an "interactive workload" fee for running 5250 applications. The multitiered pricing structure ensured that users paid progressively higher fees with almost every increase of their interactive workloads.

Ian Jarman, an IBM product manager, said Enterprise Edition pricing could improve price/performance on the iSeries line by up to 80% in some cases. That's because the new pricing allows users to use the full capacity of the system for running interactive applications, without paying anything extra for it, as they would have otherwise.

Some iSeries users welcomed the change.

"It's about time they did this," said Brendan Carlton, a DeSoto, Kan.-based spokesman for Huhtamaki, a maker of packaging materials with headquarters in Espoo, Finland. "It concerned me a lot that they were charging me additional dollars for running an interactive workload."

For example, when Huhtamaki upgraded from a smaller iSeries system to the high-end i890 last year, the company had to fork over an additional $500,000 for its 5250 requirements alone, Carlton said.

"It was almost like a tax that penalized customers for running green-screen applications," said Michael Crump, a project leader at Saint-Gobain Containers, a maker of glass bottles and jars located in Muncie, Ind. Like many iSeries users, Saint-Gobain runs a mix of newer software, such as IBM's WebSphere and Lotus products, on its systems. But it also continues to rely heavily on 5250 applications, Crump said.

Additional Models

With the new pricing model, iSeries users are more likely to upgrade their systems and expand their use of 5250-based applications to more end users, said Thomas Bittman, an analyst at Gartner Inc. "We have long considered part of the iSeries installed base to be a cash cow, because IBM was charging so differently for interactive use vs. noninteractive use," he said.

Along with the pricing changes, IBM will announce four new iSeries models, including a pair of systems that are based on its Power4 processor and will join the i890 at the high end of the server line.

The i870 and i825 come with a capacity-upgrade-on-demand feature that lets users switch on additional processors when they need them and turn them off when they are no longer required. For example, a company could turn on an extra processor in an i825 and pay a fee of $1,100 for each day it's used, Jarman said. They could also buy the additional processor outright for about $50,000, he added.

The temporary upgrade capability would let users quickly access additional CPU capacity without having to shut down a system or reconfigure it, Carlton said. He noted that Huhtamaki had to take its iSeries systems off-line for nearly 20 hours the last time it did a capacity upgrade.

Zollar's Big Challenge: Finding New iSeries Users

Al Zollar, the newly appointed general manager of IBM's iSeries business unit, is taking charge at a time when the long-standing technology franchise is at something of a crossroads.

Although iSeries systems still enjoy immense popularity among existing users, analysts said IBM has been unable to make much headway in attracting new users or application workloads to the platform.

IBM estimates that there are more than 400,000 systems installed worldwide, most dating to the line's AS/400 days. In 1997, roughly 20% of AS/400 revenue came from new business, according to Thomas Bittman, a Gartner analyst. Last year, that number was in the 2% to 3% range, he said.

Zollar, who previously ran IBM's Lotus Software Group unit, said in an interview that much of the drop-off in iSeries sales to new buyers has resulted from the increased popularity of Windows servers. Going forward, IBM plans to launch a much more vigorous marketing campaign in a bid to boost the profile of the iSeries line within its installed base and with users of other systems, he said.

For instance, IBM will spend an additional $20 million over the next two years to help resellers market the machines, Zollar said. Starting next quarter, it will also host more than 200 customer events worldwide to talk up the potential benefits of iSeries systems.

On the technology front, IBM will continue to build on the ease-of-management and software-integration features that have been hallmarks of the iSeries line, Zollar said. IBM's move to bundle a wide range of its middleware products with the new high-end iSeries models being announced this week is an example, he noted.

"The iSeries has been known to deliver simplicity, ease of use and tight integration," he said. "But in the past, [the systems] have been based on proprietary technologies. The future is about the same message on an open infrastructure."

– Jaikumar Vijayan

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Keep Windows Shut

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So that's what Microsoft did — isn't it? True, governments that sign up for the new program will be allowed to examine the Windows source only under tight restrictions. True, they won't be able to modify the code. (Microsoft says some code changes are possible, but it will do the recompiling.)

But they *will* be able to look at the source code. And that's what they want from open-source software, right?

Of course not. Most big IT customers — including governments — considering Linux want to cut their software acquisition costs. They don't want to actually look at source code. That would *raise* software costs, because it would mean some employee was collecting a paycheck for the time spent looking at the code.

No, if you're using Linux, the people you want looking at the source code are the legions of volunteer open-source beta testers who work for attaboys or good karma or social status among the propeller-head elite. Those people aren't burning a hole in an already overtaxed IT budget. At least not *your* budget.

And with so many eyeballs looking for bugs from so many different perspectives, and so many testers whaling away with so many different tools and approaches, you get the benefit of the world's biggest and most effective quality control department — all for free.

But of course, those people won't get anywhere near the Windows source code under this new Microsoft program. Only government employees or contractors will get a peek, and only using specific Microsoft tools. And no changes or experimenting with the code is allowed.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

And with millions upon millions of lines of Windows code, no IT boss in his right mind would seriously consider trying to vet it all.

So, what were the members of Microsoft's brain trust thinking? They probably figured this is as close to open source as they can get. Even if it doesn't offer any value to customers, it looks like a good-faith effort to open up a little.

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Pretty sad, huh? No value for customers and real risk for Microsoft — a losing bargain all around.

So, what lessons can we take away from this debacle? For Microsoft, the lesson probably should be to give up on "open source" as a marketing ploy. Hey, guys, just cut some killer deals with these government customers, then write them off as loss leaders. It may look ugly on the balance sheet, but it's the only way to compete with free when you're trying to preserve a monopolists' market share.

And the lesson for corporate IT? Keep your eye on the benefits, not the buzzwords, in any open-source-ish deal — no matter who it comes from.

Figure out how to do that, and you're way ahead of Microsoft. ▶

Security by Default

After vacation, consultant pilot fish returns to his gig at a big manufacturing company that just implemented tough new security procedures. "I ask the help desk to reactivate my account," fish says. They do. His new password? *Password*. "But I can't change it – the tough new security rules require that a password can't be changed again for five days," fish grumbles. "Boy, are they going to be secure."

SHARK TANK

Needs?

Two and a half years into a failed software-conversion project – the third in a row – pilot fish mentions in passing that starting with a set of requirements might have helped in choosing a vendor. Boss bristles at the idea, telling fish, "We would never find a software package if we held them to our needs!"

No Help at All

This help desk starts using an off-the-shelf package that automatically converts e-mailed requests into trouble tickets. But it has an unexpected, or, "feature" that doesn't show up until one help desk pilot fish sends a request and no ticket is generated: "By default," she reports, "no ticket is ever created if an e-mail has the word help in the subject line!"

Don't Tell Them!

Department head has a problem: an old but crucial paper form, created with a long-gone program and copied so often it's nearly unreadable. In minutes, helpful pilot fish converts the old file to a printable format, and the department head leaves happy. But fish's boss chews him out: "If anyone finds out that we can do this stuff," he roars, "they'll *all* want us to do things for them!"

Critical

It's a "Critical One" service call at this airline – "that's a fault causing flight delays at $1,000 per minute, a complete department affected or a major health and safety issue," says pilot fish who responds. The culprit: "The foldout tag on my keyboard is broken," secretary tells fish. How can that be a Critical One problem? asks stunned fish. "Because if I use it flat, it's at the wrong angle," she says. "I'll get repetitive strain injury, and I'll have to sue the airline."

Priorities

This personnel manager has already trashed two laptops, so support pilot fish isn't surprised that the third one is a total loss, too. Turns out manager stashed a small bottle of orange juice in his laptop case, which he forgot to zip shut. When he grabbed the case to get out of the car, it popped open and PC and OJ flew into the air. "But," he says proudly, "I caught the OJ!"

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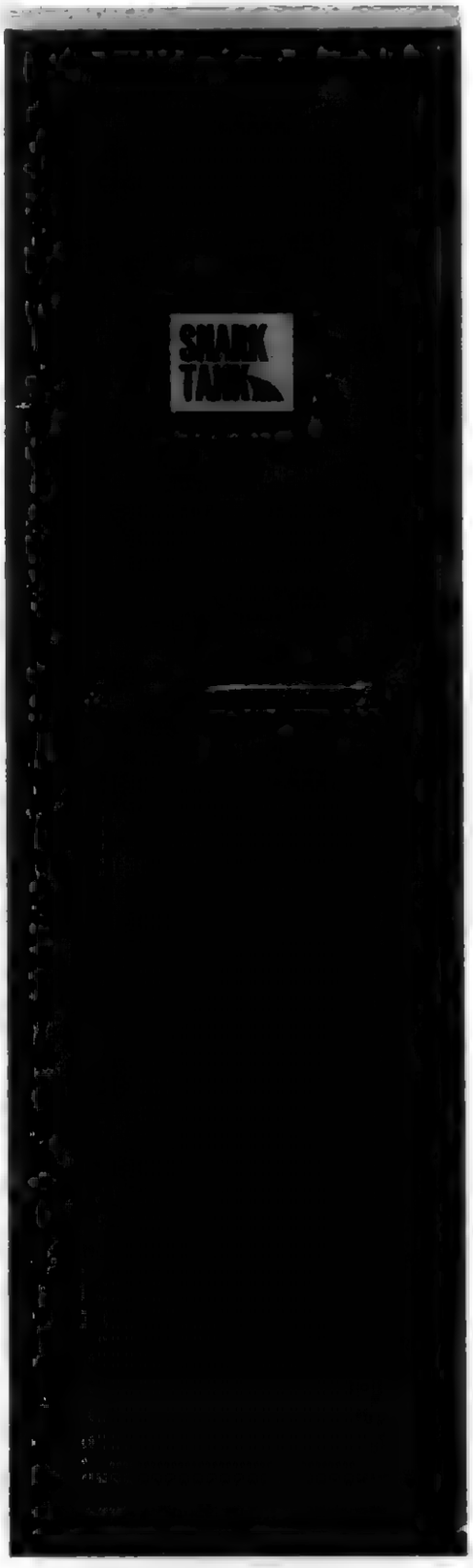

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PKWare gives corporate users security with .Zip.
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Funding Scrutiny May Spread

Ptech isn't unique in having suspected ties to terrorist financiers

BY DAN VERTON

Enterprise software company Ptech Inc. may be only one of many firms that could be investigated for having possible links to terrorist financiers, experts on terrorism and crisis management are warning. And other companies do in fact have histories similar to that of Ptech, *Computerworld* has confirmed.

"It behooves a company to look at investors, their reputations and where they have invested in the past," said Leonard Fuld, founder of Fuld & Co., a Cambridge, Mass.-based competitive intelligence consulting firm. "The onus is still on the companies."

Start-up firms, which tend to be especially anxious to make sales and attract investors, need to do more research into whom they do business with, said Larraine Segil, an expert in strategic

Ptech, page 45

Fujitsu Sets High-End Linux Plans

Unix server vendor embraces Intel chips and open-source OS

BY JAIKUMAR VIJAYAN

Fujitsu Ltd., which in the server market is known primarily for its high-end Unix systems based on Sun Microsystems Inc.'s SPARC architecture, last week said it plans to use Intel Corp.'s processors to develop a new family of enterprise-class Linux machines.

Tokyo-based Fujitsu said it hopes to start shipping dual-processor Linux systems in the second half of next year. The company added that the

Linux line will be topped off by a 128-CPU server based on Intel's 64-bit Itanium 2 processor. That's the largest Intel-based commercial Linux system announced thus far, but it isn't slated to ship until 2005.

Fujitsu's planned move into

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Unilever Dumping Unix For Linux in Global Move

Buy-in from HP, IBM key as company embarks on decade-long systems standardization plan

BY TODD R. WEISS
NEW YORK

After years of running disparate Unix-based systems in its global IT server operations, Unilever is committing its technological future to Linux.

The $52 billion consumer products company plans to switch to Linux on Intel-standard hardware in all 80 countries where it operates. "We believe . . . that it will [meet] all of our computing needs in the eight- to 10-year time frame," said Colin Hope-Murray, CTO of the global infrastructure group at Unilever.

LINUXWORLD

"We want to be able to cookie-cut our systems and deliver them around the world" without having to worry about operating system or hardware compatibility issues, Hope-Murray said. The company currently runs systems with Hewlett-Packard Co.'s Tro64 version of Unix and IBM's AIX, after having already migrated some applications off of HP-UX.

The company, which has dual headquarters in London and Rotterdam, Netherlands, made the announcement here last week at the LinuxWorld Conference & Expo.

Hope-Murray said Unilever will make the migration from Unix to Linux to simplify and standardize its IT architecture as well as to spread the reduced operational costs and increased performance the company has already seen using Linux for Web servers, e-mail servers, proxy servers and firewall applications. So

Unilever, page 14

Viruses GET Smarter

The accelerating pace of new viruses – more than 7,000 last year alone – is just one problem facing security professionals. A new class of emerging viruses and worms is expected to attack multiple vulnerabilities simultaneously, exploit new ones, and try to steal data rather than simply destroy it. **PAGE 21**

DAVID HOLLENBACH

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PKWare gives corporate users security with a Zip.
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Fujitsu's planned move into

Fujitsu, page 14

JUST THE FACTS

Fujitsu's Linux Server Initiative

- The systems will be based on Intel's Xeon and Itanium processors.
- Fujitsu plans to start shipping dual-processor systems in the second half of next year.
- A 128-processor system is due for release in 2005.
- The company has set up a new Linux systems group with about 900 workers.

Unilever Dumping Unix For Linux in Global Move

Buy-in from HP, IBM key as company embarks on decade-long systems standardization plan

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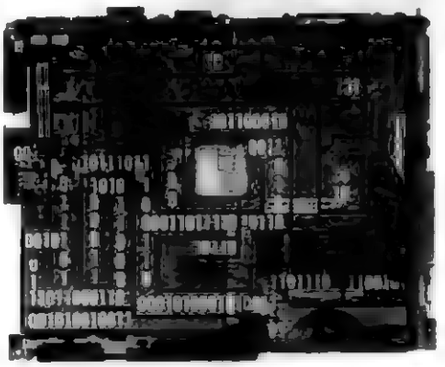

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HTTPS, and FTP, which means you can install and maintain the suite

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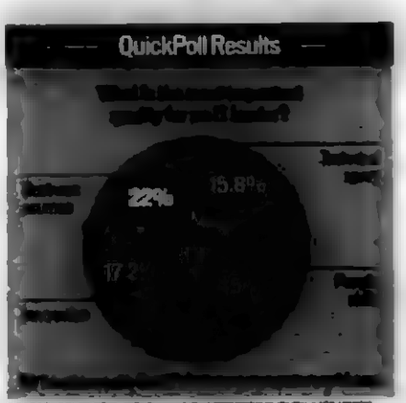

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AT DEADLINE

Gates Provides Security Update . . .

A year after launching his Trustworthy Computing initiative, Bill Gates, Microsoft Corp.'s chairman and chief software architect, said in an e-mail to customers that efforts to better secure Microsoft products are continuing. "While we've accomplished a lot . . . there is still more to do – at Microsoft and across our industry," Gates said. He promoted the use of smart cards and said Microsoft is developing a system for sending security bulletins via e-mail.

. . . As Microsoft Posts Warnings

Prior to the release of Gates' message, Microsoft warned that a security flaw in the Microsoft Locator service included with Windows NT 4.0, 2000 and XP could be used to take control of systems. The company gave the problem a "critical" severity rating and urged users to install a new patch. Microsoft also warned of holes in its Outlook 2002 and Content Management Server 2001 products.

Top IT Executive Quits Merrill Lynch

Merrill Lynch & Co. announced in an internal memo that John McKinley will leave his job as chief technology officer and executive vice president of its Global Technology & Services unit at the end of next month. McKinley plans to take a job in the technology industry, according to the memo. Merrill Lynch said he will be replaced by John Cummings, chief operating officer of the technology and services group.

Short Takes

CISCO SYSTEMS INC. said it's buying Okena Inc., a Waltham, Mass.-based vendor of intrusion-detection software. . . . Worldwide server shipments grew 4.2% last year, according to San Jose-based DATAQUEST INC.

PKWare Adds Encryption To Compression Software

PKZip upgraded for Windows, Unix and IBM systems

BY JAIKUMAR VIJAYAN

PKWARE INC. last week said it's trying to make it safer for users of its PKZip data compression technology to send and receive files over the Internet by adding new encryption capabilities to the software.

The Brown Deer, Wis.-based company said Version 6.0 of PKZip for Windows and Unix users includes a new security module based on the BSAFE encryption technology developed by Bedford, Mass.-based RSA Security Inc.

The module lets users protect documents via password- or certificate-based encryption before they're transmitted, PKWare said. The company added that the Windows release also features new support for IBM's Notes software, which lets users compress and encrypt e-mail attachments.

PKWare also announced releases of its software for IBM's mainframes and iSeries servers that support up to 256-bit symmetric key encryption based on the Advanced Encryption Standard. The iSeries systems were previously known as the AS/400 line.

Securing Critical Data

Features such as the ones announced last week are crucial to corporate users who depend on PKWare's compression products to send or receive important data files, said Gene Knobloch, IS manager at Gilsbar Insurance Services Inc. in Covington, La.

Gilsbar has been using PKZip technology for several years to compress and send medical insurance claims data from its AS/400s to systems at its clients in the health care industry and to insurance companies and clearinghouses.

With an April 1 deadline looming for complying with the federal Health Insurance Portability and Accountability Act, Knobloch said Gilsbar plans to use PKWare's new software to compress and encrypt all records containing patient health information, as required by the law.

The new encryption functionality has been very easy to implement, he added. But Knobloch said many of the clients and insurers that Gilsbar deals with have standardized on encryption technologies developed by Palo Alto, Calif.-based PGP Corp. Because of that, it has been a challenge to get some of them to accept encrypted PKZip files from Gilsbar. "But we are taking that on one client at a time," Knobloch said.

PKZip and similar compression technologies have primarily been used at the client level in the past. But now, "there is significant interest in compression and encryption at the server level for batch file transfers," said David Thompson, an analyst at Meta Group Inc. in Stamford, Conn.

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WorldCom, Sprint Take Transitional Steps to IP

Services designed to let customers migrate in stages

BY MATT HAMBLEN

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Both companies realize that users who have tightened up their IT budgets because of the sluggish economy are unlikely to disconnect their frame-relay or Asynchronous Transfer Mode networks and move completely over to IP-based services at this time, said Max Smetannikov, an analyst at Current Analysis Inc. in Sterling, Va.

"WorldCom and Sprint are both developing in-between IP products for intermediate steps by customers," Smetannikov said. "Both are adapting to a new economic environment with incremental spending and slow migration."

Corporate spending on voice services is down, and investments in data services are generally flat, said Steve Harris, an analyst at IDC in Framingham, Mass. However, IP-based VPNs are one of the few bright spots for network operators, he said.

"Companies are clamoring for IP VPNs, and half of U.S. companies have one in place," Harris said. IP VPNs can help IT managers increase network security, simplify administration and lower costs compared with more traditional network alternatives, he noted.

Still, carriers such as WorldCom and Sprint make up a relatively small part of the IP VPN market. Harris said network-based services comprise about 10% of the market, with current annual spending at nearly $700 million. By comparison, $8.4 billion is spent annually for IP VPN equipment installed at customer sites, according to Harris.

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See benefits of portability, easy-to-modify code, as well as possible decrease in costs

BY CAROL SLIWA

Growing numbers of retailers are scoping out Java-based point-of-sale (POS) systems as one option to replace their aging cash registers.

Several retailers that are either deploying or piloting Java POS systems said they like the fact that the software can run on any hardware or operating system and also noted that they're finding the code easy to modify as their needs expand. Some also reported decreases in implementation and support costs, depending on the additional systems choices they have made.

"We want something that won't lock us into any particular platform and will give us the flexibility to deploy it in whatever way we'd like in the future," said Mike Prince, CIO at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. Prince said his company has committed to a Java POS system on Linux and is rolling out the Linux operating system but has postponed the Java POS portion because of competing projects.

Robin Lynas, CIO at Mark's Work Wearhouse Ltd., a Calgary, Alberta-based chain that was acquired last year by Canadian Tire Corp., found himself peppered with questions from fellow retailers at the National Retail Federation Conference & Expo earlier this month in New York.

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Mark's Work Wearhouse claims to have lowered store opening costs by 30% and maintenance costs by 50%, in part because it no longer needs in-store servers. The registers will connect directly via frame relay to central servers at the home office, thanks in part to Java's networking class libraries, according to Retek Chief Technology Officer John Gray.

Another advantage that Mark's Work Wearhouse has found is the ease with which developers can bolt on new applications that connect to the POS system. Those include Web site, time sheet, business account and Web reporting applications, Lynas said.

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Allen said changes can be made "much easier and faster with a component-based solution, [distributed] architecture and object-oriented language like Java."

Jerry Rightmer, CTO at 360-Commerce, said building a POS system in Java was "a fairly risky decision" in 1997 when his company began developing products. But he said the list of Java POS vendors is growing and now includes PCMS Datafit Inc., JDA Software Group Inc. and Triversity Inc., among others.

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Java POSitives

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AT DEADLINE

Gates Provides Security Update . . .

A year after launching his Trustworthy Computing initiative, Bill Gates, Microsoft Corp.'s chairman and chief software architect, said in an e-mail to customers that efforts to better secure Microsoft products are continuing. "While we've accomplished a lot . . . there is still more to do – at Microsoft and across our industry," Gates said. He promoted the use of smart cards and said Microsoft is developing a system for sending security bulletins via e-mail.

. . . As Microsoft Posts Warnings

Prior to the release of Gates' message, Microsoft warned that a security flaw in the Microsoft Locator service included with Windows NT 4.0, 2000 and XP could be used to take control of systems. The company gave the problem a "critical" severity rating and urged users to install a new patch. Microsoft also warned of holes in its Outlook 2002 and Content Management Server 2001 products.

Top IT Executive Quits Merrill Lynch

Merrill Lynch & Co. announced in an internal memo that John McKinley will leave his job as chief technology officer and executive vice president of its Global Technology & Services unit at the end of next month. McKinley plans to take a job in the technology industry, according to the memo. Merrill Lynch said he will be replaced by John Cummings, chief operating officer of the technology and services group.

Short Takes

CISCO SYSTEMS INC. said it's buying Okena Inc., a Waltham, Mass.-based vendor of intrusion-detection software. . . . Worldwide server shipments grew 4.2% last year, according to San Jose-based DATAQUEST INC.

PKWare Adds Encryption To Compression Software

PKZip upgraded for Windows, Unix and IBM systems

BY JAIKUMAR VIJAYAN

PKWARE INC. last week said it's trying to make it safer for users of its PKZip data compression technology to send and receive files over the Internet by adding new encryption capabilities to the software.

The Brown Deer, Wis.-based company said Version 6.0 of PKZip for Windows and Unix users includes a new security module based on the BSAFE encryption technology developed by Bedford, Mass.-based RSA Security Inc.

The module lets users protect documents via password- or certificate-based encryption before they're transmitted, PKWare said. The company added that the Windows release also features new support for IBM's Notes software, which lets users compress and encrypt e-mail attachments.

PKWare also announced releases of its software for IBM's mainframes and iSeries servers that support up to 256-bit symmetric key encryption based on the Advanced Encryption Standard. The iSeries systems were previously known as the AS/400 line.

Securing Critical Data

Features such as the ones announced last week are crucial to corporate users who depend on PKWare's compression products to send or receive important data files, said Gene Knobloch, IS manager at Gilsbar Insurance Services Inc. in Covington, La.

Gilsbar has been using PKZip technology for several years to compress and send medical insurance claims data from its AS/400s to systems at its clients in the health care industry and to insurance companies and clearinghouses.

With an April 1 deadline looming for complying with the federal Health Insurance Portability and Accountability Act, Knobloch said Gilsbar plans to use PKWare's new software to compress and encrypt all records containing patient health information, as required by the law.

The new encryption functionality has been very easy to implement, he added. But Knobloch said many of the clients and insurers that Gilsbar deals with have standardized on encryption technologies developed by Palo Alto, Calif.-based PGP Corp. Because of that, it has been a challenge to get some of them to accept encrypted PKZip files from Gilsbar. "But we are taking that on one client at a time," Knobloch said.

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PRODUCT DETAILS

- RSA's BSAFE-enabled encryption for Windows and Unix users
- Support for Notes, letting Windows users compress and encrypt e-mail attachments
- 256-bit encryption for users of IBM's MVS and OS/400 operating systems

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Java POSitives

Reported benefits from Java point-of-sale systems include their ability to:

- **Run on any hardware or operating system**
- **Run on thin clients on older hardware**
- **Be modified easily**

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Lucent Sees Loss, Inks Cisco Deal

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MARK HALL ■ ON THE MARK

Wintel Advocate Frets That High-Tech Duo . . .

. . . could hamper U.S. dominance in high-performance computing in the future. Coming from a RISC/Unix bigot, such concerns might be little more than sour grapes. But when uttered by David Lifka, CTO at the Cornell Theory Center (CTC) in Ithaca, N.Y., they carry much more weight. Lifka **designs supercomputing-class systems for 1,200 Cornell University scientific researchers,** scheduling more than 100 CPU-intensive programs that run only on Wintel systems from Dell and Unisys. Performance, reliability and cost are far better than anything from the RISC/Unix camp, he claims. Seven years ago, when Lifka arrived at CTC, the Wintel advantage was simply in cost or in the slippery metric of price/performance. That has all changed. "Right now, we're getting better performance, period, at a fraction of the cost," he says. Porting existing supercomputing applications to Windows was also a snap. The biggest, with 30 million lines of code, took a mere month to migrate. Moreover, users rave about the ease of use of Windows tools. The researchers like the fact that "they don't have to do computer science to do their own work." So, what's to gripe about? Lifka worries that the advent of "high-performance computing for the masses" combined with today's sour economy means **"users are not focusing on innovation."** Although Lifka has nothing but praise for Intel's Itanium 2 processor, "you don't want to have only one hardware vendor in town," he argues. "No single vendor can do it by themselves." Competition among supercomputer vendors brought countless benefits to commercial users with advances in the areas of multiprocessing, job scheduling, data analytics and others. If that competition evaporates, Lifka rightly wonders whether the advantages high technology gives U.S. business and science will disappear with it. ■ **Luckily, competition is rampant in the storage-area network (SAN)** management market, and that's leading to more feature-rich products. For example, McData Corp. in Broomfield, Colo., this week will unveil SANavigator 3.5 with significant advances in device management. One that should catch your eye is the software's ability to discover and monitor performance of IP gateways to Fibre Channel SANs. And in a release of SANavigator later this year, you'll get even more refined management of IP devices, such as oversight of an IP gateway's assignment to a Logical Unit Number within your SAN. ■ Speaking of IP management, on Feb. 17, SecureLogix Corp. in San Antonio will demo at VoiceCon2003 in Washington a prerelease version of its Enterprise Telephony Management TeleWall **security firewall for VOIP traffic going outside the campus** to an IP voice trunk. Although most companies today use a gateway to translate VOIP data to a standard telephony time division multiplexer format, company President Lee Sutterfield thinks the day will come when VOIP networks become widespread, with security a bigger issue. ■ The Web analytics market, **already chock-a-block with vendors, will get even more competitive** late next week when Sunnyvale, Calif.-based start-up ClickTracks Inc. releases its ClickTracks Analyzer. CEO John Marshall acknowledges that "it's a crazy time to start a company in a highly competitive market." But he thinks users will sit up and take notice of at least two advantages his software has. First, price. At $495, he expects **marketing directors will skip a couple three-martini lunches** just to play with the PC-based product that slurps data from any Web log and cranks out graphical views of Web site visitor behavior. Besides being cheap, the software answers questions that keep e-commerce gurus up at night. Such as, Are those terms you pay Google and Yahoo a small fortune for as successful as unpaid terms that bring visitors to your site? For IT managers who don't want marketing mavens downloading Web logs sober or otherwise, an enterprise version with central management features can be had for $1,495. ◗

BMC Plays Catch-up on Network Fault Detection

BY MATT HAMBLEN

BMC Software Inc. today plans to announce the addition of fault management capabilities to its network performance monitoring tool, a move that's intended to close a functionality gap between the company and rival vendors.

Houston-based BMC said the addition of the new component won't result in a price increase on its Patrol Visualis software, which became available early last year and has a starting price of $40,000.

Gerry Roy, director of product management at BMC, acknowledged that the combined ability to provide users with performance data and to identify network faults and failures follows an industry trend. But the BMC feature is unique because it pairs the two offerings within a single graphical user interface, he claimed.

Canada Life Assurance Co. has tested BMC's Fault Manager tool and is considering using it to assist its help desk workers in spotting network problems, said Arkadi Chekhtman, a network specialist at the Toronto-based insurer.

"If somebody was looking from time to time at a network map, they could see a node change color if it goes down and see what other components it's related to and then inform people in the business unit," Chekhtman said. "There are tons of fault management tools, but I haven't seen one with the network map and fault management linked."

Analyst Jean-Pierre Garbani at Giga Information Group Inc. in Cambridge, Mass., said BMC's announcement initially was expected last year, "but better late than never."

BMC needs to offer both fault and performance management capabilities in order to win new customers for Patrol Visualis, Garbani said. He added that the rollout means that each of the top four network and systems management vendors — BMC, Computer Associates International Inc., Hewlett-Packard Co. and IBM's Tivoli Software unit — now provide the two features. ◗

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MARK HALL ■ ON THE MARK

Wintel Advocate Frets That High-Tech Duo . . .

. . . could hamper U.S. dominance in high-performance computing in the future. Coming from a RISC/Unix bigot, such concerns might be little more than sour grapes. But when uttered by David Lifka, CTO at the Cornell Theory Center (CTC) in Ithaca, N.Y., they carry much more weight. Lifka **designs supercomputing-class systems for 1,200 Cornell University scientific researchers,** scheduling more than 100 CPU-intensive programs that run only on Wintel systems from Dell and Unisys. Performance, reliability and cost are far better than anything from the RISC/Unix camp, he claims. Seven years ago, when Lifka arrived at CTC, the Wintel advantage was simply in cost or in the slippery metric of price/performance. That has all changed. "Right now, we're getting better performance, period, at a fraction of the cost," he says. Porting existing supercomputing applications to Windows was also a snap. The biggest, with 30 million lines of code, took a mere month to migrate. Moreover, users rave about the ease of use of Windows tools. The researchers like the fact that "they don't have to do computer science to do their own work." So, what's to gripe about? Lifka worries that the advent of "high-performance computing for the masses" combined with today's sour economy means **"users are not focusing on innovation."** Although Lifka has nothing but praise for Intel's Itanium 2 processor, "you don't want to have only one hardware vendor in town," he argues. "No single vendor can do it by themselves." Competition among supercomputer vendors brought countless benefits to commercial users with advances in the areas of multiprocessing, job scheduling, data analytics and others. If that competition evaporates, Lifka rightly wonders whether the advantages high technology gives U.S. business and science will disappear with it. ■ **Luckily, competition is rampant in the storage-area network (SAN)** management market, and that's leading to more feature-rich products. For example, McData Corp. in Broomfield, Colo., this week will unveil SANavigator 3.5 with significant advances in device management. One that should catch your eye is the software's ability to discover and monitor performance of IP gateways to Fibre Channel SANs. And in a release of SANavigator later this year, you'll get even more refined management of IP devices, such as oversight of an IP gateway's assignment to a Logical Unit Number within your SAN. ■ Speaking of IP management, on Feb. 17, SecureLogix Corp. in San Antonio will demo at VoiceCon2003 in Washington a prerelease version of its Enterprise Telephony Management TeleWall **security firewall for VOIP traffic going outside the campus** to an IP voice trunk. Although most companies today use a gateway to translate VOIP data to a standard telephony time division multiplexer format, company President Lee Sutterfield thinks the day will come when VOIP networks become widespread, with security a bigger issue. ■ The Web analytics market, **already chock-a-block with vendors, will get even more competitive** late next week when Sunnyvale, Calif.-based start-up ClickTracks Inc. releases its ClickTracks Analyzer. CEO John Marshall acknowledges that "it's a crazy time to start a company in a highly competitive market." But he thinks users will sit up and take notice of at least two advantages his software has. First, price. At $495, he expects **marketing directors will skip a couple three-martini lunches** just to play with the PC-based product that slurps data from any Web log and cranks out graphical views of Web site visitor behavior. Besides being cheap, the software answers questions that keep e-commerce gurus up at night. Such as, Are those terms you pay Google and Yahoo a small fortune for as successful as unpaid terms that bring visitors to your site? For IT managers who don't want marketing mavens downloading Web logs sober or otherwise, an enterprise version with central management features can be had for $1,495. ◗

BMC Plays Catch-up on Network Fault Detection

BY MATT HAMBLEN

BMC Software Inc. today plans to announce the addition of fault management capabilities to its network performance monitoring tool, a move that's intended to close a functionality gap between the company and rival vendors.

Houston-based BMC said the addition of the new component won't result in a price increase on its Patrol Visualis software, which became available early last year and has a starting price of $40,000.

Gerry Roy, director of product management at BMC, acknowledged that the combined ability to provide users with performance data and to identify network faults and failures follows an industry trend. But the BMC feature is unique because it pairs the two offerings within a single graphical user interface, he claimed.

Canada Life Assurance Co. has tested BMC's Fault Manager tool and is considering using it to assist its help desk workers in spotting network problems, said Arkadi Chekhtman, a network specialist at the Toronto-based insurer.

"If somebody was looking from time to time at a network map, they could see a node change color if it goes down and see what other components it's related to and then inform people in the business unit," Chekhtman said. "There are tons of fault management tools, but I haven't seen one with the network map and fault management linked."

Analyst Jean-Pierre Garbani at Giga Information Group Inc. in Cambridge, Mass., said BMC's announcement initially was expected last year, "but better late than never."

BMC needs to offer both fault and performance management capabilities in order to win new customers for Patrol Visualis, Garbani said. He added that the rollout means that each of the top four network and systems management vendors — BMC, Computer Associates International Inc., Hewlett-Packard Co. and IBM's Tivoli Software unit — now provide the two features. ◗

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HP Plans SAN-Level Storage Virtualization

New software, switches aim to unify disk space across storage networks

BY LUCAS MEARIAN

IN ONE of the first attempts by a top IT vendor to support network-based storage virtualization, Hewlett-Packard Co. last week announced plans to use new software to let IT administrators manage all of the disk space on storage-area networks (SAN) as a single entity.

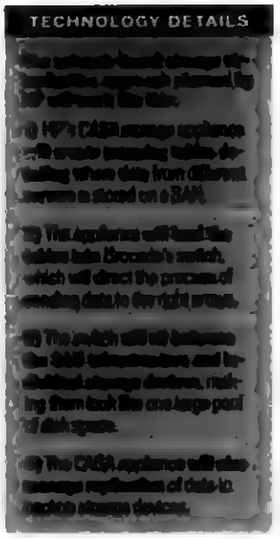
HP said that it plans later this year to make its VersaStor storage virtualization software available on a new class of SAN switches that San Jose-based Brocade Communications Systems Inc. will acquire through its proposed buyout of Rhapsody Networks Inc. in Fremont, Calif. VersaStor will also be integrated into HP's OpenView Continuous Access Storage Appliance (CASA), a bundled set of hardware and software that handles data migration and replication.

VersaStor will extend the reach of CASA to the network level, where the appliance will work with Brocade's switches to coordinate SAN operations and to make the various arrays and server-level storage devices attached to a network look like one big pool of storage space, HP said (see box).

Virtualization has become the cornerstone of efforts to develop more automated storage infrastructures. Currently, most vendors support server- or array-based virtualization, where the software is installed on a single device. Network-based virtualization promises to allow disk storage devices across an entire SAN to be centrally managed and provisioned.

For Rick Allen, director of IT operations at Gwinnett Health System in Lawrenceville, Ga., network virtualization offers the potential to simultaneously send real-time copies of data from different disk arrays to an off-site data center. That capability "makes the whole disaster recovery scenario a lot easier," said Allen, whose organization owns HP servers and storage devices plus equipment from IBM and Dell Computer Corp.

The network approach would also provide users with a single point of management for SAN-based storage, Allen added. "You're not having to virtualize at the machine level," he said.



The combined HP/Brocade product offering is the first incarnation of network-based virtualization from a major IT vendor, said Randy Kerns, an analyst at Evaluator Group Inc., a market research firm in Englewood, Colo. "Before, it was all small, independent companies with their own solutions," Kerns said.

However, a spokeswoman for Sun Microsystems Inc. said the company plans to ship virtualization software as part of its N1 resource-management technology initiative next quarter — ahead of HP's plan to release its technology during the second half of the year.

Pooled Storage

Sun's offering will include software that it bought as part of its acquisition of Acton, Mass.-based Pirus Networks Inc. in November, the spokeswoman said. The Pirus technology lets IT managers pool storage from a variety of servers, including ones running Sun's Solaris operating system, other Unix releases, Linux and Windows.

VersaStor has been in beta testing for two and a half years and came to HP through its acquisition of Compaq Computer Corp. Testing of the software with CASA and Brocade's switches is expected to start in the summer, HP said.

Brocade has yet to complete its buyout of Rhapsody, which was agreed to in November. But the two companies said the deal could be finalized by the end of this month. ▶

Minerals Firm Unearths Remote iNotes Access

Imerys' woes solved by plug-in

BY TODD R. WEISS

Dave Bailey went to the Lotusphere 2002 conference when he needed information on how to deploy IBM's new Lotus iNotes Web Access software to 3,000 global users.

This week at Lotusphere 2003 in Orlando, Bailey, a senior consultant for global IT at Paris-based minerals supply company Imerys, aims to gather more information to facilitate his pending first-quarter deployment.

LOTUSPHERE

Bailey, who is based in Roswell, Ga., said last year's show provided several ideas for accessing iNotes using a reverse proxy server setup. He said he tried setting up iNotes with three different recommended proxy servers from Sun Microsystems Inc., Microsoft Corp. and IBM. But Bailey said none could be configured properly for his systems.

Bailey said he achieved the goal of giving his corporate users secure access to their e-mail via iNotes with a product from Whale Communications Ltd. in Fort Lee, N.J.

Whale's product, the e-Gap Remote Access Appliance, is a plug-in device that Bailey said met his reverse-proxy requirements, creating a protective security layer between his remote users and the company's Internet infrastructure. Pricing for the devices, which are essentially Secure Sockets Layer/virtual private network (VPN) appliances, begins at $23,000.

Richard Stiennon, an analyst at Gartner Inc. in Stamford, Conn., said Whale has been gaining attention recently because its appliances enable secure e-mail access through a Web site, while removing the need for an individual VPN. "Whale's been having tremendous success in that market space," Stiennon said.

Whale will be one of about 150 exhibitors at this year's Lotusphere, where keynote speakers will include former New York Mayor Rudolph Giuliani. The show's themes will go beyond Lotus to cover IBM WebSphere, DB2, Tivoli and hardware offerings. Lotusphere will go on for at least another five years, IBM said. ▶

Shippers Face Automation Task for Customs Deadline

BY LINDA ROSENCRANCE

Shippers and ocean carriers are scrambling to automate their systems to meet a Feb. 2 deadline for compliance with a new U.S. Customs Service regulation.

The Advance Manifest Regulation, also known as the "24-hour rule," requires shippers and ocean carriers that bring goods into the U.S. to electronically submit complete container-manifest information to Customs through its Automated Manifest System (AMS) 24 hours before the container is loaded onto a vessel.

John Gurrad, vice president of business planning and e-commerce at MOL America Inc., a carrier in Concord, Calif., said a portal for the ocean transportation industry such as GTN, which is operated by GT Nexus Inc. in Alameda, Calif., can help shippers, forwarders and carriers comply with the 24-hour rule.

GT Nexus President John Urban said GTN automates and standardizes transactions among shippers, forwarders and their ocean carriers. He said online tools already available at the GTN portal allow them to prepare and transmit key shipping documents. The GTN platform is integrated with the back-office systems of a host of carriers, he added.

Jack Maynard, an analyst at Boston-based Aberdeen Group Inc., said employing technologies such as GTN will be key to achieving compliance with the new regulations. The value of GTN, he said, is that it provides shippers with an electronic transaction platform that quickly sends information to their carriers, thereby reducing delays. ▶

THERE'S SHALLOW INTEGRATION AND THERE'S DEEP INTEGRATION.

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Big Outsourcing Shift Predicted for IT Jobs

Some IT managers don't foresee major workforce changes at their companies

BY THOMAS HOFFMAN

A NEW report on the IT labor market predicts that 35% to 45% of full-time IT jobs in the U.S. and Canada will be shifted to contractors, consultants, offshore technicians or part-time workers by 2005. And some analysts and IT labor experts said those figures, although eye-popping, may not be far-fetched.

However, four high-level IT managers said the predictions made in the report issued last week by New Canaan, Conn.-based Foote Partners LLC probably won't apply to their companies. For them, outsourcing hasn't proved to be a lower-cost alternative to keeping IT inside corporate walls.

"While there are times where I'd love to throw something to the outsourced den, so far we've found that it wouldn't be cost-effective for us," said Amy Courter, vice president of IT at Valassis Communications Inc., a Livonia, Mich.-based marketing services firm.

"We do everything in-house," noted John Studdard, senior vice president and chief technology officer at Lydian Trust Co., a financial services firm in Palm Beach Gardens, Fla. "The reason we've been successful in light of 9/11 and the economy and the bursting of the dot-com bubble is that we're in control of our own destiny and not locked into long-term contracts that may or may not be relevant to our business anymore."

Nevertheless, David Foote, president and chief research officer at Foote Partners and a *Computerworld* columnist, said American companies "can't afford to do application development in the U.S. anymore. The nature of the business has changed."

IT job sharing will also play a role in reducing full-time positions, Foote said. He based his estimates on surveys his company conducted last year with 1,880 private-sector and government employers, which were asked what percentage of their future IT workforces will be in-house vs. external.

Foote's timeline for such a massive workforce shift "is a little aggressive," said Maria Schafer, an analyst at Meta Group Inc. in Stamford, Conn. "It will be after 2006 before we get to that point." Schafer added that she still thinks application development and Web design are growth areas for IT workers in the U.S.

Cheaper Labor Overseas

But the shift of technical work to offshore operations by many companies "doesn't bode well" for American IT workers, Schafer said. The cost of some types of IT work is 20% to 50% less in places such as India, Eastern Europe and parts of South America, she said.

Although Foote's prediction "sounds radical now, it's not too far off the mark," said Jeremy Grigg, a New York-based analyst at Gartner Inc. "You've got this wholesale rush to the door for external, offshore services."

But William Finefield, CIO at the Navy Exchange Service Command in Virginia Beach, Va., said he doesn't foresee any rush to outsourcing at his organization. "Our experience has been that it costs us more to go outside [for IT services] than it does internally," he said.

A previous outsourcing deal left a bad taste in the mouth of Steve Hammond, vice president of information services at Plasti-Line Inc. in Knoxville, Tenn. Nine years ago, Plasti-Line outsourced its IT operations to what is now Accenture Ltd. But after running into problems with the contract, Plasti-Line opted not to renew the five-year agreement and began moving workers back in-house, Hammond said.

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"We do ramp up and down on resources with contractors," he said. "But as far as flat-out outsourcing, we've looked at that and haven't seen the financial returns."

Foote and Grigg said IT workers facing displacement should retrain themselves in project management or technologies such as IT security and wireless networking — suggestions that map with the advice of panelists at an outsourcing conference in September [QuickLink 33217].

Corporate IM Software Makers Eye Wall Street

BY LUCAS MEARIAN

The adoption of instant messaging (IM) software by financial services firms mostly involves end users communicating via consumer-oriented products, often unbeknownst to IT managers. But vendors of enterprise-class IM products are trying to change that.

For example, Reuters Group PLC this month said more than 225,000 financial services workers worldwide, including 80,000 in the U.S., have signed up for the Reuters Messaging technology it launched in October. London-based Reuters collaborated with Microsoft Corp. to develop what is essentially the first version of the software vendor's upcoming corporate IM application, which is due out in June.

IBM wouldn't disclose end-user totals in the financial services industry for its more established Lotus Sametime software. But Jeremy Dies, a manager of collaboration offerings in IBM's Lotus Software Group, said eight of the top 10 commercial banks worldwide use Sametime.

IM is attractive to banks and brokerages because it can streamline both internal and external communications. But analysts and IT managers said uncontrolled use of the technology could open up firms to computer viruses and to regulatory actions by government agencies, which require that electronic communications be logged and stored.

Products such as Sametime and Reuters Messaging include functionality that's designed to meet firms' security and regulatory compliance needs. The three top vendors of consumer IM products — America Online Inc., Microsoft and Yahoo Inc. — announced versions of their software aimed at corporate users last fall.

Seeking Security

Wells Fargo & Co. last year rolled out a set of Web chat and collaboration tools for its customers. Jim Smith, senior vice president of consumer Internet services at the San Francisco-based company, said Wells Fargo is now considering the purchase of an enterprise-class IM product in order to support one-to-one communications internally and with its customers.

Jim Lenz, senior vice president and co-manager of trading at Bridge Trading Co. in St. Louis, said the Reuters-owned brokerage began beta-testing Reuters Messaging last summer as part of an effort to cut down on the use of unauthorized IM tools internally and at the banks and clearinghouses with which it does business. "We heard from a lot of [users] that they needed something secure because more and more people were using AOL or Yahoo or something that wasn't secure," Lenz said.

But the use of consumer-grade IM software in the industry remains widespread, analysts said. For example, in a survey of financial services firms last fall by Osterman Research Inc. in Black Diamond, Wash., respondents said that about half of their end users had downloaded more than one consumer IM product.

In October, seven top firms formed the Financial Services Instant Messaging Association (FIMA) to push vendors to develop IM standards. But Ursula Mills, co-chairman of FIMA, said she doesn't expect the use of consumer-oriented services to stop anytime soon.

"Many of the customers are wanting to use the product of their choice," Mills said. "If that's AOL, Yahoo or MSN Messenger, then that's the product we want to use."

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Archiving e-mail has become serious business for IT managers. **Page 38**

Some Oracle Users Report Success With 11i

Despite rollout problems, they say apps are paying off

BY MARC L. SONGINI
SAN DIEGO

Oracle Corp.'s oft-repeated promise that its business applications can help users slash costs and boost operational efficiency is finally starting to strike home with some companies that have installed its E-Business Suite 11i software.

Early rollouts of the 11i applications were often problematic, and Oracle had trouble persuading many of its existing users to upgrade. But at the company's AppsWorld conference here last week, eight users said their 11i installations have improved internal business processes and, in some cases, are providing returns on their investments.

Building on earlier promises to make installation of the software less complex, Oracle CEO Larry Ellison said during his keynote speech that the company is working to give users a firm idea of 11i costs upfront. "One thing we focused on is reducing the cost of the implementation and trying to make it predictable [so we can] tell you before we begin how much it will cost to run it every day," Ellison said.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said Ellison's vow marks a change for Oracle — and potentially for its rivals. "Providing complete total-cost-of-ownership [numbers] for all new deals will be hard to do, but it's doable," Greenbaum said. "And I think it's going to be an important competitive advantage that will force other vendors into promoting better understanding of the lifetime costs of their software."

Hosted versions of Oracle's call center, finance and other applications saved United Asset Coverage Inc. (UAC) more than $3 million during the first 12 months it used the software, said Brad Snook, vice president of client relationship management at the Naperville, Ill.-based telecommunications services provider.

Before going live with 11i in August 2001, UAC ran a hodgepodge of business applications. Oracle's software gave the company an integrated set of contract, billing and customer relationship management software that made it possible for individual call center workers to handle more inquiries, Snook said. "We made up what we spent in about a year," he noted.

ViewSonic Corp. also has seen a payback on its investment in 11i, according to CIO Robert Moon. But it took the Walnut, Calif.-based maker of computer monitors, projectors and other technology products two attempts to install Oracle's software before it succeeded.

Four years ago, ViewSonic tried to roll out a heavily customized version of Oracle's Release 10.7 applications. But that project lacked end-user participation and produced faulty data, Moon said. "It was a mess," he noted. "We were running a $1 billion business on Excel spreadsheets."

ViewSonic scrapped the 10.7 system and tried again, this time using 11i. The company went live with the software in November 2001 after a five-month installation. Since then, ViewSonic has consolidated its servers and seen a reduction in its hardware support costs, saving about $2.5 million annually, Moon said. ▶

FEDERAL FUNDS

The Bush administration's IT budget chief talked about the government's technology spending plans at AppsWorld.

QuickLink 35786
www.computerworld.com

Deal Moves Microsoft Into Web Conferencing Market

BY CAROL SLIWA

Microsoft Corp. last week extended its reach into the online conferencing and collaboration arena with the acquisition of privately held PlaceWare Inc.

Charles Zaragoza, a lead product manager in Microsoft's information worker product management group, said the company began talking to Mountain View, Calif.-based PlaceWare upon realizing that Microsoft didn't have the "secure, reliable, extensible" Web conferencing services its customers said they needed.

Financial details weren't disclosed.

Zaragoza said that although Microsoft's NetMeeting and other offerings were a good start, customers "are getting smarter about what they need." The PlaceWare services enable users to conduct real-time interactive presentations and meetings over the Internet via any PC and Web browser, according to Jennifer Callison, a senior director of marketing at PlaceWare.

Playing Catch-up

In a report issued last week, analysts at Stamford, Conn.-based Meta Group Inc. said Microsoft has made a concerted effort in the past year to catch longtime collaboration market leader IBM, but its most recent efforts with SharePoint Team Services and Windows Server 2003 instant messaging have yet to bear fruit.

Microsoft's Web conferencing efforts "seemed moribund" after unsuccessful runs with its peer-based NetMeeting and immature Exchange 2000 Conferencing Server, the Meta report said.

Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., said Microsoft's NetMeeting "runs out of steam" after six people join a conference. He said that although Microsoft hasn't been a major player in collaboration, "that's going to change pretty quick now."

Competitors in online conferencing, such as WebEx Communications Inc., whose stock price fell following news of the Microsoft acquisition, will find themselves "in for a fight," Enderle said.

The acquisition is expected to be completed this quarter. Plans call for PlaceWare to be incorporated into Microsoft's newly created Real Time Collaboration Group, which will be headed by Anoop Gupta. Gupta worked in Microsoft's research division for five years and recently served as technical adviser to Chairman and Chief Software Architect Bill Gates. ▶

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ITCAREERS

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Instant Upgrade

The following features aren't found in consumer-oriented IM applications:

- Support for the Session Initiation Protocol messaging standard, which lets users communicate across different IM products.
- 128-bit encryption capabilities for secure communication outside corporate firewalls.
- The ability to log and archive messages for regulatory compliance purposes.

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Building on earlier promises to make installation of the software less complex, Oracle CEO Larry Ellison said during his keynote speech that the company is working to give users a firm idea of 11i costs upfront. "One thing we focused on is reducing the cost of the implementation and trying to make it predictable [so we can] tell you before we begin how much it will cost to run it every day," Ellison said.

Migration Moves

Percentage of Oracle's 18,000 business applications customers that are actively using E-Business Suite 11i software, according to company officials:

53%

Percentage of current users that are in the process of migrating to 11i from older releases:

25%

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said Ellison's vow marks a change for Oracle — and potentially for its rivals. "Providing complete total-cost-of-ownership [numbers] for all new deals will be hard to do, but it's doable," Greenbaum said. "And I think it's going to be an important competitive advantage that will force other vendors into promoting better understanding of the lifetime costs of their software."

Hosted versions of Oracle's call center, finance and other applications saved United Asset Coverage Inc. (UAC) more than $3 million during the first 12 months it used the software, said Brad Snook, vice president of client relationship management at the Naperville, Ill.-based telecommunications services provider.

Before going live with 11i in August 2001, UAC ran a hodgepodge of business applications. Oracle's software gave the company an integrated set of contract, billing and customer relationship management software that made it possible for individual call center workers to handle more inquiries, Snook said. "We made up what we spent in about a year," he noted.

ViewSonic Corp. also has seen a payback on its investment in 11i, according to CIO Robert Moon. But it took the Walnut, Calif.-based maker of computer monitors, projectors and other technology products two attempts to install Oracle's software before it succeeded.

Four years ago, ViewSonic tried to roll out a heavily customized version of Oracle's Release 10.7 applications. But that project lacked end-user participation and produced faulty data, Moon said. "It was a mess," he noted. "We were running a $1 billion business on Excel spreadsheets."

ViewSonic scrapped the 10.7 system and tried again, this time using 11i. The company went live with the software in November 2001 after a five-month installation. Since then, ViewSonic has consolidated its servers and seen a reduction in its hardware support costs, saving about $2.5 million annually, Moon said.

FEDERAL FUNDS

The Bush administration's IT budget chief talked about the government's technology spending plans at AppsWorld

QuickLink 35706
www.computerworld.com

Support Added For Older Apps

SAN DIEGO

At AppsWorld, Oracle detailed several initiatives that company executives hope will entice new users into the 11i fold. But the software vendor also made another concession to customers that are still running its older 10.7 software.

Oracle was scheduled to end its support for that release in June. But Mark Jarvis, Oracle's chief marketing officer, said 10.7 users will still be able to get access to some support services after the deadline. "We're not solving new bugs, but all information on current patches, and the knowledge base, will still be available to those customers," Jarvis said.

A document posted on Oracle's Web site said the "extended support" for 10.7 will last until mid-2004. Oracle will continue to provide telephone support to users who call about previously identified problems with the software, and it will also help 10.7 users plan migrations to 11i.

The ending of support for 10.7 has been a bone of contention between Oracle and its users since 1999. The company initially wanted to stop at the end of 2000, but it made a series of extensions in response to complaints from users who said they weren't ready to upgrade. Even now, according to Oracle, more than 20% of its application users haven't started migrating to 11i.

As expected, Oracle used AppsWorld to showcase a new line of bundled applications and consulting services designed to help users install specific 11i applications more quickly [QuickLink 35688].

Oracle also announced that it will offer 11i via a hosted subscription service priced at about $5,000 per month. The service is aimed primarily at companies with up to 25 end users and annual revenues of up to $25 million, Jarvis said. He added that Oracle won't customize the software for individual users.

– *Marc L. Songini*

Deal Moves Microsoft Into Web Conferencing Market

BY CAROL SLIWA

Microsoft Corp. last week extended its reach into the online conferencing and collaboration arena with the acquisition of privately held PlaceWare Inc.

Charles Zaragoza, a lead product manager in Microsoft's information worker product management group, said the company began talking to Mountain View, Calif.-based PlaceWare upon realizing that Microsoft didn't have the "secure, reliable, extensible" Web conferencing services its customers said they needed.

Financial details weren't disclosed.

Zaragoza said that although Microsoft's NetMeeting and other offerings were a good start, customers "are getting smarter about what they need." The PlaceWare services enable users to conduct real-time interactive presentations and meetings over the Internet via any PC and Web browser, according to Jennifer Callison, a senior director of marketing at PlaceWare.

Playing Catch-up

In a report issued last week, analysts at Stamford, Conn.-based Meta Group Inc. said Microsoft has made a concerted effort in the past year to catch longtime collaboration market leader IBM, but its most recent efforts with SharePoint Team Services and Windows Server 2003 instant messaging have yet to bear fruit.

Microsoft's Web conferencing efforts "seemed moribund" after unsuccessful runs with its peer-based NetMeeting and immature Exchange 2000 Conferencing Server, the Meta report said.

Rob Enderle, an analyst at Giga Information Group Inc. in Cambridge, Mass., said Microsoft's NetMeeting "runs out of steam" after six people join a conference. He said that although Microsoft hasn't been a major player in collaboration, "that's going to change pretty quick now."

JUST THE FACTS

PlaceWare Inc.

Mountain View, Calif.

1996: Started in 1990 at Xerox Palo Alto Research Center

PlaceWare Auditorium, a live, Web-based presentation product for field and customer communication

Competitors in online conferencing, such as WebEx Communications Inc., whose stock price fell following news of the Microsoft acquisition, will find themselves "in for a fight," Enderle said.

The acquisition is expected to be completed this quarter. Plans call for PlaceWare to be incorporated into Microsoft's newly created Real Time Collaboration Group, which will be headed by Anoop Gupta. Gupta worked in Microsoft's research division for five years and recently served as technical adviser to Chairman and Chief Software Architect Bill Gates.

BRIEFS

CA Loses Money, But Sales Increase

Computer Associates International Inc. reported a net loss of $44 million on revenue of $778 million for its third quarter, which ended Dec. 31. That compares with a $231 million loss and $747 million in revenue during the same period a year earlier. CA also said federal officials have asked for copies of its contracts with 10 customers as part of an investigation into the company's accounting practices.

C&W Sets Plan To Replace CEO

London-based Cable & Wireless PLC (C&W) announced that CEO Graham Wallace will leave the company as soon as a replacement is found. For now, though, Wallace will remain in charge of day-to-day operations and C&W's cost-cutting efforts. The plan to seek a new CEO follows a November decision by C&W to largely withdraw from the U.S. Web hosting market.

Peregrine Submits Bankruptcy Plan

Peregrine Systems Inc., a San Diego-based vendor of asset management software, submitted a Chapter 11 reorganization plan to the U.S. Bankruptcy Court in Delaware. Peregrine said the plan seeks to maintain the company as an ongoing business instead of liquidating its assets. However, Peregrine added that a committee of its unsecured creditors opposes the proposal.

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Continued from page 1

Fujitsu

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America West uses two of Fujitsu's 64-processor servers running Sun's Solaris operating system to power a variety of applications, including its core revenue management system. But, Beery said, "we are very interested in more cost-effective solutions."

The airline has already set some initial plans for using Linux, he added. For example, America West plans to switch its corporate portal Web site from Windows NT to Linux next month. As the open-source operating system becomes more reliable and the application development tools that support it mature, the company will likely migrate some of its more business-critical applications over from Solaris, Beery said.

Fujitsu's move is a sign of the growing interest in Linux within corporate IT departments, said Charles King, an analyst at The Sageza Group Inc. in Mountain View, Calif. "This is a resounding pat on the back for Linux," he said.

Linux Push

Fujitsu joins a list of server vendors, including IBM and Hewlett-Packard Co., that are aggressively pushing Linux for use in enterprise applications. "If you take a look at some of these announcements, the claims of some vendors that Linux is not ready for the enterprise qualifies as whistling past the graveyard," King said.

Jack Hirano, a deputy general manager at Fujitsu in New York, said the company also plans to use Intel's Xeon processors in its Linux servers. He added that Fujitsu, which makes its own SPARC chips, will continue to develop new Unix systems. But the Linux machines will broaden the company's enterprise server portfolio, according to Hirano. "We see a strong opportunity in the Linux marketplace, and we're confident that we can capitalize on it," he said.

Hirano said Fujitsu plans to deliver the same reliability, availability and scalability features on the Linux boxes that it does for its Unix servers. To that end, the company has created a 300-employee Linux systems group that will focus on porting its interconnect, clustering, systems management and grid-computing technologies to Linux.

Fujitsu, which has a large presence in Japan and Europe, isn't a big player in the U.S. server market. But it has been trying to expand its position here by using aggressive pricing to lure Unix users away from Sun's hardware, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

He added that last week's announcement is a recognition by Fujitsu "that you just can't ignore Linux." Fujitsu executives are betting that they "can leverage the design of their big boxes and plop in a different chip," Partridge said. "It sounds like a smart reuse of their technology."

The Linux server plans significantly expand Fujitsu's relationship with Intel. Fujitsu Siemens Computers, a Cologne, Germany-based joint venture with Siemens AG, sells a line of lower-end Intel servers. But these will be Fujitsu's first high-end servers based on Intel processors.

SPOTLIGHT ON LINUX

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Unilever

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"We've got an awful lot of proof points," he said, including firewall servers that run three times faster under Linux, with cost savings of up to 40%. "Every time we put in Linux, we are amazed and surprised at its speed and the reliability with which we can run it."

He said Unilever expects to benefit from the expected release later this year of the Linux 2.6 kernel, which will introduce features that offer the tools needed for the transition, including real-time threading and improved journaling.

Unilever is making its move in a very vocal way to encourage independent software vendors to develop needed enterprise business applications for Linux, Hope-Murray said.

"It's not really a leap of faith," he said, noting that Unilever's two largest IT suppliers, HP and IBM, are committed to Linux and are ready to help with the project. "If our partners weren't committed to it, we wouldn't be doing it."

Getting an OK from top executives to commit to the strategy took time. "It wasn't overnight," Hope-Murray said. "If it wasn't for the twin support [from IBM and HP], we probably wouldn't have gotten the buy-in."

The company hopes to conduct internal testing with Linux versions based on the upcoming kernel by the end of this year. It's also applying for membership in the nonprofit Open Source Development Lab Inc. in Beaverton, Ore., which was created to encourage the development of enterprise data center and telecommunications applications for Linux. Unilever would be the first private company to join the group.

Desktops throughout Unilever will remain Windows-based, Hope-Murray said, though the company will monitor the possibility of switching those to Linux in the future.

He said he has been seeking alternatives to the company's infrastructure of three operating systems for more than a decade. In the early 1990s, the Open Systems Foundation, which promised a platform-independent Unix, tried but failed to provide the operating system he needed, he said.

Now, with the integration of the 2.6 kernel, Linux will have the maturity needed to handle Unilever's heavy-duty database, customer relationship management and enterprise resource planning applications, Hope-Murray said. Unilever officials declined to identify their database, CRM or ERP vendors.

Analysts said the confidence Unilever has in Linux has shown up elsewhere.

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Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, said Unilever benefits from having an extensive history with Unix, the model for Linux, and from having partners such as IBM and HP. "If they buy the stuff from IBM and HP, there's not really a big risk," he said. "They're going to get service and support."

Unileveraging Linux

Over the next eight to 10 years, Unilever will move its server infrastructure from three versions of Unix to Linux. Its plans include:

- **Pushing CRM and ERP vendors to build their applications to support Linux in large enterprises.**
- **Joining the Open Source Development Lab to encourage high-end Linux application development.**
- **Testing the new Linux 2.6 kernel to ensure increased stability.**

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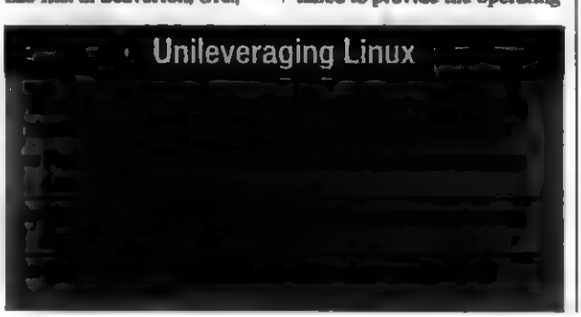


HP Readies Four-CPU Blade Server

BY BOB BREWIN

Hewlett-Packard Co. last week introduced a four-processor blade server, becoming the first major hardware vendor to detail plans to ship a blade device of that size.

But corporate users will have to wait for nearly two months before they can buy the four-CPU system. Hugh Jenkins, vice president of marketing for HP's industry standard server group, said the new ProLiant BL40p device isn't due to be available for ordering until mid-March.

The BL40p will be based on Intel Corp.'s Xeon MP processors and will include built-in connections to Fibre Channel storage-area networks (SAN), Jenkins said. He added that the SAN connectivity capabilities will let IT managers hook the blade server to large storage clusters for use in running corporate applications such as messaging or enterprise resource planning systems.

Blade servers pack the functionality of traditional rack-mounted systems onto a single high-density circuit board, reducing the amount of space that the hardware takes up in data centers. HP and other top server vendors last year began shipping blade devices with one or two CPUs.

Behind a Start-up

HP's move to the four-processor level comes 10 months after Egenera Inc., a Marlboro, Mass.-based start-up, announced a blade server that also includes four Xeon chips and built-in support for Fibre Channel SANs.

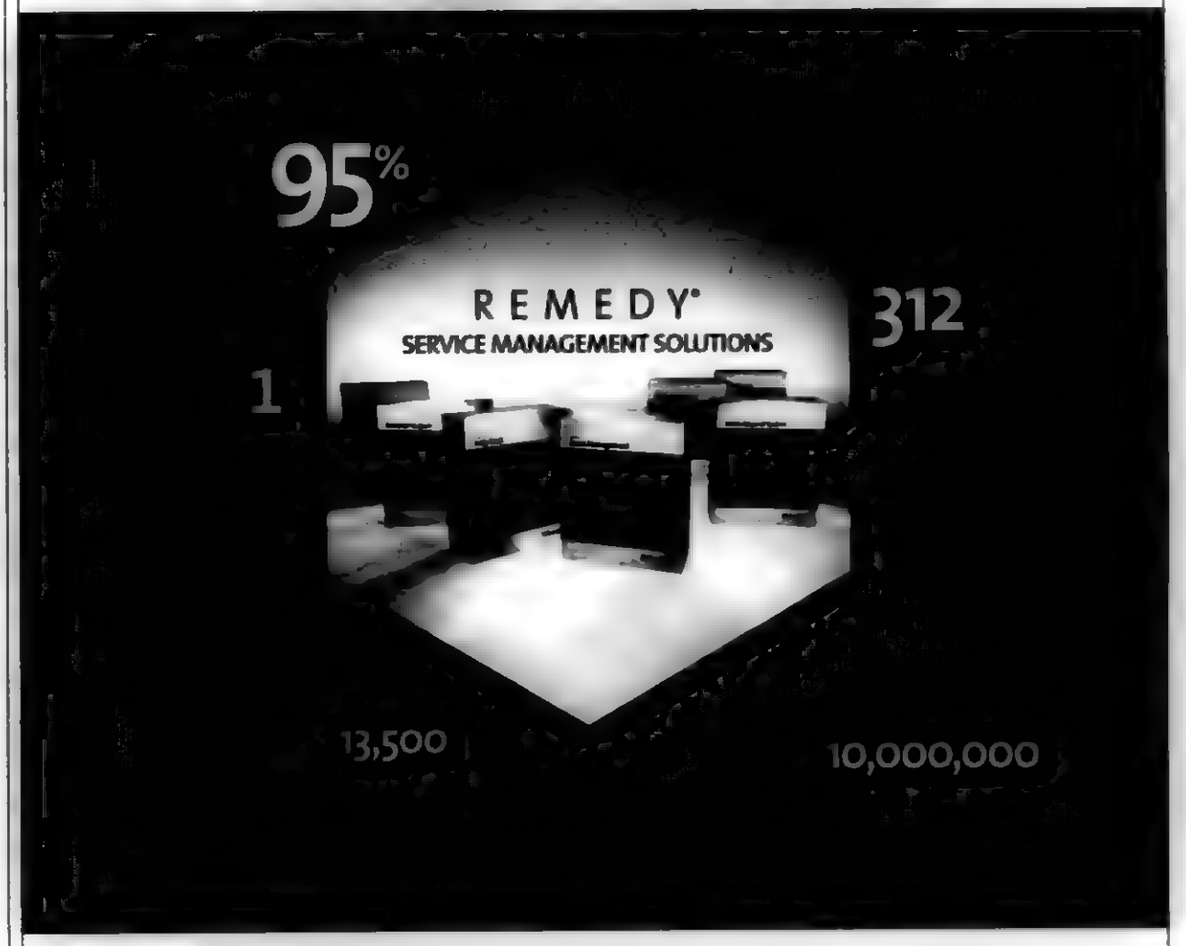
Other vendors also have such systems in the works. IBM said it plans to introduce four-processor blade servers with SAN connections later this year. Dell Computer Corp. has four-CPU devices on its road map but declined to disclose its delivery plans.

CenterBeam Inc., an IT outsourcing vendor in Santa Clara, Calif., uses HP's existing blade servers to hold mirror images of the applications and files that it manages for customers.

Glenn Ricart, CenterBeam's chief technology officer, said the company plans to evaluate the BL40p once it's available. The four-CPU device could make it easier for CenterBeam "to scale both processing and SAN [capabilities] to meet whatever demands our clients have," Ricart said.

Pricing on the BL40p will start at $8,999, Jenkins said. HP also plans to release by mid-March an upgrade of its two-processor BL20p model with faster Xeon chips and the same SAN connectivity that's coming in the four-CPU device. The new BL20p will start at $3,399, Jenkins said.

Strength in Numbers.



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PATRICIA KEEFE

Clear on the Concept

"DON'T IT ALWAYS SEEM TO GO that you don't know what you've got till it's gone?" Joni Mitchell's refrain might explain the behavior of some vendors today. It's interesting, isn't it, how a dramatic drop in sales can achieve what reasonable complaints couldn't — undivided attention and prompt action.

Oracle, for example, struggled last year with declining business application revenue. New license sales plunged in its last quarter, falling 34% worldwide and 50% in the Americas in year-over-year comparisons. This is bad news for the database giant, which is counting on its application business to help drive growth. So last week, Oracle stepped up efforts to address user complaints by revamping its sales force and rolling out a suite of applications designed so customers can quickly deploy pieces of its E-Business Suite 11i line.

IBM got into the act by rolling out new hardware along with significant pricing changes and upgrade options for its iSeries system customers two weeks ago. IBM hopes to revitalize sales of its 25-year-old midrange line by addressing long-standing user concerns and reigniting developer and reseller interest.

Picking up where she left off at Comdex, HP CEO Carly Fiorina prattled on to a European audience about how it's not the economy weighing down the IT market (It's not?), but rather "changes in customer requirements that are here to stay." Translated this means that suddenly sober customers now realize that, in Carly's words, "it's not the glamour of technology that is most important; it's return on technology that's most important." You don't want hot boxes and killer apps anymore; why, you want to cut your technology costs and align with business requirements! (And where would IT have gotten the idea that it had to have the latest and greatest?) Possibly caught up in the excitement, an HP partner actually suggested that customers have matured so much that "they really want to get the advertised benefits." You didn't want that before?

What's new isn't that customers have suddenly woken up and started demanding technology that works, but rather that vendors are beginning to take those demands seriously. Of course, they don't have any choice. Hardly anyone bought anything last year, and their earnings show it.

Moreover, it has become clear that the hoped-for turnaround in 2003 isn't going to happen. And no matter how much vendors play up their sudden enthusiasm for the midsize and small business markets, the fact is, they're pining for your business.

Wendover Corp., a sales and marketing intelligence firm that regularly surveys the country's largest companies on their budgeting and purchasing plans, puts it this way: Out of 14 million businesses in the U.S., 59% have 5 employees or fewer, while 79% have 10 employees or fewer. One-half of 1% have between 100 and 1,000. And only one-tenth of 1% — that's 14,000 businesses — have more than 1,000 employees. That's you, and that's where the money is. Do the math.

What's key is that big IT vendors are pitching 2003 as the year high-tech spending rebounds. And they now seem pretty clear on the concept that customers want their ROI, quickly. So, no matter how small that rebound, vendors seem extra determined to work for your business. Your business partners are listening like never before, so speak out and take advantage of it while you can. ▶

MICHAEL GARTENBERG

Three Top Tech Choices For 2003

IF YOU DON'T already have them in the pipeline, here are three technologies I'd advise pursuing in 2003. They all add features and benefits that will help make your users more productive and let you and your team get some positive visibility inside the company.

1. Corporate instant messaging: E-mail has become the lifeblood communications for most organizations. But it's not enough. Instant messaging is the logical next step in efficient enterprise communications. It lets managers work closely with direct reports and see who's available in real time. IM-related problems, such as control of user names, security and the ability to archive messages, are all being addressed by the leading IM vendors. 2003 is a good time to evaluate and implement IM.

2. Wi-Fi: The value of the connected vs. the disconnected user is no longer a debate. The importance of staying connected is well understood, but users are often constrained by the physical limitations of their network links. Wireless 802.11x network products give users the freedom to become "corridor warriors" and remain productive even when away from their desks.

When 802.11x is combined with hardware like Tablet PCs, users can remain online even during meetings, work with remote colleagues and roam from location to location. While IT has to put many security policies in place, 802.11x networks can add tremendous value to most organizations.

3. Streaming video: Do you think that streaming video means grainy clips the size of a postage stamp? Think again. Streaming quality has never been higher, and the cost has never been lower. New technologies from

Pimm Fox is on vacation. His column returns next week.

Microsoft, RealNetworks and Apple are near broadcast quality with relatively low bandwidth penalties.

Streaming technologies can make it easy for executives to get a message out to employees or to address the outside world. Because of competitive bandwidth pricing, live events have begun to yield manageable economics for most companies. If your company hosts or televises live events, you can now make use of the Internet and streaming video to improve returns on these expenditures at dramatically lower costs.

These technologies are probably in use inside your organization already. Users are more technically aware than ever before. They read the same trade magazines that we do and understand the benefits that technology can bring them. The result is they often can and will bypass IT.

Now is the time to take the initiative and either seize control or cede control to your users. Start your research and deploy early.

EMMET COLE

Palladium Is Mythical Security

According to legend, the Palladium was a sacred statue of Athena that the Trojans believed would protect them against the advancing Greek army. But when Odysseus sneaked into Troy and stole the Palladium, Troy did not fall. That happened only when the Greeks built the Trojan horse.

Mysterious and somewhat unfortunate mythological precedents aside, serious questions are being asked of Microsoft's forthcoming Palladium technology. Will Palladium fail to provide adequate security for its new wave of worshippers? Conversely, will this product enforce a degree of "protection" so stringent that the Internet's freedom of exchange and technological diversity will itself be at risk? Will Microsoft safeguard users or its own commercial interests? Given the ubiquity of Microsoft technologies in the business world, what kind of problems lie ahead?

The Technology. Part of Microsoft's contribution to the Trusted Computing Platform Alliance (a consortium founded by HP, IBM, Microsoft and Intel), Palladium is a software/hardware combination ostensibly designed to prevent piracy and protect corporate information.

Set for release possibly as early as 2005, Palladium requires a new chip technology being developed by Intel and AMD. This chip includes new encryption functions alongside a small memory capacity acting as a digital vault and holding the keys to decrypt protected data.

Palladium could be used to secure VPNs by enabling administrators to authenticate and identify computers on the network. It could protect networks against pirated software and malicious worms. Microsoft has apparently promised to release some of the code so that developers can study and debug the software.

So what's the problem?

Unnatural Selection. While Palladium will protect data, apparently it will do so in a selective manner by limiting users' software choices to those authorized and licensed by Microsoft and its allies: a virtual lock on your business's capacity to employ diverse technologies. This equates to chip-enforced Digital Rights Management (DRM). Microsoft owns a patent for a DRM operating system. If Palladium is bundled with future editions of Windows, will Microsoft have learned its lessons about fair business practice from its recent antitrust case. Can it protect its copyrighted material at the expense of other copyrighted materials?

It seems that computers running Linux or other non-Microsoft operating systems won't be able to use the chip. With many businesses relying on Linux, planners will face some serious choices. Should they work around Palladium, or abandon open-source systems altogether?

Planners should also consider whether complete homogeneity among the security technologies used by business networks would make it easier for hackers to cause damage. Common sense has to be abandoned when there is only one basket to put your eggs in.

"It's a terrible scheme," Philip Carinhas, a Texas-based Linux consultant told me. "Any attempt to control technology is inherently antitechnology. Unless a culture of acquiescence to Microsoft is overcome, however, many businesses will be stuck with it."

The outlook for non-Microsoft-approved technologies is bleak, but it will be an uphill battle for Microsoft to convince consumers and businesses that Palladium is a virtuous technology, intended to protect our city gates.

Me? I'm wondering what form the Trojan horse will take.

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READERS' LETTERS

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President, Troubleshooters.com, Orlando

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PATRICIA KIELT

Clear on the Concept

"DON'T IT ALWAYS SEEM TO GO that you don't know what you've got till it's gone?" Joni Mitchell's refrain might explain the behavior of some vendors today. It's interesting, isn't it, how a dramatic drop in sales can achieve what reasonable complaints couldn't — undivided attention and prompt action.

Oracle, for example, struggled last year with declining business application revenue. New license sales plunged in its last quarter, falling 34% worldwide and 50% in the Americas in year-over-year comparisons. This is bad news for the database giant, which is counting on its application business to help drive growth. So last week, Oracle stepped up efforts to address user complaints by revamping its sales force and rolling out a suite of applications designed so customers can quickly deploy pieces of its E-Business Suite 11i line.

IBM got into the act by rolling out new hardware along with significant pricing changes and upgrade options for its iSeries system customers two weeks ago. IBM hopes to revitalize sales of its 25-year-old midrange line by addressing long-standing user concerns and reigniting developer and reseller interest.

Picking up where she left off at Comdex, HP CEO Carly Fiorina prattled on to a European audience about how it's not the economy weighing down the IT market (It's not?), but rather "changes in customer requirements that are here to stay." Translated this means that suddenly sober customers now realize that, in Carly's words, "it's not the glamour of technology that is most important; it's return on technology that's most important." You don't want hot boxes and killer apps anymore; why, you want to cut your technology costs and align with business requirements! (And where would IT have gotten the idea that it had to have the latest and greatest?) Possibly caught up in the excitement, an HP partner actually suggested that customers have matured so much that "they really want to get the advertised benefits." You didn't want that before?

What's new isn't that customers have suddenly woken up and started demanding technology that works, but rather that vendors are beginning to take those demands seriously. Of course, they don't have any choice. Hardly anyone bought anything last year, and their earnings show it.

Moreover, it has become clear that the hoped-for turnaround in 2003 isn't going to happen. And no matter how much vendors play up their sudden enthusiasm for the midsize and small business markets, the fact is, they're pining for your business.

Wendover Corp., a sales and marketing intelligence firm that regularly surveys the country's largest companies on their budgeting and purchasing plans, puts it this way: Out of 14 million businesses in the U.S., 59% have 5 employees or fewer, while 79% have 10 employees or fewer. One-half of 1% have between 100 and 1,000. And only one-tenth of 1% — that's 14,000 businesses — have more than 1,000 employees. That's you, and that's where the money is. Do the math.

What's key is that big IT vendors are pitching 2003 as the year high-tech spending rebounds. And they now seem pretty clear on the concept that customers want their ROI, quickly. So, no matter how small that rebound, vendors seem extra determined to work for your business. Your business partners are listening like never before, so speak out and take advantage of it while you can. ◗

MICHAEL GARTENBERG

Three Top Tech Choices For 2003

IF YOU DON'T already have them in the pipeline, here are three technologies I'd advise pursuing in 2003. They all add features and benefits that will help make your users more productive and let you and your team get some positive visibility inside the company.

1. Corporate instant messaging: E-mail has become the lifeblood communications for most organizations. But it's not enough. Instant messaging is the logical next step in efficient enterprise communications. It lets managers work closely with direct reports and see who's available in real time. IM-related problems, such as control of user names, security and the ability to archive messages, are all being addressed by the leading IM vendors. 2003 is a good time to evaluate and implement IM.

2. Wi-Fi: The value of the connected vs. the disconnected user is no longer a debate. The importance of staying connected is well understood, but users are often constrained by the physical limitations of their network links. Wireless 802.11x network products give users the freedom to become "corridor warriors" and remain productive even when away from their desks.

When 802.11x is combined with hardware like Tablet PCs, users can remain online even during meetings, work with remote colleagues and roam from location to location. While IT has to put many security policies in place, 802.11x networks can add tremendous value to most organizations.

3. Streaming video: Do you think that streaming video means grainy clips the size of a postage stamp? Think again. Streaming quality has never been higher, and the cost has never been lower. New technologies from

Pimm Fox is on vacation. His column returns next week.

Microsoft, RealNetworks and Apple are near broadcast quality with relatively low bandwidth penalties.

Streaming technologies can make it easy for executives to get a message out to employees or to address the outside world. Because of competitive bandwidth pricing, live events have begun to yield manageable economics for most companies. If your company hosts or televises live events, you can now make use of the Internet and streaming video to improve returns on these expenditures at dramatically lower costs.

These technologies are probably in use inside your organization already. Users are more technically aware than ever before. They read the same trade magazines that we do and understand the benefits that technology can bring them. The result is they often can and will bypass IT.

Now is the time to take the initiative and either seize control or cede control to your users. Start your research and deploy early.

EMMET COLE

Palladium Is Mythical Security

According to legend, the Palladium was a sacred statue of Athena that the Trojans believed would protect them against the advancing Greek army. But when Odysseus sneaked into Troy and stole the Palladium, Troy did not fall. That happened only when the Greeks built the Trojan horse.

Mysterious and somewhat unfortunate mythological precedents aside, serious questions are being asked of Microsoft's forthcoming Palladium technology. Will Palladium fail to provide adequate security for its new wave of worshippers? Conversely, will this product enforce a degree of "protection" so stringent that the Internet's freedom of exchange and technological diversity will itself be at risk? Will Microsoft safeguard users or its own commercial interests? Given the ubiquity of Microsoft technologies in the business world, what kind of problems lie ahead?

The Technology. Part of Microsoft's contribution to the Trusted Computing Platform Alliance (a consortium founded by HP, IBM, Microsoft and Intel), Palladium is a software/hardware combination ostensibly designed to prevent piracy and protect corporate information.

Set for release possibly as early as 2005, Palladium requires a new chip technology being developed by Intel and AMD. This chip includes new encryption functions alongside a small memory capacity acting as a digital vault and holding the keys to decrypt protected data.

Palladium could be used to secure VPNs by enabling administrators to authenticate and identify computers on the network. It could protect networks against pirated software and malicious worms. Microsoft has apparently promised to release some of the code so that developers can study and debug the software.

So what's the problem?

Unnatural Selection. While Palladium will protect data, apparently it will do so in a selective manner by limiting users' software choices to those authorized and licensed by Microsoft and its allies: a virtual lock on your business's capacity to employ diverse technologies. This equates to chip-enforced Digital Rights Management (DRM). Microsoft owns a patent for a DRM operating system. If Palladium is bundled with future editions of Windows, will Microsoft have learned its lessons about fair business practice from its recent antitrust case. Can it protect its copyrighted material at the expense of other copyrighted materials?

It seems that computers running Linux or other non-Microsoft operating systems won't be able to use the chip. With many businesses relying on Linux, planners will face some serious choices. Should they work around Palladium, or abandon open-source systems altogether?

Planners should also consider whether complete homogeneity among the security technologies used by business networks would make it easier for hackers to cause damage. Common sense has to be abandoned when there is only one basket to put your eggs in.

"It's a terrible scheme," Philip Carinhas, a Texas-based Linux consultant told me. "Any attempt to control technology is inherently antitechnology. Unless a culture of acquiescence to Microsoft is overcome, however, many businesses will be stuck with it."

The outlook for non-Microsoft-approved technologies is bleak, but it will be an uphill battle for Microsoft to convince consumers and businesses that Palladium is a virtuous technology, intended to protect our city gates.

Me? I'm wondering what form the Trojan horse will take.

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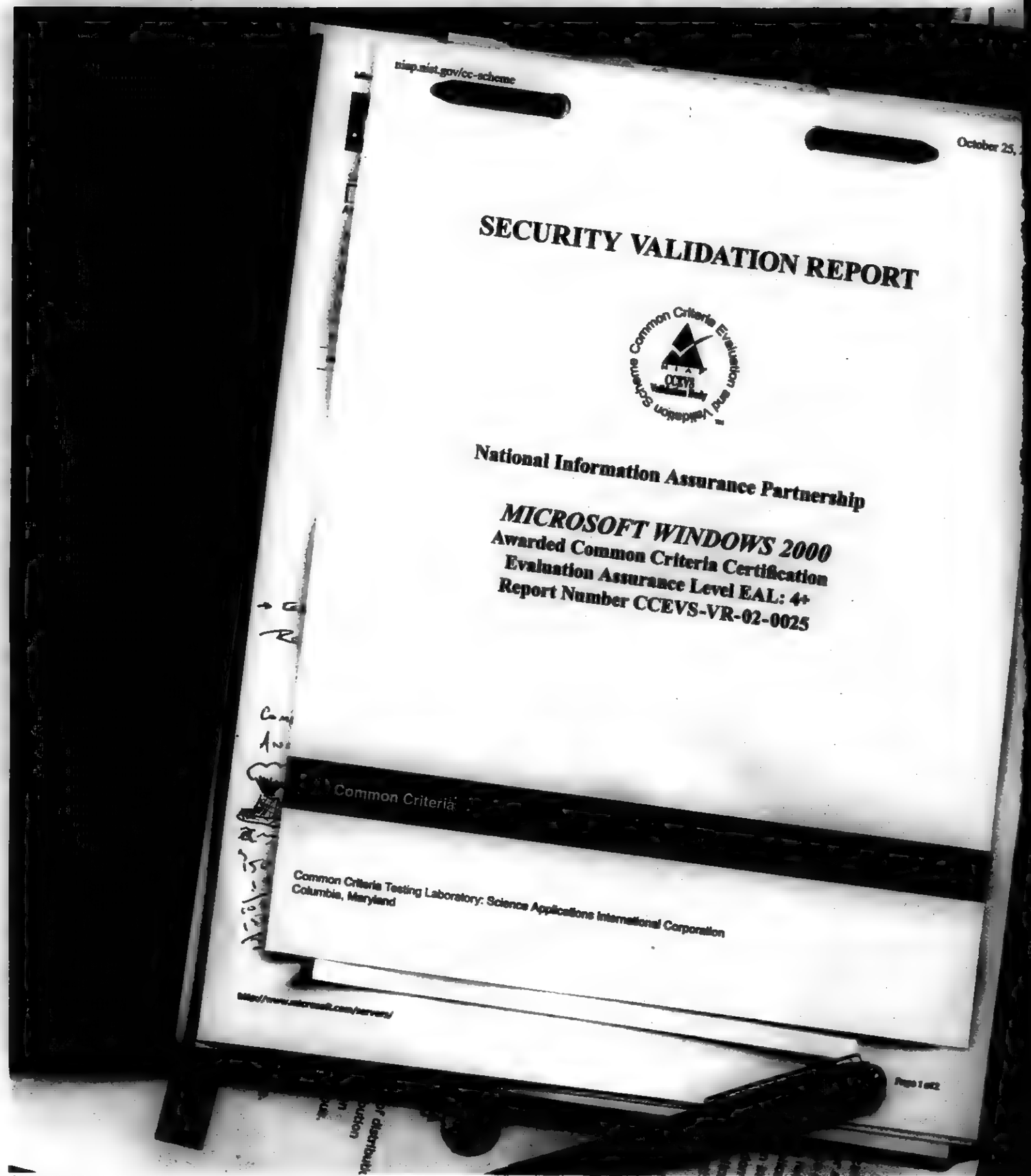

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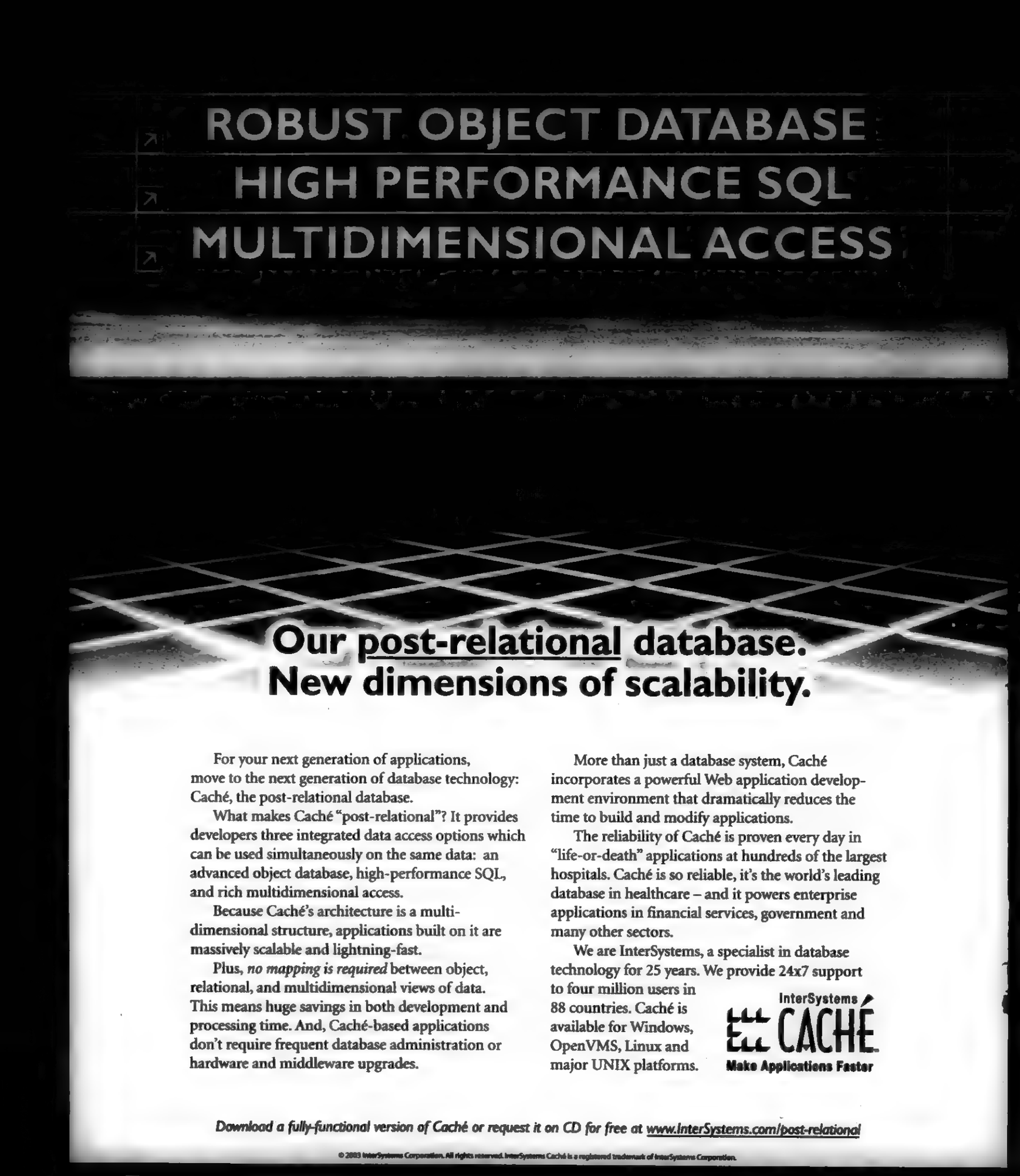

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FUTURE WATCH

Intelligent Storage

Products that ship in three to five years may feature object-based storage technologies, which promise to reduce server I/O and eliminate the need for clients to speak in either blocks or file format. **Page 28**

SECURITY MANAGER'S JOURNAL

Security Problems Sideline Survey App

A security assessment leads Mathias Thurman to discover that a Web-based survey application leaves sensitive data unprotected. **Page 30**

OPINION

Catch the Wireless Wave

Wireless networks in the enterprise really are inevitable, and what's more, they'll be arriving soon at a corporation near you, says Technology editor Tommy Peterson. **Page 31**

DAVID HOLLENBACH

Viruses GET Smarter

The next generation of viruses may be more difficult than ever to prevent — and more destructive. By Dan Verton

HE'S BEEN A VIRUS writer for seven years. He goes by the handle Melhacker and may have been responsible for the recent outbreak of the Bugbear worm, the second most prevalent worm on the Internet last year. Now he claims to be working on a new virus, Scezda, that represents a new type of threat.

Scezda, as he describes it, falls into an emerging category of megaworms that combine features from some of this year's most prolific worms and viruses, including Sircam, Klez and Nimda. It uses a random number generator to determine how long it will remain dormant on a target system. Then it randomly chooses one of many different methods to replicate itself.

This is the essence of the new era of megaworms, what some experts refer to as blended, or polymorphic, threats that rely upon multiple methods of propagation. And that's just one way in which the virus threat is evolving.

Current Threats

This past year, researchers at Lynnfield, Mass.-based Sophos Inc. detected 7,189 new viruses, worms and Trojan horses, bringing the total to more than 78,000. On average, the Sophos virus labs produce detection routines for more than 25 new viruses each day.

Nine of the top 10 viruses detected by all major virus-protection companies in 2002 were mass-mailing viruses that exploited known vulnerabilities in the Win32 application programming interface. And 87% of all reports of infections stemmed from Windows viruses.

Continued on page 24

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Viruses GET Smarter

Today, the line between worms and viruses is blurred as successful designs take on characteristics of both and spread over the Internet.

DAN INGEVALDSON, TEAM LEADER, INTERNET SECURITY SYSTEMS INC.'S X-FORCE GROUP

Continued from page 21

"Worms that are targeting known vulnerabilities are continuing to climb," says Vincent Weafer, senior director of the Symantec Security Response group at Cupertino, Calif.-based Symantec Corp. "That's significant because you're moving away somewhat from social engineering."

The most significant weakness exploited last year was the so-called malformed MIME vulnerability, originally discovered in 2001. Although a patch has been available for more than a year, viruses and worms have been able to capitalize on this vulnerability on unpatched machines to automatically execute a virus program when a user views an e-mail in preview mode.

Brid, Bugbear, Nimda and Klez all use this vulnerability, says Weafer.

"Today, the line between worms and viruses is blurred as successful designs take on characteristics of both and spread over the Internet," says Dan Ingevaldson, team leader of Internet Security Systems Inc.'s X-Force group. "The most successful worms act like a Swiss Army Knife, because they can spread by using many different proven methods, such as mass e-mail, Web server vulnerabilities or peer-to-peer technologies."

Virus Evolution

In the near future, companies will need to be prepared to deal with increasingly stealthy viruses carrying more destructive payloads, say researchers. In a recent research paper, Stuart Staniford, CEO of Silicon Defense in Eureka, Calif., outlined the emerging "threat of surreptitious worms that spread more slowly but in a much harder to detect 'contagion' fashion."

"We demonstrate that such a worm today could arguably subvert upwards of 10 [million] Internet hosts," Staniford concludes.

Anti-Virus Emergency Response Team (AVERT) researchers at McAfee Security, a division of Network Associates Inc., say they encountered a virus that took advantage of the New Technology File System (NTFS) Alternate Data Streams (ADS) feature, which allows data to be stored in hidden files that are linked to visible NTFS files — and can't be removed without deleting the NTFS file itself.

Users who don't have permission to write to a file can't add an ADS to it. And although Windows File Protection, introduced in Windows 2000, prevents hackers from replacing protected system files, it doesn't prevent an authorized user from adding ADSs, along with hidden, executable code, to those system files.

ADS's primary purpose is to enable compatibility with the Macintosh file system. But in September 2000, McAfee discovered a virus named Win2K.Stream that attempted to conceal itself in an ADS. This works because most antivirus products don't scan the ADS, says Vincent Gullotto, vice president of AVERT. McAfee has added this capability. But so far, Gullotto has seen no other instances of this technique.

The intentions of virus and worm writers are also changing. In the past, most worms and viruses destroyed data. Now, however, there are indications that the masters of malicious code are looking to steal that data.

"We'll see a progression toward targeting data," says Gullotto. "We saw that this past year with Sircam, which randomly took documents out of the MyDocuments folder."

Virus Trends To Watch

These worms and viruses change every time they replicate and target multiple vulnerability points instead of exploiting just one weakness.

Like Sircam, which removed files from the user's MyDocuments folder, new viruses will be designed to steal data — not just destroy it.

Virus writers will exploit a broader range of weaknesses, such as attaching viruses to Windows NTFS files as linked, hidden Alternate Data Stream files.

Virus and worm program writers are probing Microsoft's .Net Framework and developing programs that may leverage weaknesses in the framework and associated executable files.

Symantec's Weafer agrees. "Payloads have moved from data destruction to dropping Trojans and compromising machines, as well as sending information from the machine out of the network," he says. "You have to update your security patches."

Chris Wraight, a technology consultant at Sophos, says "combined cocktail threats" will be much harder for users to eradicate. Such a worm "might drop a Trojan, another virus, or it might replicate on another occasion," he says. So just because you've uncovered one instance of the malicious code, it doesn't mean you've discovered all infections.

And while the vast majority of worms and viruses are written to target known vulnerabilities in Windows platforms, some researchers are warning Linux and Unix users to beware. The September outbreak of the Linux Slapper worm, for example, infected more than 20,000 machines and could be used for denial-of-service attacks, says Weafer. "We're mixing Linux and Windows systems in the corporate world all the time," he says. "People who have Linux and Unix systems assumed they were immune. We know that's not true."

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Viruses GET Smarter

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DAN INGEVALDSON, TEAM LEADER, INTERNET SECURITY SYSTEMS INC.'S X-FORCE GROUP

Continued from page 21

"Worms that are targeting known vulnerabilities are continuing to climb," says Vincent Weafer, senior director of the Symantec Security Response group at Cupertino, Calif.-based Symantec Corp. "That's significant because you're moving away somewhat from social engineering."

The most significant weakness exploited last year was the so-called malformed MIME vulnerability, originally discovered in 2001. Although a patch has been available for more than a year, viruses and worms have been able to capitalize on this vulnerability on unpatched machines to automatically execute a virus program when a user views an e-mail in preview mode.

Brid, Bugbear, Nimda and Klez all use this vulnerability, says Weafer.

"Today, the line between worms and viruses is blurred as successful designs take on characteristics of both and spread over the Internet," says Dan Ingevaldson, team leader of Internet Security Systems Inc.'s X-Force group. "The most successful worms act like a Swiss Army Knife, because they can spread by using many different proven methods, such as mass e-mail, Web server vulnerabilities or peer-to-peer technologies."

Virus Evolution

In the near future, companies will need to be prepared to deal with increasingly stealthy viruses carrying more destructive payloads, say researchers. In a recent research paper, Stuart Staniford, CEO of Silicon Defense in Eureka, Calif., outlined the emerging "threat of surreptitious worms that spread more slowly but in a much harder to detect 'contagion' fashion."

"We demonstrate that such a worm today could arguably subvert upwards of 10 [million] Internet hosts," Staniford concludes.

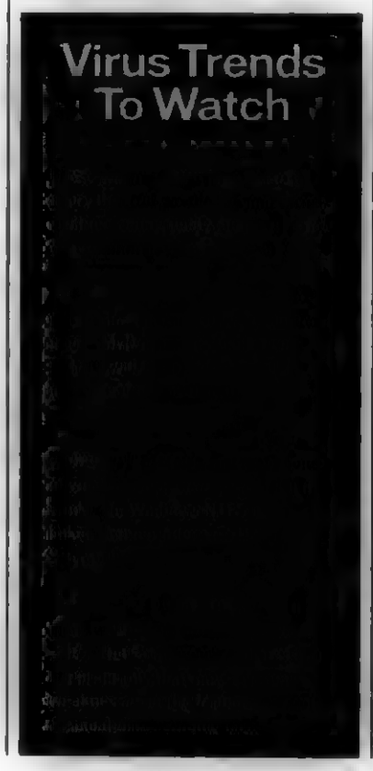
Anti-Virus Emergency Response Team (AVERT) researchers at McAfee Security, a division of Network Associates Inc., say they encountered a virus that took advantage of the New Technology File System (NTFS) Alternate Data Streams (ADS) feature, which allows data to be stored in hidden files that are linked to visible NTFS files — and can't be removed without deleting the NTFS file itself.

Users who don't have permission to write to a file can't add an ADS to it. And although Windows File Protection, introduced in Windows 2000, prevents hackers from replacing protected system files, it doesn't prevent an authorized user from adding ADSs, along with hidden, executable code, to those system files.

ADS's primary purpose is to enable compatibility with the Macintosh file system. But in September 2000, McAfee discovered a virus named Win2K.Stream that attempted to conceal itself in an ADS. This works because most antivirus products don't scan the ADS, says Vincent Gullotto, vice president of AVERT. McAfee has added this capability. But so far, Gullotto has seen no other instances of this technique.

The intentions of virus and worm writers are also changing. In the past, most worms and viruses destroyed data. Now, however, there are indications that the masters of malicious code are looking to steal that data.

"We'll see a progression toward targeting data," says Gullotto. "We saw that this past year with Sircam, which randomly took documents out of the MyDocuments folder."



Symantec's Weafer agrees. "Payloads have moved from data destruction to dropping Trojans and compromising machines, as well as sending information from the machine out of the network," he says. "You have to update your security patches."

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AGENTS OF CHANGE

Software agents tame supply chain complexity and optimize performance. By Gary H. Anthes

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"Some of the conclusions were surprising, and some confirmed what we believed but didn't have the data to support," Kellam says.

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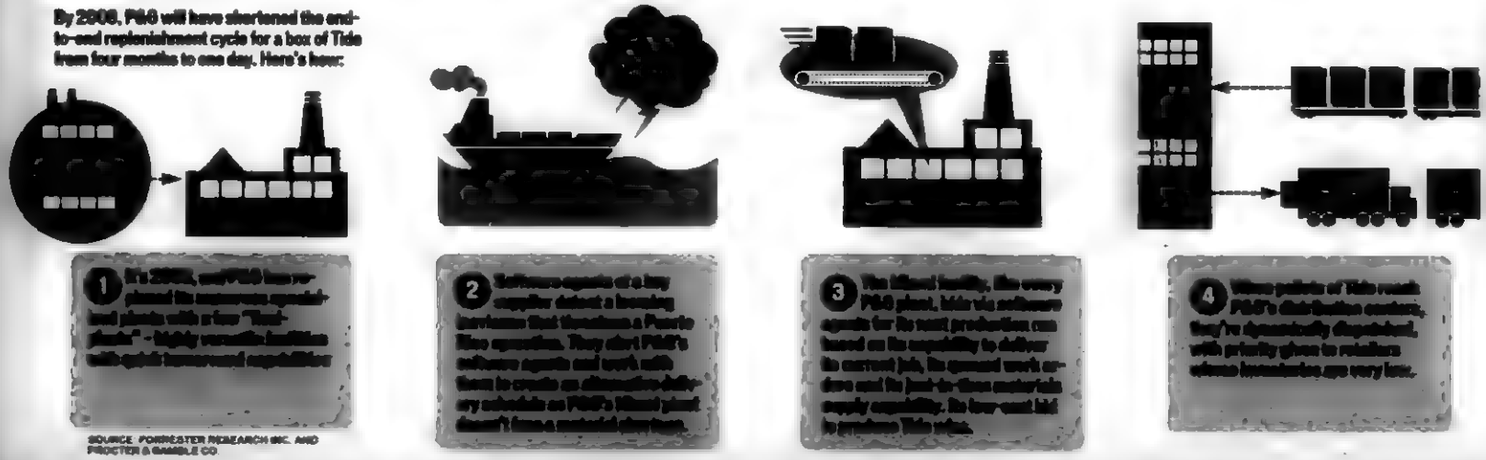

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SOURCE: FORRESTER RESEARCH INC. AND PROCTER & GAMBLE CO.

FAQ: Agent-based modeling of complex, adaptive systems

What are "complex systems" in this context? These are non-computer systems, such as a company's supply chain. A system is "complex" when it has so many variables and interacting forces that it can't be understood in its entirety or optimized by traditional, top-down approaches.

How can you tame this complexity? Although these systems are complex overall, they use a few simple rules at local levels. For example, in a supply chain system, a rule in a warehouse might be, "Fill orders on a first-in, first-out basis," or "Don't send this truck out on delivery until it is full." Dozens or hundreds of these local "agents" – truck dispatchers, say – acting autonomously produce complex behavior by the system as a whole. It's possible to simulate this complex behavior by programming software agents with a few rules and letting them interact with one another. By optimizing the agents' activities at a local level, it's possible to improve the performance of the system as a whole.

Why are these systems called "adaptive," and why are they sometimes likened to ant colonies? Ants individually have extremely primitive brains, yet collectively they run surprisingly sophisticated and efficient operations. With no central direction, they divide responsibilities among themselves, find food, build and maintain their nests, tend to their young and respond to attacks. And the colonies adapt: If you block access to a source of food, ants will find an alternate route to the food. Complex adaptive systems do the same. For example, if Plant A can't satisfy a customer order because it's temporarily out of a raw material, Plant B may fill the order. Plant B may do this "automatically," based on simple local rules without direction from a central authority.

What is meant by "emergent behavior"? Like ants, individual agents can modify their rules to adapt to changing circumstances, and this can alter the global behavior of the system, often in unpredictable ways. Sometimes small, local changes can have big system impacts, just as a tiny disturbance in the atmosphere over Africa can lead to a hurricane days later in the Gulf of Mexico. Agent-based modeling can help us understand and predict these emerging behaviors and help us devise new rules for the local agents that will improve the performance of the system as a whole.

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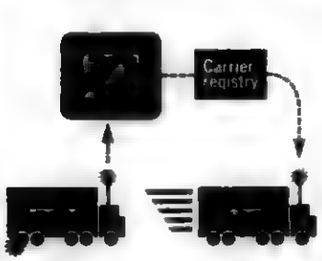
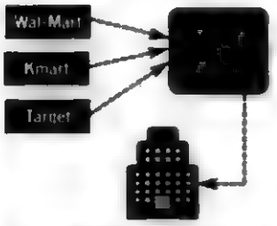
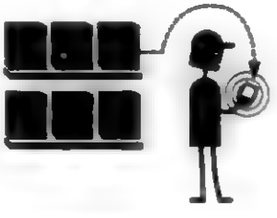


5 When a fire blocked Broadway to delay a shipment of Ritz, P&G's agents detect it and frequently an alternative trucker, who picks up the product and delivers it to Wal-Mart just in time.

6 Wal-Mart has replaced all of its costly warehouses with cross-docking facilities it shares with suppliers. These cross-docking facilities function like gateways. Ritz-to-eleven within hours of receiving them.



7 Software agents collect real-time sales data on each P&G product from multiple retail stores. They aggregate it and relay it to P&G's sales and marketing for trend analysis.



8 Wal-Mart's smart stores alert salesclerks to immediately restock. This from the book warns employees it's the end. This is a product [illegible] when the last item would have [illegible] of the shelf.

AGENTS OF CHANGE

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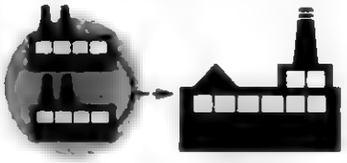

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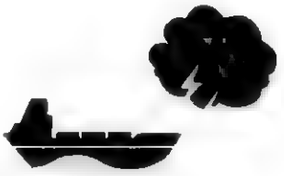

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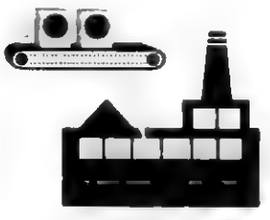

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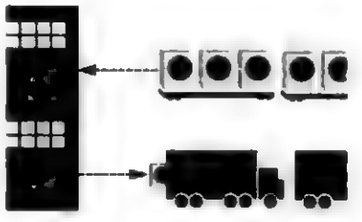

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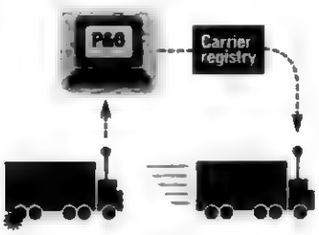
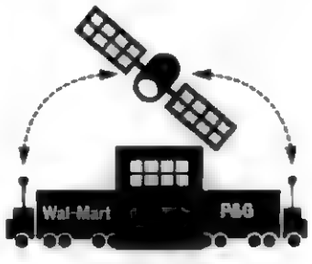
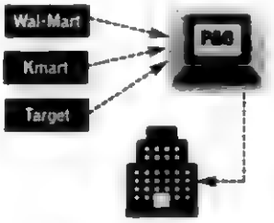


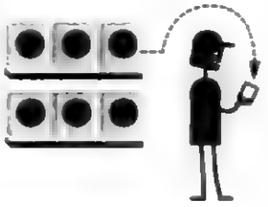
5 When a tire blowout threatens to delay a shipment of Tide, P&G's agents detect it and prequalify an alternative trucker, who picks up the product and delivers it to Wal-Mart just in time.



6 Wal-Mart has replaced all of its costly warehouses with docking facilities it shares with suppliers. These docking/distribution facilities ship products like Tide to stores within hours of receiving them.



7 Software agents collect real-time sales data on each P&G product from multiple retail stores. They aggregate it and relay it to P&G's sales and marketing for trend analysis.



8 Wal-Mart's smart shelves alert a stocker to immediately retrieve Tide from the back room and place it on the shelf. Tide is restocked just seconds before the last box would have been taken off the shelf.

Intelligent Storage

Object-based storage carries the promise of smart arrays that manage their own data. By Lucas Mearian

IMAGINE A STORAGE DEVICE that uses its own horsepower to manage data, requires no manual settings for security and doesn't care if the client server speaks in blocks or files. That's the promise of object-based storage.

Object-based storage technologies shield the application or operating system from the low-level details of managing file storage. In one method, intelligence is added to the storage device in order to offload low-level storage management tasks traditionally handled by the operating system, such as mapping files to actual storage blocks on the disk drive and managing file attributes and other associated metadata.

Although widespread use of object-based storage is still some years away, the technology could result in storage systems that are more scalable, reliable, secure and manageable.

FUTURE WATCH

The T10 Technical Committee, which is part of the Washington-based InterNational Committee for Information Technology Standards and the Mountain View, Calif.-based Storage Networking Industry Association (SNIA), is working on a specification for object-based storage, called Object-Based Storage Devices (OSD). OSD turns files, directories and storage-related elements into objects that storage management software accesses using an extended SCSI-3 command set.

"But SCSI is just one component of what we're doing," says Michael Mesnier, a storage architect at Intel Corp. and co-chairman of the SNIA OSD Technical Work Group. "We're also looking at a more general-purpose definition of object-based storage which is irrespective of the transport, which means you can run it over SCSI, you could run it over Fibre Channel . . . over TCP/IP or whatever. To me, that's a much stronger impact."

By putting some of the intelligence for accessing objects into the storage array instead of the application server, networks could be infinitely scalable because servers would no longer have to eat up bandwidth searching for and accessing files or blocks of data.

"Just like you could plug a different hard drive into your PC, you could add another server to a storage system in the same way," says Scott A. Brandt, an assistant professor at the Storage Systems Research Center at the University of California, Santa Cruz (UCSC).

UCSC's Jack Baskin School of Engineering is designing a high-performance storage network, based on commodity hardware, that can store up to 2 petabytes of data based on the proposed OSD model.

"While you're still dealing with blocks, they're hidden from the file system," Brandt says. "As you add more storage, you're adding more smarts. What might have been prohibitive details added to a large system are now details handled by the storage device itself."

Moving the object metadata and attributes out of the file system also eliminates the file server as a scalability bottleneck, Brandt says.

Efficiency Gains

OSD makes for a much more efficient I/O configuration, says Mark Bradley, a technology strategist in Computer Associates International Inc.'s BrightStor unit. "You're no longer having to pass all these low-level read/write blocks back and forth between a file system and a device," he says.

For example, Bradley says, a file system could say, " 'I need foo.bar,' and foo.bar comes. Therefore, your communications over the interface, whether it's a network interface or not, becomes much less complicated and takes up less bandwidth, and in turn creates far fewer errors."

In April, EMC Corp. introduced what it calls content-addressed storage, based on a new storage server called Centera. Experts believe Centera is one of the first true object-based storage arrays.

Centera is an array that also handles all storage management issues by assigning each stored file a unique file object identifier that it passes back to the application. The application then requests that identifier to obtain the file, and the appliance takes care of the details of where and how the file is actually stored.

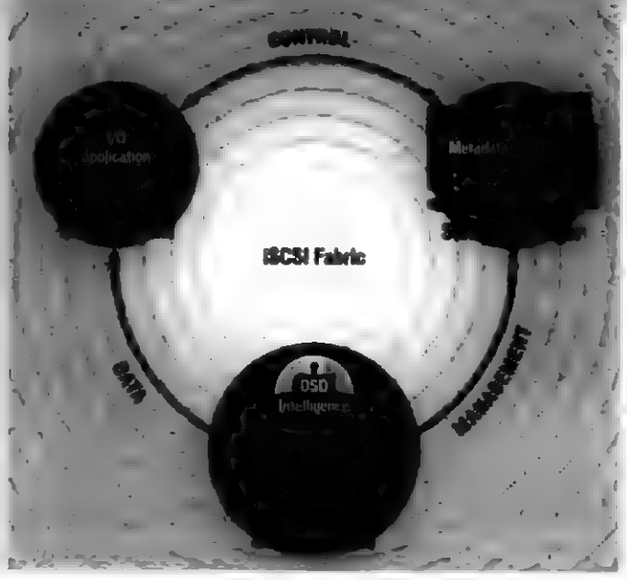
Mesnier emphasizes that the proposed standard is not a completely new model. "It's just taking [Network File System], in a sense, and applying it to what used to be considered dumb peripheral devices," he explains. "Imagine a world where two different file systems agree on data, then go directly to the same storage device and share the same data."

He says that the biggest benefits of object-based storage will come in the form of increased, more granular security and data-sharing capability.

"If I look at a block-based device today, an individual block cannot be protected," Mesnier says. "Once you get access to the entire device, you can read or write to any block you want to. You could format the device if you wanted to. With object-based storage, you can ascribe a security domain to each and every object."

OSD System Architecture

The proposed Object-Based Storage Devices (OSD) standard adds intelligence to the storage device in order to offload low-level storage management tasks traditionally handled by the operating system. In this example, OSD partitions the storage system around an iSCSI storage fabric. The storage manager still logically owns the storage devices, but now it can focus on maintaining the metadata that describes how a storage system maps to the object-based storage devices. The storage client consults the storage manager to learn of this metadata and then directly accesses the storage device.



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SECURITY LOG

USER REVIEW

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There are two main forces at work moving corporate IT toward wireless. The first is the pull of the technology itself. The 802.11b standard is chugging toward maturity, while its siblings — a, g and the coming high-performance 802.15.3, to name a few — represent the first of many more protocols that will eventually provide the glue to bind wireless networks together.

The other force is the push from end users who have gotten used to checking their AOL and Hotmail accounts from the corner coffee shop. Wireless is no longer a novelty to them; it's a promise of freedom, connectivity and uninterrupted productivity. And don't forget that the next generation of IT professionals will have spent their college careers thinking that access to a wireless LAN is as normal as access to the library.

OK, there's still a way to go. Clearly, if the uses of the technology are going to get more sophisticated than connecting tradesmen to inventory, scheduling and dispatching systems, more progress must be made on the interoperability front. But as painful and halting as that progress may be, the struggle is familiar — we saw it with other significant technologies as they matured and gained acceptance. And the payoff for both users and vendors is sufficient to ensure that standards will prevail.

Questions about security, worrisome in relation to any technology used in a corporation, are somehow harder to put to rest about wireless.

Wireless security is very much like security in the wired world — the right technology is important, but policy and practice are more so. The keys are rigorous authentication of users and devices by the host system, and improved encryption to protect data while it's in transit. The 802.11 Wired Equivalent Privacy standard has proved to be woefully inadequate, but the coming 802.11i protocol will include the government-approved Advanced Encryption Standard. Security will always be a race, but the good guys will soon have the tools to keep ahead of the hackers and crackers.

So as you turn the Groundhog Day corner toward spring, take a peek over the bunker wall and think about the future of your company's IT infrastructure. The wireless wave is coming — now's the time to catch it.

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SECURITY LOG

AppScan 3.5

www.sanctuminc.com

AppScan 3.5 from Santa Clara, Calif.-based Sanctum is a big improvement over Version 3.0. The look and feel of the configuration screens are similar, but the reporting capabilities, false positive rate, vulnerability database and general ease of use have improved. The product includes new SQL, cookie-poisoning and Java vulnerability checks, as well as several new application-specific checks, including ones for Apache Tomcat and IIS 6.0.

There are several ways to use AppScan, ranging from a step-through to a fully automated scan. I used an automated scan, which required only the Web address of the application, form data and any password credentials. The resulting report was intuitive, listing a description of the attack, the actual data used to assess the application, the resulting information and a severity level. I especially liked the tool's enumeration of the vulnerable link or file. AppScan is a comprehensive tool with great reporting features. Subscription pricing starts at $5,000.

—Mathias Thurman

Pkzip Adds Encryption

Pkware Inc. announced a new version of its popular Pkzip file-compression utility that adds 256-bit Advanced Encryption Standard encryption and integration with Lotus Notes client software. Pkzip 8.0's encryption is based on Sentinel, Ghent, Ireland-based RSA Security Inc.'s BSafe cryptography and supports certificate or password-based encryption and authentication. Brown Deer, Wis.-based Pkware is also adding support for Unix, OS/400 and MVS to its Windows Pkzip 8.0 ships this week. The Professional Edition is priced at $185 per user.

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There are two main forces at work moving corporate IT toward wireless. The first is the pull of the technology itself. The 802.11b standard is chugging toward maturity, while its siblings — a, g and the coming high-performance 802.15.3, to name a few — represent the first of many more protocols that will eventually provide the glue to bind wireless networks together.

The other force is the push from end users who have gotten used to checking their AOL and Hotmail accounts from the corner coffee shop. Wireless is no longer a novelty to them; it's a promise of freedom, connectivity and uninterrupted productivity. And don't forget that the next generation of IT professionals will have spent their college careers thinking that access to a wireless LAN is as normal as access to the library.

OK, there's still a way to go. Clearly, if the uses of the technology are going to get more sophisticated than connecting tradesmen to inventory, scheduling and dispatching systems, more progress must be made on the interoperability front. But as painful and halting as that progress may be, the struggle is familiar — we saw it with other significant technologies as they matured and gained acceptance. And the payoff for both users and vendors is sufficient to ensure that standards will prevail.

Questions about security, worrisome in relation to any technology used in a corporation, are somehow harder to put to rest about wireless.

Wireless security is very much like security in the wired world — the right technology is important, but policy and practice are more so. The keys are rigorous authentication of users and devices by the host system, and improved encryption to protect data while it's in transit. The 802.11 Wired Equivalent Privacy standard has proved to be woefully inadequate, but the coming 802.11i protocol will include the government-approved Advanced Encryption Standard. Security will always be a race, but the good guys will soon have the tools to keep ahead of the hackers and crackers.

So as you turn the Groundhog Day corner toward spring, take a peek over the bunker wall and think about the future of your company's IT infrastructure. The wireless wave is coming — now's the time to catch it.

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Big Recruiters on Campus? Not This Year
There's plenty of experienced talent among the ranks of the unemployed. Read our Campus Connection, starting on page 36.

Handling the Hard Case
Motivating most IT people is easy, but what do you do with those who just don't buy in? Page 39

Manage Suppliers for Project Success
Research shows that few large IT projects meet their full objectives. Columnist Bart Perkins offers some tips on how to complete your projects within budget and with all the features. Page 40

Store e-mails properly, or you could face stiff fines. BY MARY K. PRATT

SAVE THAT MAIL

Tens of thousands of e-mails pass through the offices of Friedman, Billings, Ramsey Group Inc. every month.

The Arlington, Va.-based financial services holding firm had stored e-mails on tape, but CIO Jerry Carlsen recently was given the task of upgrading that storage system to one that has the ability to index and archive e-mails.

So Carlsen dedicated 60 hours of his IT staff's time each week for four months to work with SJ Technologies LLC, a global systems integrator in Phoenix, to develop the new e-mail storage system. The system required six new servers and uses EmailXtender software from Legato Systems Inc. Carlsen is still assessing what the best storage media will be.

With new hardware and software in place, Friedman, Billings, Ramsey has a system that's capable of storing and indexing e-mails from 450 employees at 16 locations worldwide. Now if employees or regulators want to retrieve an e-mail, they can use the date,

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SAVE THAT MAIL

Continued from page 33

user, topic or other identifiers to find it.

Such attention to e-mail might seem excessive, but executives in industries across the board are realizing that properly storing messages has become serious business as courts, government officials and industry regulators increasingly order expensive searches and issue stiff fines for lost or poorly stored e-mails.

Consider this: Securities regulators recently fined five Wall Street firms — Goldman Sachs & Co., Salomon Smith Barney Inc., Morgan Stanley, Deutsche Bank Securities Inc. and Piper Jaffray Inc. — a total of $8.25 million for not keeping certain e-mails for the required period of time [QuickLink 34912]. Regulators said the five firms violated securities rules by failing "to preserve for three years, and/or to preserve in an accessible place for two years" such office memoranda as e-mails related to their exchange, brokerage or dealer businesses.

Companies must follow legal and regulatory requirements that dictate what records to keep and for how long. These rules generally don't speak to the media on which those records originated; instead, they usually apply to all records, whether they're papers, e-mails or electronic attachments.

Brokerages often have the tightest regulations when it comes to archiving records, experts say. For example, the Securities and Exchange Commission requires that they keep securities transactions for seven years. But brokerages aren't the only ones working under record-keeping requirements. Lenders must keep Home Mortgage Disclosure Applications — whether on paper or in e-mail — for three years. Human resources departments must keep personnel records, including e-mailed applications and responses to job ads, for one year from the date of personnel action.

"It's a technology nightmare, and it's going to get worse as the years go on and the e-mails build up," says Mark E. Schreiber, a partner in the labor and employment department at Boston law firm Palmer & Dodge LLP.

Companies that don't keep required documents, including e-mails, could face more than fines, says Mickey C. Andrie, a sales manager at SJ Technologies. Under the SEC regulation known as 17a-4, financial services firms could be hit with censure or with license suspension or revocation as well.

Firms that fail to archive e-mails so they're easily and quickly retrievable also face the high cost of trying to recover one or two messages demanded by a regulator or a judge, for example.

Winston Krone, managing director in the San Francisco office of SafirRosetti, a security consulting, investigation and intelligence firm, has worked on cases where he had to sort through 150GB of information to find required e-mails. A midsize company with a couple of venues could spend up to $500,000 combing through corporate e-mails to find one or two messages, he says.

Certainly, companies had to cope with records retention for decades prior to e-mail, and many employed compliance officers or lawyers to oversee records management. But executives have had less experience in dealing with archiving e-mail, experts say, and that has led to some of the confusion on the issue today.

"E-mail exploded on the scene with no traditional solutions," says Deborah Baron, director of product marketing at Zantaz Inc. in Pleasanton, Calif. Zantaz provides digital archiving and records management tools as well as electronic discovery to meet the regulatory, audit and legal compliance needs of financial services firms, energy companies and government agencies.

And with the SEC getting tough on e-mail archiving after finding incriminating e-mails during recent scandals like the one that took down Enron Corp., companies are now paying closer attention to the topic.

In light of that, experts agree that technology personnel shouldn't be the only ones devising e-mail storage policy. Companies should have legal counsel, regulatory managers, human resource executives and IT personnel formulate a strategic plan for storing, archiving and managing the data.

They should start by defining their goals, says Laura Harrison, project manager for SJ Technologies' messaging business division. SJ has partnered with Mountain View, Calif.-based Legato, a provider of online data storage management and data access products, and with Oracle Corp., to design and implement enterprisewide content management systems as well as customized storage applications.

Companies must decide whether to keep all e-mails or only specific ones. Most companies, after doing a risk analysis, decide to keep them all, even those that just say "Let's meet for lunch," rather than risk deleting a crucial e-mail that might later be required, Harrison says.

Next, IT staffs should examine the number of employees and the volume and size of the average e-mail, experts say. They should also consider what needs to be kept near-line or online, how often stored messages will be accessed, and who will access them. In general, simply adding more disk capacity to existing backup storage systems won't be sufficient to meet legal and regulatory requirements, says Baron.

The Security Angle

Baron advises companies to also consider security when devising e-mail storage systems. "E-mails stored on backup tape leave room for tampering. That's why real-time archiving is critical to meet legal and regulatory requirements," she says.

Consider U.S. Food and Drug Administration regulation 21 CFR Part 11, which establishes the criteria under which electronic records and signatures are considered equivalent to paper records and handwritten signatures. It requires in part that access to electronic records be restricted to only authorized personnel and that companies must be able to retrieve stored data for the same length of time as equivalent paper records, which can mean up to 10 years or longer.

"When companies are not fully compliant with 21 CFR Part 11, the FDA makes a case-by-case evaluation as to whether or not to pursue regulatory actions. Noncompliance might lead to regulatory exposure, costly rework and downtime, compromised product quality, and even fines, prison sentences and sanctions," according to the Web site of Princeton Softech Inc., a Princeton, N.J., company focused on data management products and services.

Experts say e-mail storage usually involves investing in new hardware, such as network-attached storage or storage-area networks; software to manage it; networking equipment such as routers, switches and firewalls; and a database administrator.

A company would pay approximately $100,000 for hardware and another $100,000 for software for a 5TB protected configuration, according to estimates provided by EMC Corp. in Hopkinton, Mass.

Companies can expect a total e-mail storage system to cost six to eight times as much as the base storage hardware (for example, a RAID storage system or optical disks) on an ongoing basis, Baron adds. So if a company spends $1,000 per month for storage hardware, it should budget $6,000 to $8,000 per month to manage the system.

But Christopher Laping, vice president and CIO at Denver-based GMAC Commercial Holding Capital Corp., says costs are often secondary to meeting the evolving regulatory and legal requirements for e-mail storage.

As SJ Technologies President and CEO Ian Singer says, "It's more an issue of compliance."

Pratt is a freelance writer in Waltham, Mass. Contact her at markmary@mindspring.com.

Archive This

Various federal and industry regulations require that companies store records for minimum lengths of time:

- **Securities transactions and related records: Seven years**
- **Mortgage applications and lending documents: Three years**
- **Personnel records, including e-mail applications: One year**

Calculating Requirements

- the total number of employees and the volume and size of the average e-mail
- a risk analysis to decide which e-mails to keep
- how often stored e-mails will be accessed and by whom

SAVE THAT MAIL

Continued from page 33

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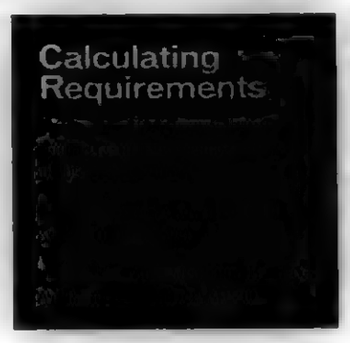

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Home-Sch IT Talent

FedEx and other forward-thinking companies are teaming up with neighboring universities to teach the IT skills their businesses require.

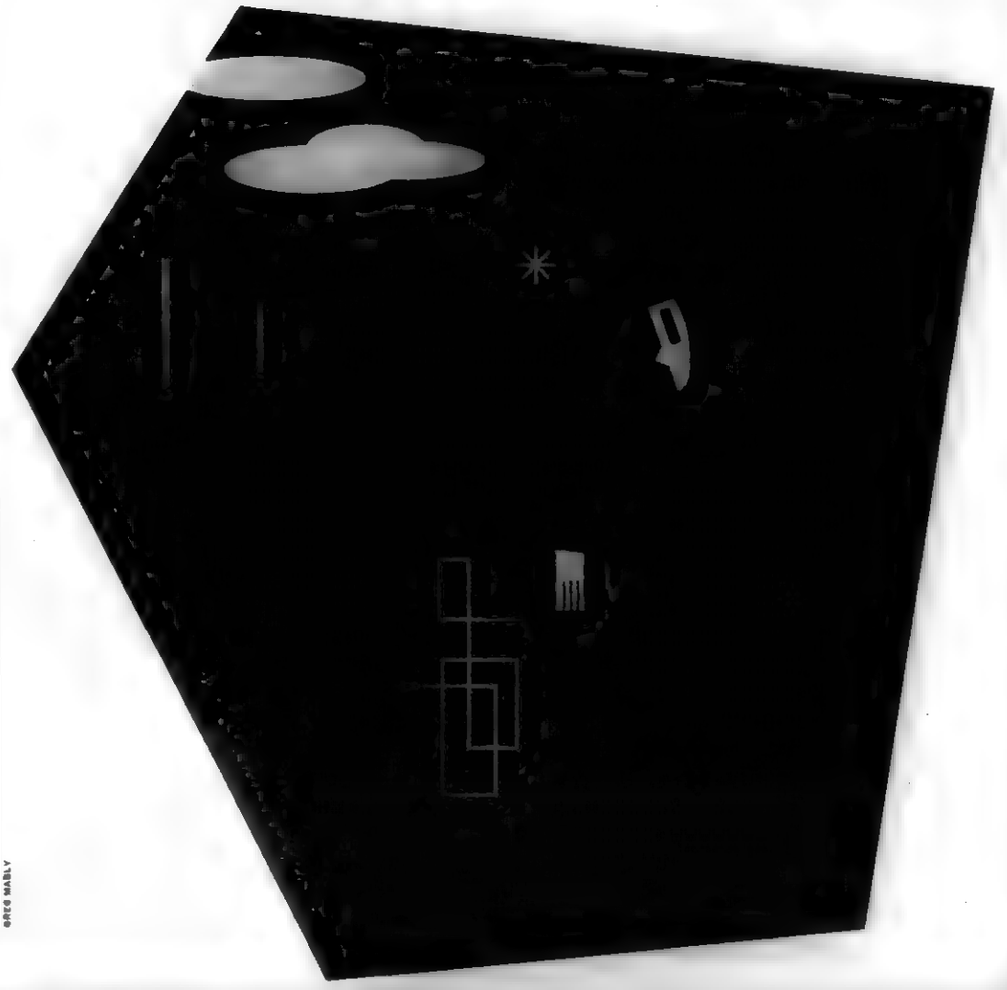
By Mary Brandel

MEMPHIS HAS LONG SERVED as home base to technology innovator and shipping giant FedEx Corp. This fall, the city hopes to become a hotbed of leading-edge technology research and learning, when the four-story, $23 million FedEx Technology Institute opens at the University of Memphis.

The vision is for the center, which was pioneered and partially funded by FedEx, to become "the digital epicenter of the Mid-South," says Jim Phillips, chairman and executive director of the institute. On-campus students, professors and scientists, as well as researchers and business executives inside and outside of FedEx, will gain access to "mind-blowing technologies with unbelievable applications in an infinite number of areas," he says.

CONNECTION

A very distinct benefit for FedEx is that the institute will increase and sharpen the skills of the local IT talent pool, and it will produce graduates right in Memphis who have training and experience that jibe with



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FedEx's needs. But Phillips is quick to point out that the new center isn't just an adjunct FedEx training facility, nor does FedEx control its research efforts.

However, he says, the institute will absolutely attract more students interested in IT to the University of Memphis, which will help FedEx and other companies fulfill their IT needs. The hope is that the training might even attract new business to Memphis. "Absolutely, I can see some really interesting and relevant centers of technology inside the FedEx Institute that relate to FedEx missions," Phillips says.

At the institute's Center for Next Generation Transportation, for instance, "we're working to create an invisible plasma on the wing surfaces of airplanes to drive fuel costs down by as much as half," Phillips says. "And in trucking, we're working on a unit that plugs into the truck cab that will help save billions on diesel fuel."

Beneficial Partnerships

In this climate of layoffs and few new jobs, particularly at the entry level, many large employers are opting out of campus recruiting this year (see story, page 38). But a few forward-thinking companies are seeing the wisdom of working with area universities and community colleges to turn their regions into hubs for IT activity. The benefits are plentiful, these companies say: The talent, in effect, comes to you, lowering recruiting costs; you can home-grow talent in lifelong local residents, who tend to be long-term employees; and you can influence school curricula to meet your IT needs.

"The majority of companies are not doing what they need to do to develop skills proactively," says Maria Schafer, an analyst at Meta Group Inc. "When things do pick up, they'll be scrambling to find people." She recommends that companies maintain relationships with universities or training institutes to ensure that the basic skills they need are being taught. They can then, in turn, expand upon them.

Retaining IT employees and creating a larger local talent pool were goals of Missouri's state government in the late 1990s, says Jan Grecian, a technology specialist for the state in Jefferson City. "We employ roughly 1,400 IT professionals, and there are other businesses here in town," she says. "We were doing a lot of stealing from one another." Salaries were also a problem: People could easily move to the larger cities of St. Louis or Kansas City to double their money.

So the state, local IT employers, area universities and colleges, and the Chamber of Commerce formed a coalition and developed a mission to get more local people into the IT field. The group, which meets once a month, targeted high school students to raise their awareness of local IT education and job opportunities. The coalition also focuses on workers in other careers who want to retool for the IT field. Coalition members also joined the advisory boards of local higher education centers.

"All the schools have been good at rising to the challenge and tweaking their curriculum" to meet employers' needs, Grecian says. For instance, in 1997, many of the schools were looking at dropping Cobol, but the coalition urged them not to because many IT shops were still heavily invested in that technology and hadn't gone through Y2k remediation yet.

A top-notch networking degree program was added as a direct result of the coalition needing more networking talent, Grecian says, and more recently, some schools have agreed to consider adding Microsoft .Net to their curricula. Additionally, a college about an hour away installed a satellite school in Jefferson City, offering computer science, networking and Web development programs.

All of this has resulted in a greater number of qualified IT candidates. "The numbers have increased substantially in the local schools where they've added to the IT curriculum," Grecian says.

'Two-Way Street'

Even big-name companies in large cities see the need to increase IT noise levels and influence the IT curricula at area schools. "The more we can do to make the IT curriculum enticing to bring others in and keep the kids who live here, the better off we are," says Don Haile, president of Fidelity Investment Systems Co., the IT arm of Fidelity Investments in Boston. "When we bring in kids from local universities, there's a greater degree of loyalty."

Fidelity has worked with Babson College in Wellesley, Mass., on its human interface design curriculum and has served on task forces and advisory boards at the University of Massachusetts, Bentley College and MIT.

"I always get asked, 'What should we be teaching?' We'll be clear that we want students to understand Java and XML and that they need to get on board with .Net," Haile says. "They know this, but we're just confirming their suspicions. It's a two-way street — I'm looking for new blood, and they're interested in seeing what we think and what we're doing."

Everyone agrees that no college program can be expected to produce students with the leading-edge skills that are immediately valuable to an employer. But, Grecian points out, if you can encourage area residents to follow the IT route at local schools that are teaching the curriculum that matters most to nearby employers, "they come out with the concepts down and a desire to learn, and they'll do continuous training at their place of employment."

Even in the current economy, Grecian says, the coalition's work is well worth the effort. "We haven't been as active lately" because of the economy, she says. "But the work isn't going away. It's just a matter of time, and we'll see this cycle around again."

Brandel is a freelance writer in Newton, Mass. Contact her at brandels@attbi.com.

Not Your Typical Schoolhouse

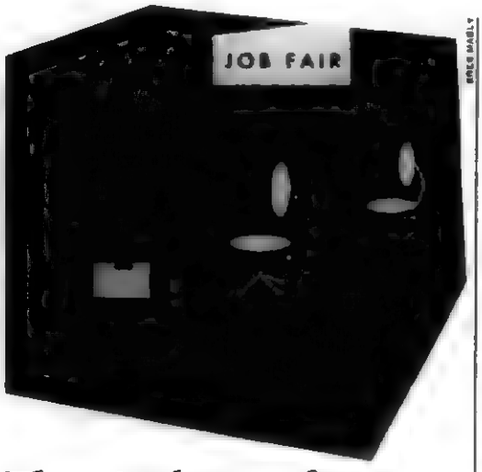
Scheduled for completion this fall, the four-floor, 93,000-sq.-ft. FedEx Technology Institute has three key goals:

- To produce a digitally savvy workforce and student pool.
- To conduct world-class interdisciplinary research.
- To be an evolving, dynamic resource through which local businesses can come together to find solutions to real-world problems.

With its extensive use of wireless technologies and high-speed Internet2 backbone, the new facility "is not your typical red-brick schoolhouse," says Jim Phillips, executive director of the institute. Its 200-seat "Forum," for instance, has technology that professors can use to give quizzes with immediate scoring feedback or conduct instant polls. A presentation theater has a digital screen, spatially dynamic sound control and sensory body suits that could, for example, be used to help students learn the nuances of orchestral conducting. And its "Cafe Wired" offers wired and wireless Internet connections.

The institute will give businesses a place to work together on projects and solve business problems, and it will offer campus scientists more space for research and better opportunities for interactions with off-campus researchers.

It is FedEx's belief that the institute will create a symbiotic relationship between the University of Memphis and Memphis-area businesses and start-ups that the area just didn't have before, says Phillips.



Big Recruiters On Campus? Not This Year

There's plenty of experienced talent among the ranks of the unemployed.
By Barbara DePompa

FOR A SECOND STRAIGHT YEAR, formal on-campus recruiting of IT graduates is way down, thanks in part to the slow economy, an abundance of unemployed IT talent and continued corporate belt-tightening.

Recruiters and IT executives from just about everywhere but Microsoft Corp. say there are simply too many experienced IT professionals available from businesses that have laid off workers in the past two years.

Moreover, few new jobs are being created. In a December survey of 150 CEOs representing companies employing a total of 10 million people, 80% of the respondents said they would hold the line or reduce capital spending in 2003. "This will most certainly stunt job creation," says John Challenger, CEO of Challenger, Gray and Christmas Inc., which conducted the survey.

The IT talent glut makes it unnecessary for companies to go fishing on college campuses for more IT personnel. "It's simply crazy to recruit workers without job experience when there are so many talented IT professionals available," says Rob Collins, CIO at business intelligence software provider Cognos Inc. in Ottawa.

Downturn Predicted

A survey released in late December by the Bethlehem, Pa.-based National Association of Colleges and Employers (NACE), which tracks college graduates for recruiters and human resources professionals, confirms the bleak job outlook for all college graduates. In August, NACE projected that employers would hire 3.6% fewer college graduates in 2002-03 than they hired in 2001-02. In December, 60% of 312 employers responding to NACE's latest survey reconfirmed their intentions to hire fewer new college graduates, and the rest said they plan additional cuts in college-grad hiring.

Many businesses have no budget or mandate to hire on college campuses now, says Maria Schaffer, an analyst at Meta Group Inc. in Stamford, Conn. Meta will publish the results of its annual survey of Fortune 1,000 CIOs later this quarter. But Schaffer says that according to the raw survey data, fewer than 2% of CIOs will recruit on campus this year, down from 6% in 2001 and way down from a high of 18% of companies in 2000. "Many companies may end up sending a human resources person for a day to interview top candidates at leading colleges, but most aren't making immediate job offers," she says.

In fact, most companies are counting on most of their competitors to forgo campus recruiting this year, says Bill Coleman, senior vice president of compensation at Salary.com Inc., a human capital management software and research firm. "That way every company will be on the same footing when the situation improves and jobs become available," he says.

But there's a significant exception. Microsoft, which is expanding its campus recruiting this year, views the pullout by competitors as shortsighted. "We are committed to college recruiting," says Kristin Roby, Microsoft's senior director of college and MBA recruiting. "Companies that turn away now risk losing the relationships they will need when the economy fully recovers," she says.

Over the past few years, Microsoft has recruited about 600 computer science students per year for full-time positions. This year, it will increase that to 800 new hires, though Roby admits the additional 200 personnel hired won't come from the computer science field. Instead, she says, Microsoft will hire more college grads from marketing, finance and human resources programs [QuickLink 34428]. It attributes its hiring needs to overall continued growth. Currently, Microsoft has more than 53,000 employees and recruits from more than 250 schools.

CONNECTION

Some experts say Microsoft is smart to buck the no-campus-recruiting trend. "Right now, the last thing I want is to be in the same boat as my competition — I want to smash and kill them. And that's why it's smart to build strong college campus relations now," says retired Elf Atochem CIO Bob Rubin, who is now president of Valley Management Consultants in Huntington Valley, Pa.

"When the economy turns around, businesses will want to be back on campus in force, and that's difficult to do if you've severed your ties," says Marilyn Mackes, executive director of NACE.

It's also a good idea to keep internship programs up and running, because they are far less expensive than full-blown campus recruiting initiatives, says Mackes. Cognos' Collins says the company will continue to hire college grads using this method. If their interns work well within the company's corporate culture, they are often offered jobs after they graduate.

Recruiters and analysts emphasize that a small recruiting effort is better than none and will likely reap rewards in a few short years. They say that barring a major terrorist strike or a long, drawn-out war, they're hopeful that the current jobless recovery will start to improve and create a need for more IT personnel in the second half of the year. ▶

DePompa is a freelance writer and editor in Germantown, Md. Contact her at bdepompa@comcast.net.

Few Jobs, Plenty Of Internships

- **40%** of employers will continue current internship programs.
- **17.5%** will bring in more interns than last year.
- **8%** expect to cut back on internships.
- **9%** of companies have no formal internship program.

SOURCE: NATIONAL ASSOCIATION OF COLLEGES AND EMPLOYERS, BETHLEHEM, PA., DECEMBER 2002

HARD TIMES FOR IT WORKERS

Go online to see exactly who makes up the ranks of the IT unemployed.

QuickLink 29295
www.computerworld.com

Handling the Hard Case

Motivating most IT people is easy, but what do you do with those who just don't buy in?

Motivating problem employees is a perennial challenge for IT managers. In this month's Harvard Business Review, **Nigel Nicholson**, *the director of the Centre for Organisational Research at London Business School, argues that trying to motivate hard cases may be the wrong approach. He talked with Kathleen Melymuka about a method designed to help them motivate themselves.*

Why is trying to motivate a problem IT person the wrong approach? You have to help people try to find their own ways to motivate themselves. I'm talking about intrinsic motivation — about hearts and minds. Your job is more to clear away the undergrowth.

Give me an example of how not to motivate a problem person in IT. Telling someone how interesting you find these problems they're working on or how lucky they are to have such an interesting job when you know that they don't find it interesting.

How do you begin a different approach? First of all, it's about finding out where the people are misaligned.

If you listen, they will tell you. Often, they're misaligned with the environment. If, for example, they're on the help desk and they really don't like dealing with people, take them off the help desk.

A typical problem is trying to motivate a subordinate who thinks he's better technically than the manager. That gets in the way, but it needn't.

What do you do about that? There's nothing wrong with managing someone more skilled than you. It happens all the time. You say, "I know you have more skills than I have. What can we do to help each other make this operation a success for both of us?" It's a partnership problem.

This sounds fairly simple. But it can be difficult because often the person is someone you really haven't got a lot of sympathy or empathy with. You don't like the person or perhaps you've had a row with him. We're not really motivated to understand people with whom we've had some bad experience. Often we're more concerned with being right and their being wrong.

Once you understand the person better, what do you do next? Instead of saying your goal is to motivate this person, you may have to start with something simpler — perhaps to open up a channel of communication so you can begin to work together. You can worry about motivation later, but if you haven't got a channel open, you can't work with them.

You say the manager also needs to re-evaluate himself and the work context. Tell me about that. You may get off on the wrong foot with a person over a bad exchange, and you take that as a sign he's a bad person, and it starts to spiral. But perhaps you haven't been handling him right, and you're bringing out the worst in him. You may need to change the way you communicate with him.

Where does this all lead? You stage a formal encounter. You say, "We have a problem and we need to figure out what it is, and if we see the world differently, that is part of the problem. We need to get the same view." It amounts to your seeing the world from his point of view, and that helps you to help him center.

Then what? In the course of this encounter, you may discover things you didn't know. You may even have to call a time-out for more reframing of your goals. Or this may take you on a collision course to the point where the person is dismissed. But at least you'll know why you're doing it.

All this seems enormously time-consuming. After all, the IT manager has a department to run. These issues are not separate from your job; this is your job.

In the end, you will gain time because you will reduce problems. You will discover that you've been treading water, and now you'll move ahead.

But what if you're just cobbling a person who really ought to be fired? You need to decide whether there's a recovery path or not. If the answer is no, then don't even get into this. I'm trying to avoid the danger that comes when you try to settle a performance problem and it escalates to the point where you do have to fire someone, when you could have solved the problem.

Good IT people are enormously valuable. You can't afford to toss them over the wall when you have a problem.

You say there are benefits to this approach that go beyond the manager and the problem employee. What are they? If you help a disruptive person find some new way, your reputation will become enhanced, the culture will improve, and you will forestall other problems. People will start to regain confidence in the way things are run and see that you believe in working for constructive solutions. That has a tremendous impact, and if you do it right, you'll be loved for it. ●

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@earthlink.net.*

"If you help a disruptive person find some new way, your reputation will become enhanced, the culture will improve, and you will forestall other problems.

NIGEL NICHOLSON, DIRECTOR, CENTRE FOR ORGANISATIONAL RESEARCH, LONDON BUSINESS SCHOOL

This is the latest in a series of monthly discussions with authors of articles in the Harvard Business Review on topics of interest to IT managers.

Reaching Common Ground

DON'T leave the same tedious conversations over and over.

DO rewind your assumptions about the person, and start fresh.

DON'T try to convince the person of the reasonableness of your position.

DO find what drives that person and clear away the obstacles.

DON'T miss the other person's viewpoint.

DO ask yourself how the person would describe his challenging behaviors.

DON'T ignore how the person perceives you. You'll have to work with his reality as well as your own.

STAYING FOR THEMSELVES

How to tone down IT prima donnas to enhance staff harmony and productivity.

QuickLink 32795
www.computerworld.com

BRIEFS

Health Care, Fed to Lead IT Spending

The federal government and the health care industry are expected to show the strongest growth in IT spending this year, according to a vertical-market IT spending forecast issued last week by San Jose-based Dataquest Inc. State and local governments' IT spending will shrink because of budget deficits.

The largest global vertical markets – financial services, manufacturing, government and communications – are expected to make up 67% of worldwide business IT spending this year.

Groups Oppose Fed Copy-Control Rules

Two major industry groups, the Business Software Alliance and the Computer Systems Policy Project, which represents large hardware makers, struck a pact this month with the Recording Industry Association of America, a top music industry trade group, to oppose federally mandated copy-protection technologies in software and hardware. They aren't opposed to technologies introduced voluntarily.

Top Outsourcing Deals for 2002

ABN AMRO's $1.3 billion contract with Electronic Data Systems Corp., for IT services and applications development.

BANK OF AMERICA's $4.5 billion managed network services deal with EDS.

BOMBARDIER TRANSPORTATION's $1.11 billion contract with Computer Sciences Corp. for IT services.

J.P. MORGAN CHASE's $5 billion deal with IBM for IT services and data processing technology infrastructure.

CANADIAN IMPERIAL BANK OF COMMERCE's $2 billion pact with Hewlett-Packard for IT services and infrastructure.

BART PERKINS

Manage Suppliers For Project Success

MOST ORGANIZATIONS begin a large system development effort by creating a business case, identifying a program sponsor and developing a work plan. These are widely recognized as critical foundations for success, and without them, your program is likely headed for failure.

However, even with a good foundation, research shows that few large projects meet their full objectives. About $75 billion is spent yearly on failed IT projects, and poor management and methodology are the chief culprits, according to Gartner. And in 2002, more than half of 134 large multinational companies surveyed by KPMG experienced a failed IT project during the year. The average cost of each failure was about $8 million. While no company would dream of throwing dollars away, failed projects essentially have the same result.

Many organizations severely underestimate another critical piece of the project foundation: the enormous impact their suppliers will have on a project's outcome. Projects frequently fail because suppliers are undermanaged, undercoordinated and, all too often, ignored. The average Fortune 500 company may have 15 to 20 suppliers directly involved in each of its major system development projects. These suppliers include providers of hardware, software packages, middleware or systems integration services. Selecting the right suppliers and managing them effectively is crucial to program success. In addition to performing traditional supplier management activities, be sure to do the following:

■ **Guard your infrastructure.** Large projects often introduce new technologies into your organization. When you commit to an application package, you may be unknowingly committing to additional software. An Oracle-based company, for example, may choose a software package but then discover that it performs better on a SQL Server database than on an Oracle database. Furthermore, beware that many suppliers will want to change your architecture to better incorporate their technology. Make sure that all hardware and software required by your suppliers meets your architectural specifications.

■ **Identify and understand your suppliers.** Carefully assess their corporate direction, their cost structure (how they make money), and the exact services they will provide. If possible, understand their compensation program and get your supplier to specify objectives for its staff that are aligned with the success of your own program.

■ **Bring key suppliers on board as soon as possible.** Make sure they're committed to the total program and not just to their own deliverables. Include them in the initial project planning phases, and get their buy-in for your work plan and schedule. Include key suppliers in most of the regular program progress meetings.

■ **Create effective project performance measurements.** Suppliers can meet their deliverables and still adversely affect overall program success by refusing to share enough information or by offering only minimal cooperation to other suppliers involved in the project. In the contract (in addition to specific deliverables), focus some supplier performance measures on overall program success (just as your employees' bonuses are often based on a combination of their individual objectives and corporate success).

■ **Address the cultural resistance.** Be prepared to deal with pushback from your own people about sharing information openly with a supplier, as well as pushback from suppliers about sharing their information with other suppliers on the project. Define the level of openness required at the beginning of the program, and get supplier buy-in.

■ **Re-examine the total cost of ownership.** The cost of a software package is frequently only 10% to 20% of the total development cost. Over the life of the program, total development costs are a small percentage of total operating and maintenance costs. Remember to include the cost of all suppliers involved in the program.

An alarming percentage of large systems development projects fail. Addressing these supplier issues will help minimize common pitfalls. Make your suppliers an explicit part of your systems delivery process to leverage your development dollars and increase your likelihood of program success.

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SOURCE: TPI HOUSTON

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Database Administrator, Magazine Publication. Minimum 6 years exp. Design, program, and implement database applications. Provide database systems administration, including managing users, defining user security policies, and disaster recovery. 40 hrs/wk, 9AM-5PM Competitive salary. Send resume to: Kos Life, 2505 Chambles Tucker Rd., #311, Chambles, GA 30341.

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Simulation Analyst. Develop workforce staffing models for Request For Proposal support in new business development. Design and develop call center simulation models using ARENA, SIMAN, and CallSIM software to replicate client network. Database analysis of call center metrics to improve decision-making process. Must have Bachelor's degree in Engineering, Mathematics, Statistics or equivalent, one year experience, and knowledge of ARENA v 5.0 or higher, CallSIM and SIMAN in Windows environment, C++ programming, VB 5.0 or higher, and TCS/EIN Blue Pumpkin. Send resume with cover letter to Cindy Coffery, APAC Customer Services Inc., 6 Parkway North Center, Deerfield IL 60015. EEO/AA

APAC CUSTOMER SERVICES, INC is not affiliated with APAC, Inc., the road paving and construction materials company.

Prog/Analysts to analyze and design datawarehousing / datamart appls using Cognos tools. Oracle, MS SQL Server, HTML, Java, C++, Java Script, JSP, VB on UNIX, Windows OS or to analyze and design S/W appls using SAP R/3, ABAP/4, Workflow Technology, C, C++, VB, Oracle, MS SQL Server on UNIX and Windows OS; gather and document reqs from user community; test and troubleshoot project applin code according to system objectives. Require B.S. or foreign equiv. in CS/Engg (any basis) with 2 yrs exp. in IT. High salary F/T Travel involved. Openings in Norcross, GA and Imperial, PA. Multiple location desired. Resumes to: HR, Smartech International, Inc., 4899 S. Old Peachtree Rd., Ste 200, Norcross, GA 30071.

Network Systems Administrator. Req 6 yrs. exp as Mark Sys Admin, Mark Sys Analyst, or Comp. Prgmr Duties: Install, configure & support the org's LAN, WAN, & Internet syst; maintain mark hardware & software; monitor mark to ensure availability to sys. users; perform necessary maintenance to support availability; & plan, coord, & implement mark security measures. Competitive sal. Plse send res. to Diego Schwartz at Powerpoint International Corp. 8734 NW 72nd Ave. Miami, FL 33166.

Multiple openings at Imperial, PA and Norcross, GA for Prog/Sys Analysts, DBA's, SW Engineers to design/develop S/W appls using some of the following - COGNOS, datawarehousing; Cobol, CICS, DB2, Java, PB, HTML, XML, C++, VB, Oracle, Dev 2000; wireless, web, OO technologies; SAP, ABAP/4; Oracle/Sybase/Informix database admin, Unix/NT system admin, BS/MS or foreign equiv in CS, Engg, Science, Math, Business or related field and relevant exp. High salaries. F/T Travel involved. Multiple office location desired. Respond to: HR, Smartech International, Inc., 7660 Beaufont Springs Drive, Suite 21, Imperial, PA 15126.

Multiple fulltime IT positions available for ERP Professionals. Req. B.S. in Computer Science or related, and minimum 2 years on-the-job experience in system design, configuration, development, programming, testing, training & implementation of ERP solutions involving one or more of the following areas - SAP, Oracle, Interfaces, QA Testing, Integration Tools. Resume to NexLink Systems, Inc., 2517 Grandon Drive, Wilmington, DE 19808

Mphasis-BFL Ltd. and its subsidiary Mphasis Corporation has multiple openings for the following positions at its office in New York and unanticipated client sites throughout the U.S.: Programmer Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager, Finance Manager. Please send resume and salary history to: hr@mphasis.com or mail to 444 Park Avenue South, Suite 6803, New York, NY 10016.

Ft. Lauderdale software developer seeks software engineer to design, develop, upgrade & implement software systems. Solid Clarion & Java programming skills. Reqd. BS or Foreign Degree Equi. in Computer Science & 3 yrs of exp as senior programmer analyst. Send resume to: Vito A. Bellezza, President, Engineered Business Systems, 6801 Powerline Road, Ft. Lauderdale, Fl. 33309.

Sales & Inventory Data Manager - Work w/ comp. Software & databases to manage inven. for lge, high-end fashion distributor. Req'd: AAS in CS, Comp. Programming, or rel'd. tech. fld. & 2 yrs. exp. in job/ rel'd pos. in sales &/or inven. Data mgmt. Fluency in Italian; VB, C/C++, COBOL, & HTML. Must have exp. w/ inv. mgt & control for lge comp. Send resumes to GVD, LLC; 645 5th Ave, 12th Flr, NY, NY 10022.

Seeking qualified applicants for the following positions in Memphis/ Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS or related field plus 5 years of experience in systems/applications development in a mainframe environment. Experience with airline freight rating systems/applications, COBOL and IMS DB/DC also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Senior Technologist, Systems Development sought by Novartis Pharmaceuticals Corporation for East Hanover, NJ office. Must possess a Bachelor's degree or equivalent in Engineering or directly related field and 5 years exp. in software/systems development/design and analysis including Base SAS/SAS Macro language programming exp. for pharmaceutical industry. Respond to: Arlene O'Rourke, Human Resources Dept. Requisition #001, One Health Plaza, B105/PL068E, East Hanover, New Jersey 07936. Novartis is an EEO Employer.

Optimal Solutions Integration, Inc. has multiple openings for SAP and i2 Consultants, Software Analysts and System Analysts. Please send resume with salary history and requirements to Optimal Solutions Integration, 8445 Freeport Parkway #240, Irving, TX 75063. Open to Green Card holders or US Citizens.

S/W Engrs: lead teams to analyze, design, develop, appls using Java, C++/C, COBOL, JSP, Servlets, HTML, XML, VB, VBScript, Jscript, Jbuilder, Oracle, SQL, Sybase, etc. on UNIX, Windows OS; interact with clients/users to determine reqs, conduct feasibility study; perform unit/integration testing, performance tuning, query optimization; evaluate team members, train end users. Require: MS or foreign equiv in CS/Engg. (any branch) & 3 yrs of exp. BS or foreign equiv in any of the above fields with 5 yrs of relevant progressive exp will also be accepted. High salary, F/T. Travel involved. Resumes to Compsoft Technology Solutions Group, Inc., 11 N Roselle Road, Schaumburg, IL 60194

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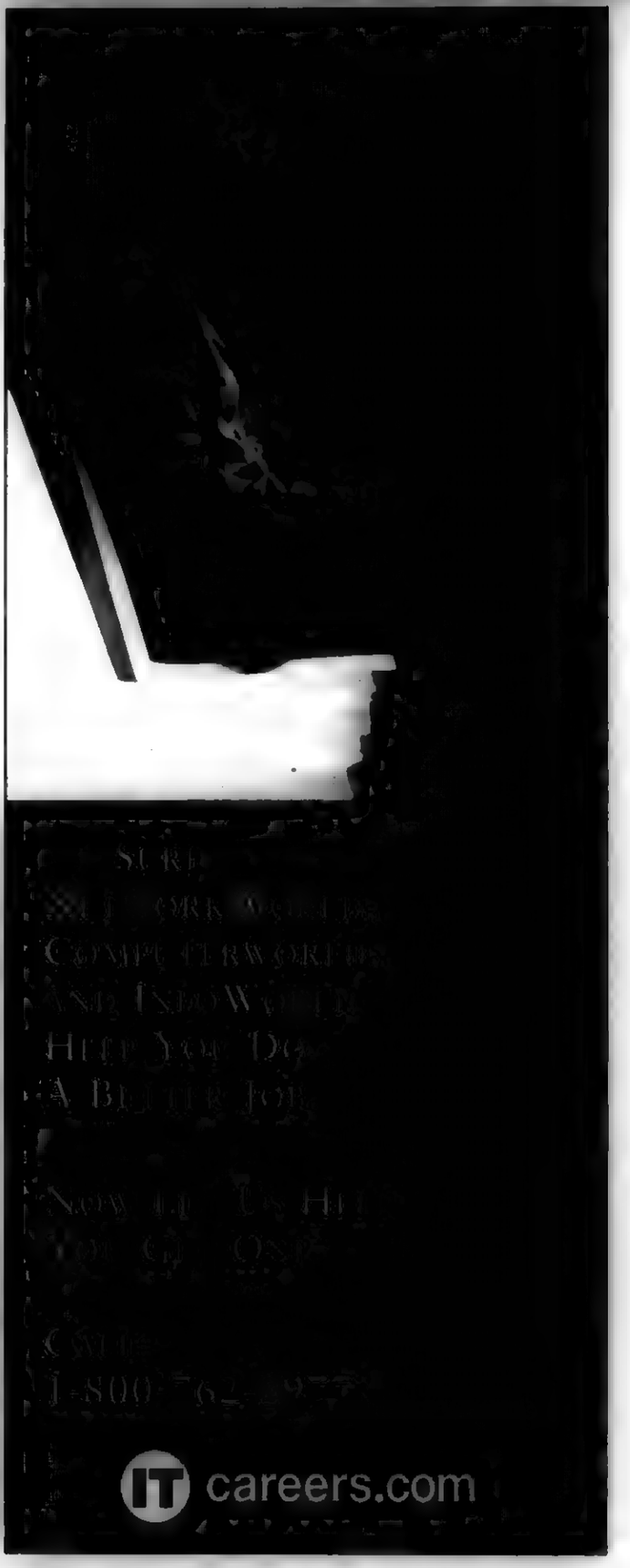

Systems Analysts/Software Engineers for consulting co in Chicago, IL. Must possess Bach degree in Comp Sci/ Com Eng/Math or relfd field & 1-3 yrs exp in relatd position. Send resume to: U & X Group, 1000 Route 9 North, Woodbridge, NJ 07095, attn: JC.

Megasoft Systems, Inc. a SAP Consulting firm has immediate, multiple openings for exp'd. Programmer Analysts to assist in the development of tools for the utility industry using SAP R/3 software, ABAP / 4 languages. Requires B.S. Comp. Sci. or rel. field, or equiv. & min. 2 yrs. exp in job offered; must have good communication skills & be highly motivated. We offer competitive salary & benefits pkg. Qualified candidates send resume to:
Attn.: Chad Wickes
Megasoft Systems, Inc.
2550 Middle Road # 300
Bettendorf, IA 52722

Programmer Analysts needed w/exp in using Oracle, Informatica and Java. Erwin, EJB, SQL, PL/SQL and SQL Server. Implement & customize Oracle Applications on Windows NT/2000, Unix, Sun Solaris & Sun Sparc Solaris Operating systems. Send resumes to: Polysoft Corporation 1560 S. Carriage Lane, Chandler, AZ 85248

Sr. Programming Analyst (multiple positions). Design customized techn appl programs. Install & config program prod. Determine tech infrastructure & comm. Req. Test appl. Analyze, design & develop app. Interfaces using IBM AS400, RPGLE, C/400 & Java/400. Req. BS in Comp. Sci., Comp Eng. Or Elect. Eng. And 5 yrs exp as Programmer. 40 hr/wk. Job/interview site: Irvine, CA. Send resume to SVI Solutions, 5607 Palmer Way, Carlsbad, CA 92008.

S/W Engrs. to analyze, design and develop complex scientific appls using either COBOL, CICS, JCL, VSAM or Cobol/400, RPG/400, OS/400 and Java, JDBC, Servlets, IBM Webephare under Windows and AS/400 envir; coordinate between clients/team to ascertain user reqs; assist in project planning, scheduling, presentation; plan/execute quality control policies. Require: MS or foreign equivalent in Sci/CS/Engg (any branch)/related field. Travel involved. High salary. F/T. Apply to: HR, Salem Associates, Inc., 405, 6th Ave, Ste 102, Des Moines, IA 50309.

Senior Software Engineer responsible for research, design and developing computer software systems. Will conceptualize, design and construct a framework for business application using various platforms including COBRA/J2EE. Design software systems using application development software and technology such as C++, Java and object oriented design. Must have 5 yrs of exp. in job offered. Salary Competitive. Send resumes to: Wendy Davidson, Mentleye, Inc. 1375 Remington Rd. Ste. A, Schaumburg, IL 60173.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Oracle 9i, SQL 7.0, EDI, CR, nVision, ePay, eBenefit and Manager Self Service. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Oracle 9i, SQL 7.0, EDI, CR, nVision, ePay, eBenefit and Manager Self Service. Salary: $65,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Involves extensive travel and frequent relocation. Apply: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Job No. WEB300885.

Architectural lighting designer/ illustrator/illuminating Engineer needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 1 yr working w/ 3-D modeling and lighting simulation. Formal training in Lighting Design or be a LC preferred. Duties include: Design & develop illuminating, including day lighting, systems; Perform 3-D studies; Write specs; Perform computer simulations. Work with Lightscape, Adobe Photoshop, Viz-4, and AG1-32. Mail res., ref. & Sal. Req. to Affiliated Engineers, PO Box 44981, Madison, WI 53744-4981.

SENIOR SOFTWARE ENGINEER to design, develop and implement web-based network management application software in a client/ server architecture using Visual C, Shell Scripts, Visual Java and Visual C++ on Windows NT and Unix platforms for various network topologies, sockets, and routing protocols including TCP/IP, OSPF, EIGRP, BGP4, RIPv2, PPP, ATM, and frame relay; Develop, debug and test applications in C and C++ for Cisco and Nortel routers and switches, networking protocols, and topologies on UNIX platform; Design and implement internet, intranet and network security architecture using firewalls and VPN technologies on UNIX platform. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Systems Analyst/Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, President, Charter Global Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092; Attn: Job VS.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and implement application software using Visual Basic, C, C++, ASP, Visual Interdev, Active COM, HTML, Java Script, Visual Source Safe, Oracle, SQL Server and Edify under Windows NT/2000 operating systems; Supervise and mentor junior programmers. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092; Attn: Job NB.

COMPUTERIST
Applications Database Administrator (White Plains, New York) - Requires Bachelor's degree in CS or Electronic Eng (or equiv. foreign educ.) & 3 years' exp. in the job offered or 3 years' exp. in use of ERwin & SEI-CMM structured programming methodology to dev. front-end database applications for investment mgmt. & brokerage ops. Exp. must include use of NOMAD on a VM/CMS operating system; and ADP's Brokerage and PSR systems. Utilize ERwin and SEI-CMM structured programming methodology to develop front-end database applications for investment mgmt. & brokerage ops. 40 hrs./wk. 8:30 a.m.-5:30 p.m. Apply with resume to: Alliance Capital Management L.P., Attn: Karen Mooney, 1345 Avenue of the Americas, 46th Floor, New York, New York 10105.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain e-commerce application software using Visual Basic, Visual C++, C++, C, XML, XSL, HTML, ASP, VB Script, Java, Jscript, MTS, IIS, SQL Server, Oracle, DCOM COM OOP, RDBMS, CSS, DHTML, Layers, Adobe Photoshop and MS SQL under Windows 2000/NT operating systems; Mentor junior programmers. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092; Attn: Job BA.

TECHNICAL SALES REPRESENTITIVE

Technical Sales Rep to prospect and establish new accounts, develop and penetrate existing accounts, build long term relationships with existing and new accounts and work with Technical Recruiters to service client requirements. Must present product/service information to customers and prepare RFI's. Duties will also involve extensive interaction with executives and project managers and require a broad range of technical expertise. Rep must utilize extensive technical expertise and specialized knowledge of the IT industry to interact with customers regarding the technologies, processes and applications used by the customer and formulate plans outlining steps required to design, implement and accomplish customer goals. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a Technical Sales Rep. Extensive international travel is required and knowledge of Indian language is preferred. Salary: $104,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Fayette County Team PA CareerLink, Attn: JS Supervisor, 32 Iowa Street, Uniontown, PA 15401-3513. Job No. WEB296712.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, document, enhance and support internet/intranet software programs in a client /server environment for various commercial, business and web-based applications using Erwin, VB, ASP, COM, COM+, DCOM, C, SQL*Forms, Reports, Crystal Reports, SQL*Plus, SQL* Loader, HTML, VBScript, JaveScript, MS Access and SQL Server under UNIX and Windows NT operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Shri Gangal, President, Sypro Technologies, Inc., 3091 Holcomb Bridge Rd., Suite H-2, Norcross, GA 30071; Attn: Job MD.

Software Engineer consulting positions available - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Positions available in multiple skill sets including CRM, PeopleSoft, SAP and others. Travel and frequent relocation required. EEO/AA/M/F/V/H Submit resumes to: Recruitment Coordinator, Rapidigm, Inc., Code# 103R, 4400 Campbells Run Road, Pittsburgh, PA 15205.

Programmer Analysts needed. Seeking qual. candidates possessing BS or equiv. and/ or rel. work exp. 1 year of the req. rel. exp. must incl. working w/ Financial Accounting systems. Duties incl.: Analyze user requirements and study existing systems to develop software architecture and develop automated financial systems. Mail res. and sal. Req. to Bernhardt Furniture, 1839 Morganton Blvd., Lenoir, NC 28645, ATTN: HR.

Director - PeopleSoft Solutions. Job location: Chicago, IL. Duties: Resp. for project mgmt. for the delivery of tech. & financial-related services based on PeopleSoft products. Resp. for recruiting, develop. & staffing of employees with the service line. Develop & execute annual strategic plans, quarterly tactical plans, achieve revenue & margin targets. Act as sr. tech. & finance resource on strategic engagements, developing & managing tech. PeopleSoft work plans utilizing knowl. of PeopleSoft Internet Arch (PIA) & infrastructure requirements. Lead tech. team members & act as Tech. Architect using PeopleTools to provide complex solution designs & conduct qual. assur. reviews of other arch. designs. Requires: B.S. in Comp. Sci., Eng., Bus. Adm. or related field & 5 yrs. exp. in the job offered or 5 yrs. exp. as a V.P., Sr. Consult. or Assoc. Concurrent exp. must incl. 3 yrs. exp. in proj. mgmt. for tech-related services & 6 mths. exp. using PeopleSoft products. EOE. 40 hrs./wk.; 8:00 a.m. to 5:00 p.m. Send resume (no calls) to: Diane Ticcillo, Answer Think, Inc., 817 W. Peachtree St., Ste. 800, Atlanta, GA 30308. Must have legal auth. to work in U.S.

Full-time Software Engineer Middleware Developer responsible for program design and analysis, coding, testing and implementation for numerous projects. Define applications architecture and document applications functionality expansion and customer integration. Develop applications requirement specifications and develop software and documentation according to established standards. Provide end-user support, identify and troubleshoot defects found. Work with Oracle, C++, PL/SQL, Java, MQ Series, MSQL, E-SQL. Must have a Bachelor's degree in Computer Science, Information Systems or related field. Educational and/or work background must have included the above-referenced skills. Salary Competitive. Send resume to: Robbin Lee, United Parcel Service, 12380 Morris Road, Alpharetta, GA 30005. Employer will not sponsor visas for position.

Should be having 7 + Years of I.T. experience in Analysis, Coding, Testing for Development and maintenance applications on Mainframe Platforms using COBOL, DB2, DB2 Stored Procedures, IMS DB, JCL, CICS, VSAM, TERADATA, MVS & VM, OS/390 and tools FILEAID, XPEDITOR, QMF, SPUFI, CHANGEMAN, SCA, CA7, Micro Focus Revolve, INTERAGATE. Ability to program complex systems, Analysis and problem solving skills, involved with full project life cycle for various projects and experience with Teradata towards data warehousing for more than three years in a huge plus 40hr/wk, competitive salary Resumes should be sent to 228 Pear SUI204, Pittsburgh, PA-15211 Job Order#295887

Business Systems Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of rel. exp. must incl. 2 yrs. working w/ financial system projects. Duties incl.: Improve business processes via information tech. Automation; perform improvement studies; plan, monitor & control project execution. Mail res. and sal. Req. to Bernhardt Furniture, 1839 Morganton Blvd., Lenoir, NC 28645, Attn: HR.

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Ptech

and business alliances at The Lared Group in Los Angeles. "They have not only a legal but also a fiduciary obligation to do this when dealing with sensitive products like the software sold by Ptech," she said.

Ptech CEO Oussama Ziade, however, isn't convinced that lack of research is what now threatens the life of his company [QuickLink 35704].

"How far are we going to go with making links between people?" he asked. "And how are we supposed to know before the fact?" he added, referring to the investigation into his company for ties to individuals who weren't on any government watch list when they were approached by Quincy, Mass.-based Ptech.

In fact, some of the same people whose past connections to Ptech raised federal investigators' suspicions can also be linked to other U.S. companies, according to former senior government terrorism experts and government documents.

For example, Yaqub Mirza resigned from Ptech's board in March 2002 after the FBI raided several Muslim charities and businesses he had helped set up in Herndon, Va.

According to Ziade, a disgruntled former Ptech employee sent an e-mail to the FBI last summer that identified Mirza as a close associate of Yassin al-Qadi, a Saudi businessman who invested in Ptech in 1994 and who has since been added to a government terrorism watch list. That association has been confirmed by at least two former U.S. intelligence officials.

But documents filed with the U.S. Securities and Exchange Commission in 1999 show that Mirza was also a member of the board of directors of Mylex Corp., a developer of RAID and network management technologies that was acquired by IBM that same year. Mirza owned 3.95% of the company, more than any of the other directors or executive officers, according to the SEC documents.

IBM declined to comment. But Kevin Brett, a spokesman for Milpitas, Calif.-based LSI Logic Corp., which subsequently acquired Mylex from IBM, said the Mylex board was dissolved upon the company's acquisition by IBM. He added that LSI has "no insights into the Mylex decision-making process relative to its board of directors during the course of its existence as an independent company."

Meanwhile, Hybridon Inc., a biotechnology firm in Cambridge, Mass., appears to be in a position similar to Ptech's with respect to its investors. A list of investors in a June 2001 Hybridon proxy statement filed with the SEC includes Abdelah bin Mahfouz, the son and business partner of Khalid bin Mahfouz, former head of the The National Commercial Bank of Saudi Arabia. Khalid was placed under house arrest by the Saudi government prior to the Sept. 11 attacks for allowing the bank to channel funds to al-Qaeda front companies, said Vince Cannistraro, former chief of operations at the CIA's Counterterrorism Center.

Earlier SEC filings show that another member of the family, Abdulrahman bin Mahfouz, also held stock in Hybridon. Also a board member of National Commercial Bank, Abdulrahman served on the board of Blessed Relief, a Sudan-based charity that U.S. intelligence officials have characterized as a front organization for Osama bin Laden.

Stephen Seiler, CEO of Hybridon, said his company has conducted "extensive due diligence" to "vet our shareholders." Seiler said his company is "unaware of any link between Mr. bin Mahfouz and any investigation."

But companies in Hybridon's position at the very least face a perception problem, analysts said. "Can these executives seriously expect the public to believe that they didn't know whence the money was coming?" Segil asked. "Is it that they didn't want to know and so didn't check? Or didn't know and didn't care because money is money?"

Asset Management Projects Falling Short

Users and analysts warn against relying too heavily on packaged applications

BY THOMAS HOFFMAN

INFORMATION TECHNOLOGY asset management programs underwent something of a rebirth in recent years as corporate cost-cutting efforts forced IT managers to do a better job of tracking technology investments. But many of the programs have fallen into disrepair, users and analysts said last week.

One of the problems CIOs and other IT executives encounter is that they often place too much emphasis on using asset management software to track their technology inventories, said Pat Cicala, president and CEO of Cicala & Associates LLC, a Hoboken, N.J.-based asset management services and research firm.

In doing so, the IT managers don't pay enough attention to the people and processes needed to manage such efforts, Cicala added. "I'd say that more than 80% of IT asset management programs either stall or become problematic, even if they've got a few years under their belts," she said.

That's why Steve Hammond, vice president of information services at Plasti-Line Inc. in Knoxville, Tenn., recommends that an asset management program be simplified as much as possible. "Don't overcomplicate it with a software solution, where you become a slave to the software," he said.

Plasti-Line, which makes signs, menu boards and other corporate branding products, implemented an asset management program four years ago when it standardized on Dell Computer Corp.'s PCs and servers. Dell slaps an asset tag on every piece of hardware that Plasti-Line buys or leases, and Plasti-Line uses an Excel spreadsheet to track the equipment, Hammond said.

Valassis Communications Inc. considered buying an asset management system. But as a midsize company with just 1,000 PCs, it was hard to show a potential return on investment to justify the purchase, said Amy Courter, vice president of IT at the marketing services firm in Livonia, Mich. Like Plasti-Line, Valassis relies upon spreadsheets.

T-Systems Inc. in Lisle, Ill., this month introduced a service aimed at improving the success rates of companies with faltering asset management programs. T-Systems said the AssetQuickView service, which starts at $20,000, is designed to attack three of the culprits of asset management malaise: lack of documentation, uncertain requirements and incomplete asset inventory data.

Many asset management programs run into trouble because IT departments tend to conduct quarterly sweeps of IT inventories and "end up missing what's going on out there" between the sweeps, said Howard Rubin, executive vice president at Meta Group Inc. in Stamford, Conn. Such programs fail because companies use procedures that "don't give them timeliness and accuracy," he said.

IT departments that are struggling to get funding for asset management programs should start small with a project such as tracking distributed software licenses to show the value of the concept to senior management, suggested Frances O'Brien, an analyst at Gartner Inc. in Stamford.

Keeping Tabs

CIOs and analysts offered the following tips for fixing faulty IT asset management programs:

ARTICULATE the reasons why your program isn't working and create a plan and timeline for demonstrating improvements.

DEDICATE workers to monitor the progress of your asset management efforts instead of making that an added responsibility for IT staffers.

DON'T UNDERESTIMATE the personnel and processes required for an effective program.

CREATE closer ties between the employees who manage your IT assets and end users.

STAY on top of your program and keep pace with constantly changing technology inventories.

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FRANK HAYES ■ FRANKLY SPEAKING

An Uneasy Feeling

IF YOU READ BETWEEN THE LINES of Carly Fiorina's current stump speech — the one she gave at Comdex, the one she gave last week to a group of resellers — maybe you feel a little uneasy. And you should. Hewlett-Packard's CEO has been telling audiences that business is down because corporate customers want to cut IT costs and get real business results from IT. And she calls that a permanent change in customer requirements.

What she means, of course, is that customers no longer just *want* those things. After all, they've wanted them for years, but now they *have* to cut IT costs and get business results, because they no longer have the IT budgets to spend and CEOs have run out of patience with CIO promises.

And if Fiorina is to be believed, she never expects to see healthy IT budgets or a free ride for shiny new technology again.

Do I believe her? Naaah. It's politically correct to sympathize publicly with customers whose budgets have been cut. It's shrewd leadership to tell the sales force there's no use in squeezing existing customers for more revenue. And it's good marketing to stake out a "we'll help you cut IT costs and build value" position.

If Fiorina really thought IT budgets will never recover, she'd have bailed out of HP long before she gave that stump speech for the first time. If your customers' budgets are drying up permanently, you don't want to stay in a business that's doomed to spiral down to nothing.

Then again . . . what if she's right? What if that uneasy feeling isn't just your imagination?

After all, our healthy budgets have long been the basis for our relationship to vendors. For decades, IT shops have turned to vendors for technology guidance. Vendors did the technology research, invented the paradigms, cobbled together "solutions." Then they told us what to do, and we decided whether to spend the money on what they proposed.

We didn't just look to them for products. We depended on them for technology leadership. OK, their technology solutions didn't always pan out as effective business tools. But they were always coming up with something new, so we had a steady stream of new IT ideas. And the system seemed to work pretty well as long as the money kept flowing: They led, we spent.

But now the money isn't flowing, and we've come to something of an impasse. It doesn't matter how great a vendor's technology solution is if IT shops don't have the budget to buy it. Vendors keep trying to lead, but these days we can't afford to follow.

Sure, that happens whenever the economy's down. But what if Fiorina is right, and there's been a permanent shift to reduced IT spending and an absolute requirement of business advantage from IT projects?

If that's the case, then we *can't* let vendors lead us any longer.

It's not just that we don't have the money. It's also that they don't know our business processes and requirements and users. As tough as it is for IT shops to understand the nuances and peculiarities of what our businesses need, it's far more difficult for technology vendors to understand those things from the outside.

Technology isn't enough. To deliver business advantage, we've got to solve business problems — the problems of *our* business. And that kind of solution won't come out of a box from a vendor.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

No wonder Fiorina's words aren't exactly comforting. No wonder they put us ill at ease. If she's right, we can't afford to let vendors lead us — can't afford it from the budget or the business advantage standpoint.

And if we can't turn to vendors for IT leadership for our businesses — to give us answers, to offer us solutions, to define what our businesses need — we'll have to provide it ourselves. ▶

One Bad Idea After Another

Support pilot fish races to the scene after he gets the report of a totally trashed PC that's soaking wet and a user who was injured in the process. He finds dirty water everywhere, a galvanized pail, a ceiling tile — and an explanation. "The user put the bucket in the ceiling, to catch water from a minor leak overhead," says fish. "Over time, the bucket filled with water — and it finally broke through the ceiling tile."

Stuck

"I walked into the office one Monday morning to find a crud-encrusted, mangled red metal box lying on my desk," pilot fish reports. It's the box for transporting the week's back-up tapes. What happened? The tech transporting the tapes got stuck in a graveled parking lot, so he used it for leverage under his rear wheel, boss tells fish. Did he remove the tapes first? fish asks. Boss shrugs: "He didn't have the key."

Cool, Dude!

The new cooling system for this office is delayed, so the project manager buys a room air conditioner and points it at the server. "But the back end of his air conditioner was blowing hot air into the room," says pilot fish on the scene. "It took some work to convince him that this actually made the room hotter."

Toast

User tells support pilot fish that his PC keeps locking up. "His old PC has two faceplates missing from expansion bays," fish says. "Looking into the open bays, I saw a sandwich lying on the hard drive." Yeah, so? user says. "I always put my lunch in there to keep it warm."

SHARK TANK

Details, Details

Local government pilot fish works with techs from phone company, which won a contract to install ATM networking downtown. "The night we were installing the first link," fish sighs, "I heard their network engineer mumble, 'It didn't work in the lab either.' That's when I had to teach those field engineers the difference between optical saturation and minimum power requirements."

Crazy Notion

It's 1980, and this pilot fish needs to deliver a report pronto to his boss on a university campus 200 kilometers away. Fish's terminal is connected to the mainframe on his boss's campus, so he sends the report to a professor who uses the mainframe. "I headed the report with a line that politely asked the prof to send an assistant to deliver the report to the other building," fish remembers. "The professor was outraged, and replied, 'The computer is not for sending messages!' "

FEED THE SHARK! Send your true tale of IT life to sharky@computerworld.com. You snag a snazzy Shark shirt if we use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky.

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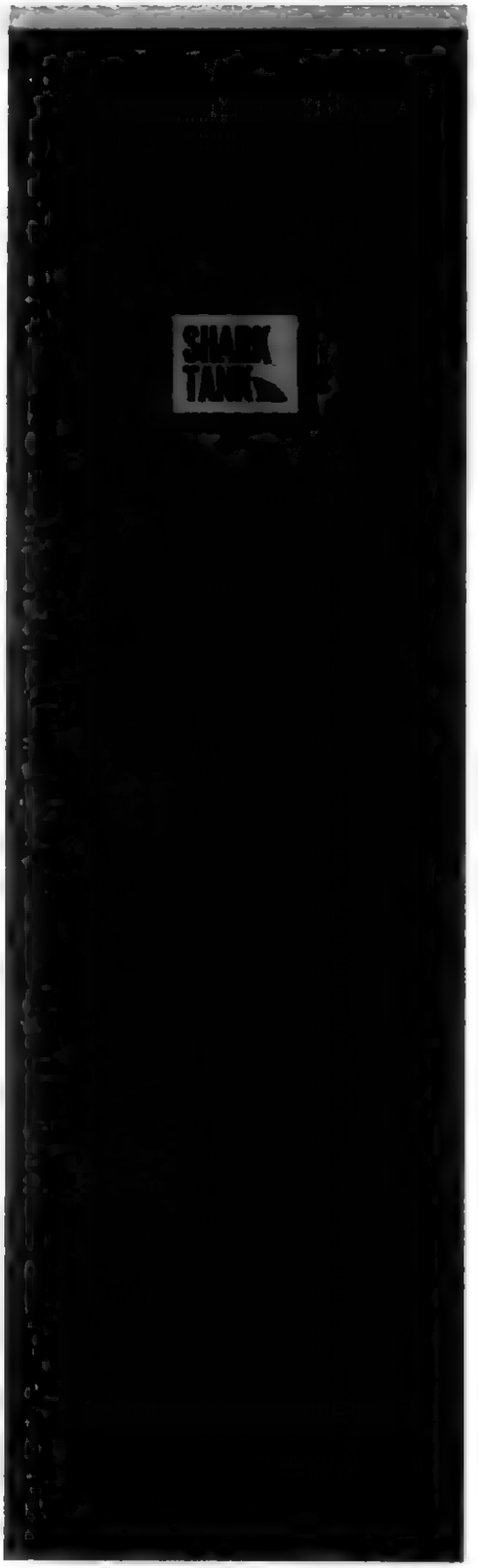

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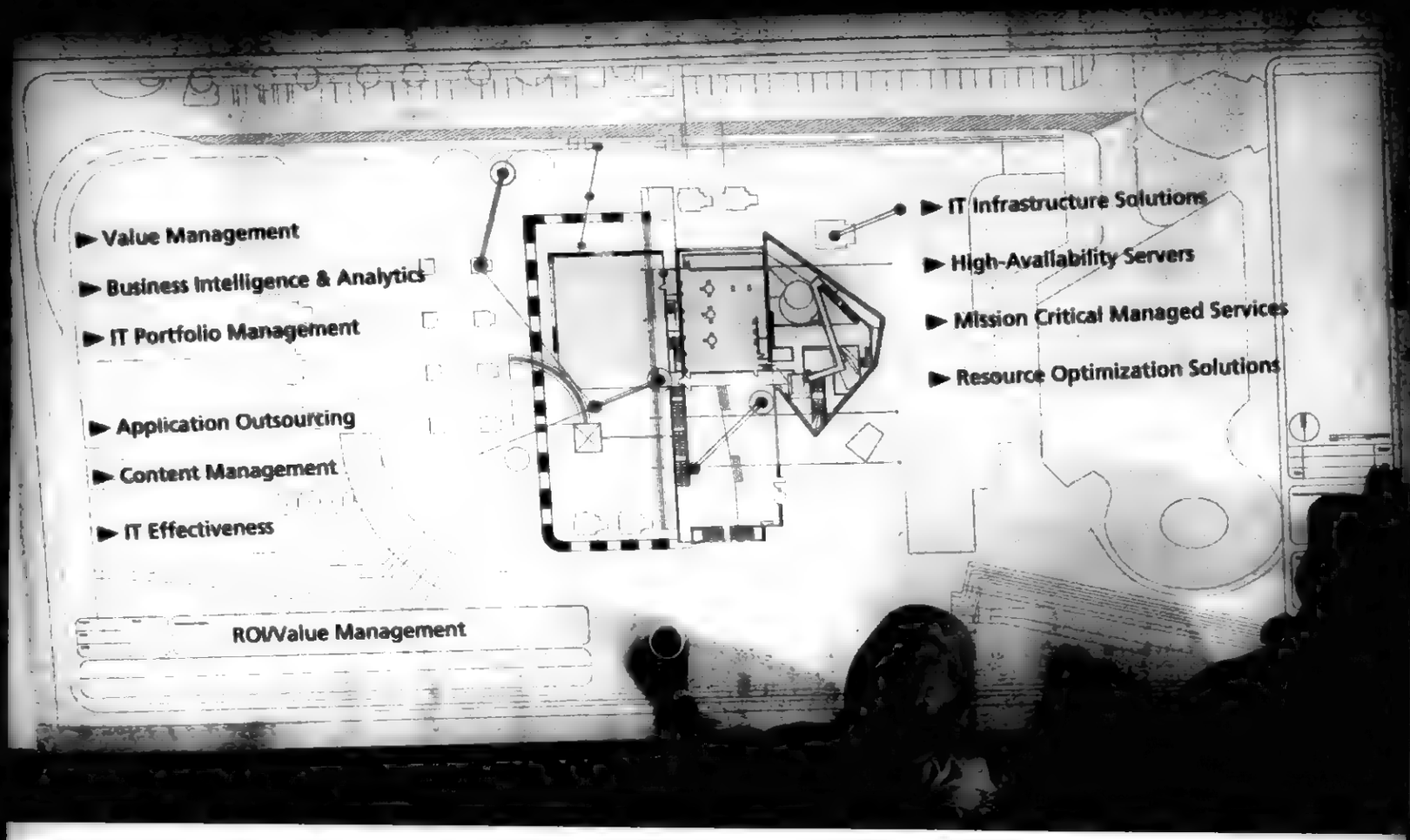

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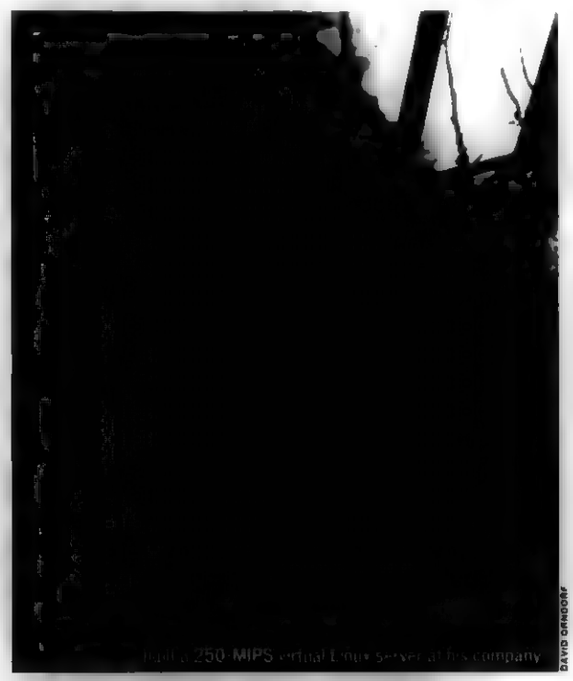

DAVID DINGORP

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Greater reliability. Improved performance. Faster resource provisioning. Running Linux on the mainframe may be your best bet for consolidating servers and lowering costs. Yet not every application will benefit — and knowing the difference is a crucial measure of success. See what experienced users recommend. **PAGE 23**

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Microsoft Adds a Year to NT Server 4.0 Support

Users feeling upgrade pressure get a reprieve, but extension doesn't cover all support options

BY CAROL SLIWA

Microsoft Corp.'s confirmation last week that it will extend key support provisions for Windows NT Server 4.0 through 2004 provided a reprieve for companies feeling pressure to move off the aging operating system.

Many corporate users that are still running Windows NT Server 4.0 said the end of support was the primary reason for their decisions to either migrate off the operating system or plot their upgrade options. Microsoft had announced in October that the extended support phase for NT Server 4.0 would cease at the end of 2003.

"This gives me more breathing room. Like all IS organizations, we're just massively resource-constrained," said Randy Truax, manager of technical services at Metropolitan Health Corp. in Grand Rapids, Mich.

Metropolitan has 54 Windows NT 4.0 servers running health care, financial and supply chain applications, as well as SQL Server and various utility tools. Plans call for the IT department to determine the fate of those servers by the time the organization's new fiscal year starts July 1.

Truax said he's now more inclined to take a closer look at Windows Server 2003,

NT Server 4.0, page 49

Unprepared Firms Slammed

Worm took advantage of IT shops' failure to use available patches

BY JAIKUMAR VIJAYAN

The widespread disruptions caused by last week's SQL Slammer worm demonstrated yet again the importance of proactive vulnerability patch management, users and analysts said.

Slammer, a self-propagating worm also dubbed Sapphire and SQL Hell, surfaced Jan. 25. The worm infected computers by means of a known flaw in Microsoft Corp.'s frequently patched SQL Server database software. Slammer works by copying itself onto vulnerable computers and then using those systems to scan for and infect other machines running SQL Server.

As was the case with predecessor worms like Nimda and Code Red, Slammer could have been thwarted if users had applied a patch that Microsoft issued more than six months ago.

The administrators of affected servers "most certainly

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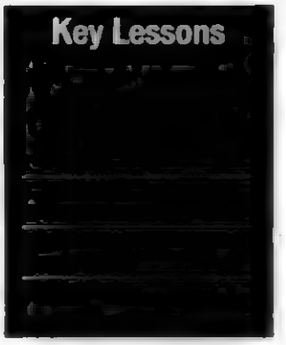

Cheap Cartridge Option in Peril

Lexmark's legal action could dry up printer cartridge aftermarket

BY PATRICK THIBODEAU
WASHINGTON

The remanufactured toner cartridge industry, which provides low-cost printer cartridges for many corporations, is under a legal and technological assault that could deprive IT managers of a money-saving option.

The major printer manufacturers are making changes to cartridge designs and the computer chips that mate a cartridge with a printer, thereby making it increasingly difficult for remanufacturers to refill the cartridges. It can take remanufacturers more than a year of engineering work to

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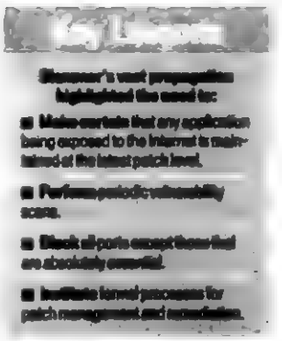

Slammer's vast propagation highlighted the need for:

- Make certain that any application being exposed to the Internet is maintained at the latest patch level.
- Perform periodic vulnerability scans.
- Block all ports except those that are absolutely essential.
- Institute formal processes for patch management and remediation.

Cheap Cartridge Option in Peril

Lexmark's legal action could dry up printer cartridge aftermarket

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Prevent Data Loss

STORAGE: Avoid the dreaded "I told you so" by using these preventive tips. QuickLink: [illegible]

Don't Blame Microsoft

DISCUSSION FORUM: After reading Robert L. Mitchell's column, "Just Pin It on Microsoft," on page 34, post your opinion and read what others have to say. QuickLink: a2980

The Business of Security

KNOWLEDGE CENTER: See how new federal rules on privacy protection affect identity management technology, as well as contrasting strategies used by Microsoft and the Liberty Alliance Project. QuickLink: [illegible]

Linux on Laptops

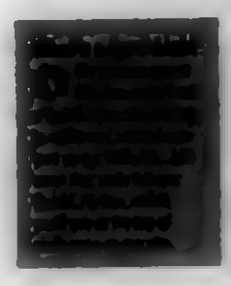
OPERATING SYSTEMS: SCO Group's senior vice president of technology offers tips on how to achieve a successful install. QuickLink: [illegible] And don't miss the related online forum discussion: Is Linux ready for laptops? QuickLink: a2980

Second Chance at Wireless

MOBILE/WIRELESS: Mobile2Manage System's Gary Rush says Microsoft's introduction of the Mobile Internet Toolkit has given companies a new chance to explore a wireless manufacturing strategy. QuickLink: [illegible]

Smarter Tools, Dumber Developers?

DEVELOPMENT: Can anyone explain why tools get smarter while developers grow dumber? Or is columnist Lisa Hayes missing something? QuickLink: [illegible]



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AT DEADLINE

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Firm plans to reaudit 2000, 2001 results

BY MARC L. SONGINI

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THE VIEW FROM i2
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QuickLink 35956
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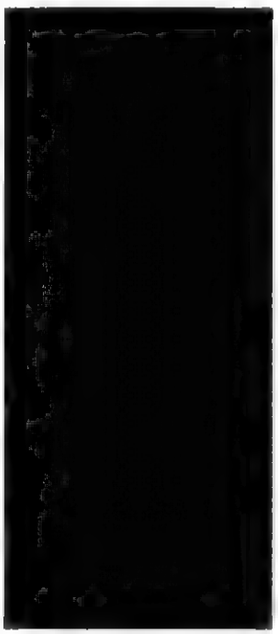

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BY JAIKUMAR VIJAYAN

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Similarly, for users in the life sciences space, IBM will offer grid technologies that can dramatically increase the number of calculations processed during drug research. And an engineering design grid is aimed at improving resource utilization for automotive companies.

The goal is to let new users take advantage of the same collaborative computing functionality that grid computing has delivered to others for several years, said Tom Hawk, general manager of IBM's grid computing business.

"What we have done is to take preconfigured IBM software, middleware, hardware and integration functionality and box it up" for use in various industries, Hawk said.

Lower Cost of Entry

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The company first considered using large servers and clustering technologies. But the grid approach allows for better resource utilization and more flexibility in allocating resources to applications as they are needed, said David Levine, CEO and founder of the Martinsburg, W.Va., firm.

"The cost of entry is also a lot lower because you can start with commodity systems," Levine said. "I can see where an approach like this might make sense" in the markets that IBM is now targeting.

As part of the initiative, IBM last week announced that it will work with two grid middleware vendors — Platform Computing Inc. in Markham, Ontario, and DataSynapse Inc. in New York — to deploy grids in enterprises. ▶

H-1B Visa Count Down, Anger Up

Jobless protesting program despite a decrease in the number of H-1Bs issued

BY PATRICK THIBODEAU
WASHINGTON

In a year when the U.S. began what has been characterized as a jobless recovery, immigration authorities issued 79,100 H-1B visas, a sharp decline from previous years. But that's cold comfort for displaced workers.

The number of H-1B visas issued in the fiscal year that ended Sept. 30 was well under the 195,000 cap set by Congress, and less than half the 163,600 issued by the U.S. Immigration and Naturalization Service in fiscal 2001.

Supporters of the H-1B program say the decline indicates that the program is working, is self-regulating and isn't being abused by employers. H-1B visas are used to bring skilled workers, many of them IT professionals, into the U.S. They are good for up to six years.

But opponents, who are increasingly coalescing into grass-roots organizations, say the H-1B numbers tell only part of the story. They contend that employers are still bringing in large numbers of foreign workers, but they're doing so under programs such as the L-1 visa, which is used for employees who are transferred by multinational firms to work in the U.S.

Much attention, however, will be focused on the H-1B cap, which will remain at 195,000 this year but is set to decline in fiscal 2004 to 65,000.

Harris Miller, president of the Information Technology Association of America in Arlington, Va., said he doesn't know whether his industry group will fight the decrease to 65,000. "It will be hard to convince Congress" of the need for a higher cap "if you have no recovery or a jobless recovery," he said.

Among the grass-roots opposition organizers is Peter Bennett, a Danville, Calif., resident who operates a Web site called NoMoreHIb.com. According to Bennett, many displaced workers are ready to act if Congress moves to increase the cap. "It will trigger an onslaught of calls" to lawmakers, he said.

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5.1% Unemployment Rate

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According to the Bureau of Labor Statistics, there are 94,000 unemployed computer scientists in the U.S. That's an unemployment rate of 5.1% in that field, said George F. McClure, who chairs the IEEE's Career and Workforce Policy Committee. H-1B visa holders "are all competing for the same small pot of jobs, and we don't think that is a good thing," he said.

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Analysts Say Doubts About ROI Are Slowing Corporate Handheld Rollouts

Mobile device sales drop off, although some users are reporting fast paybacks

BY BOB BREWIN

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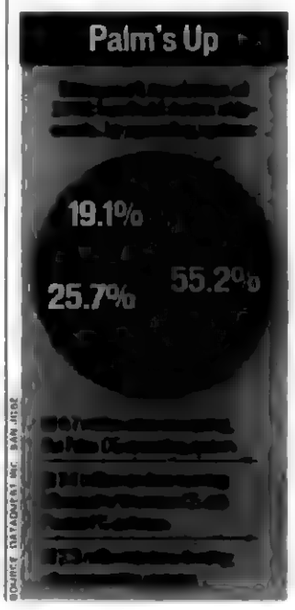

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Financial Probe

Key events leading up to the SEC's decision to examine i2's accounting practices:

- The SEC is following up on i2's Form 10-Q filing for last year's third quarter, in which the company said it was reauditing its results for 2000 and 2001.
- The internal reaudit was prompted by complaints from two former i2 vice presidents about a wide variety of alleged financial improprieties.
- According to the 10-Q filing, the two claimed that i2 had faulty accounting and revenue-recognition procedures and inadequate financial controls.
- The audit committee of i2's board found the allegations to be groundless, but the company has asked its external auditor to check the numbers.

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Palm's Up

Dataquest's breakdown of 2002 handheld device shipments, by operating system:

- 6.7 million devices running the Palm OS operating system
- 3.1 million devices running Microsoft's Windows CE and Pocket PC software
- 2.3 million devices running other operating systems

BRIEFS

HP, Delphi Expand SAP Services Deal

Hewlett-Packard Co. said it has expanded a technology and IT services deal under which it runs SAP AG's business applications for Delphi Corp., a Troy, Mich.-based supplier of automotive parts. Under a new five-year agreement, SAP systems for Delphi's operations in North America and Singapore will be consolidated on HP servers and managed from the vendor's Toronto data center.

Alcan Outsources Operations to CGI

Alcan Inc., a Montreal-based maker of aluminum and packaging materials, said it has finalized a 10-year IT outsourcing deal valued at about $110 million (U.S.) with CGI Group Inc. CGI, also in Montreal, will take over management of Alcan's help desk operations, data centers and messaging systems. The two companies had announced a tentative agreement last July.

IBM, British Airline Agree on Pact

IBM and Luton, England-based Britannia Airways Ltd. said they're developing a system that will use IBM's ThinkPad X24 notebook PCs and a wireless network to electronically store flight manuals and safety information in airplane cockpits. The data will be updated via the wireless link. The deal is worth about $1.6 million, IBM said.

Short Takes

European Union officials said MICROSOFT CORP. has agreed to make "substantial changes" to its .Net Passport identity management software in order to conform to European data privacy laws. . . . SAP dropped the dot-com reference from its applications product line, which is now called mySAP Business Suite.

MARK HALL ▪ ON THE MARK

IT Users Botch Security Again . . .

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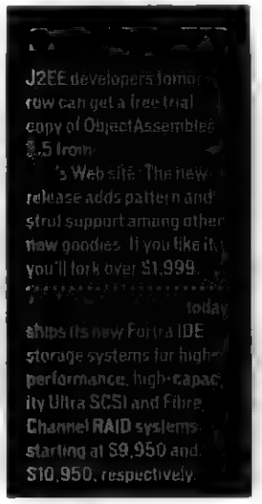
▪ Robert Handler, an analyst at Meta Group, thinks there has been a **"collective consciousness change since 9/11"** on designing security into systems from the get-go. But he doesn't see a "holistic way" for enterprise IT architects to accomplish it today. Jan Popkin, CEO of New York-based Popkin Software & Systems Inc., a company that has been selling IT system architectural tools since 1986, agrees that 9/11 was a turning point. The company bolstered the security features in its recently released System Architect V9 and will do even more in the next version slated for later this year. In addition to more tightly integrating security processes into the next upgrade, Popkin will add support for **the new Department of Defense Architectural Framework** and integrate a wider array of XML-based business process modeling languages. ▪ Since you can't rearchitect your legacy environment, you might consider **exerting a little more control over it** by adding security tools such as STAT Neutralizer from Harris Corp. in Melbourne, Fla. The 2.0 version of STAT Neutralizer ships later this month with support for Windows XP Service Pack 1 and Windows 2000 Service Pack 3, as well as support for HTTP, e-mail clients, instant messaging applications and other services. The software doesn't detect intrusions by viruses or worms. Rather, it loads with the OS kernel and, through specific rules that come standard or are added by system administrators, **prevents disallowed behavior by applications.** According to Richard Ealiari, director of product strategy at Harris, security problems like the Slammer worm occur because sysadmins never get around to loading existing patches because they have to manage the downtime problem. Plus, most system managers don't want to add patches willy-nilly to their computers without first testing them with existing applications. STAT Neutralizer can "give users peace of mind" until the patches are tested and installed, Ealiari says. ▪ **More than peace of mind** is what you'll get starting today from Gilian Technologies Inc. The Redwood City, Calif.-based company will offer a **minimum $25,000 money-back guarantee** for Web applications and content that are protected by its G-Server security appliance. ▪ Apple's penchant for **secrecy mitigated by its love of self-promotion** merges messily with its Web site housing the "public beta" of the rather old-fashioned X11 Windows System, the Unix world's graphical user interface. It will run on the Mac along with the graphically rich OS X (*http://developer.apple.com/qa/qa2001/qa1232.html*), making the project sort of a technological oxymoron. Appropriately, like the future of X11 on the Mac, most of the links on the page go nowhere. ◗



Cisco Launches Network Quality-of-Service Tools

BY MATT HAMBLEN

Cisco Systems Inc. last week introduced automated quality-of-service functions for nine of its switches and routers, a move aimed at helping users create converged networks that include voice-over-IP (VOIP) capabilities.

Currently, setting up IP networks with VOIP support often requires IT managers to do complex manual tuning of each router in a LAN or a WAN, said Zeus Kerravala, an analyst at The Yankee Group in Boston. The settings are designed to look at IP packets and zip them on their way if they are deemed high priorities, such as voice or video traffic. Because the process is so complex, only 9% of companies even turn on quality-of-service functions, Kerravala said. The result, he added, is that some functions, such as VOIP, might not be adopted as widely as they could be.

Cisco claimed that its AutoQoS technology can help companies speed up IP network deployments and reduce installation costs by as much as two-thirds. AutoQoS is free to users with licenses and maintenance agreements for Cisco's internetworking software.

Glenn Whalley, head of IP network engineering at BTexact Technologies in Adastral Park, England, is using AutoQoS to set up routers that support virtual private network services offered by the BT Group PLC unit. "[Quality of service] is complex to implement, and anything automating that is a good thing," he said.

Nortel Networks Ltd. provides technology similar to AutoQoS but hasn't widely publicized its availability, according to Kerravala. Ralph Santitoro, director of network architecture at Nortel, said his company has offered default quality-of-service settings since 1999 on its Passport 8600 Layer 3 core router, several other routers, a VOIP gateway and IP phones. ◗

BRIEFS

HP, Delphi Expand SAP Services Deal

Hewlett-Packard Co. said it has expanded a technology and IT services deal under which it runs SAP AG's business applications for Delphi Corp., a Troy, Mich.-based supplier of automotive parts. Under a new five-year agreement, SAP systems for Delphi's operations in North America and Singapore will be consolidated on HP servers and managed from the vendor's Toronto data center.

Alcan Outsources Operations to CGI

Alcan Inc., a Montreal-based maker of aluminum and packaging materials, said it has finalized a 10-year IT outsourcing deal valued at about $110 million (U.S.) with CGI Group Inc. CGI, also in Montreal, will take over management of Alcan's help desk operations, data centers and messaging systems. The two companies had announced a tentative agreement last July.

IBM, British Airline Agree on Pact

IBM and Luton, England-based Britannia Airways Ltd. said they're developing a system that will use IBM's ThinkPad X24 notebook PCs and a wireless network to electronically store flight manuals and safety information in airplane cockpits. The data will be updated via the wireless link. The deal is worth about $1.6 million, IBM said.

Short Takes

European Union officials said MICROSOFT CORP. has agreed to make "substantial changes" to its .Net Passport identity management software in order to conform to European data privacy laws. . . . SAP dropped the dot-com reference from its applications product line, which is now called mySAP Business Suite.

MARK HALL • ON THE MARK

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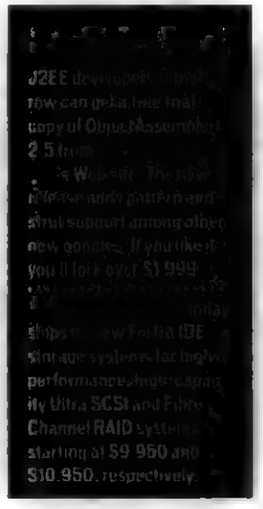

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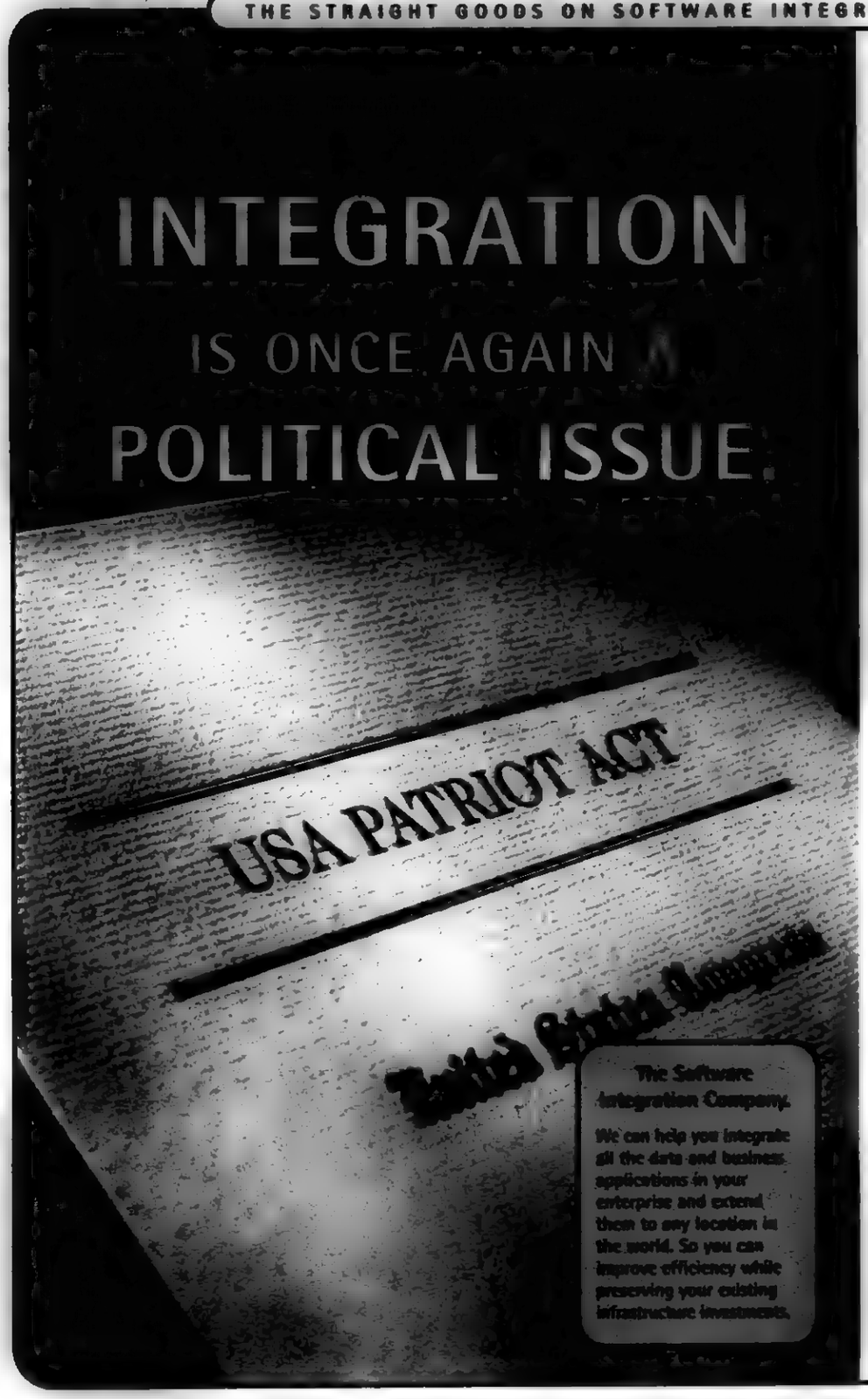

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IBM, Hitachi Try to Counter EMC's Symmetrix Upgrade

Storage vendors jockey for technology leadership in high-end disk arrays

BY LUCAS MEARIAN

STORAGE

EMC Corp.'s planned announcement today of a new line of its high-end Symmetrix disk arrays is shaking up the storage industry, with competitors such as IBM and Hitachi Data Systems Corp. scrambling to steal EMC's thunder with technology upgrades of their own.

Details about EMC's plans began to emerge in January (QuickLink 35699). Industry sources last week said the company is expected to roll out an all-new architecture boasting 128 direct, dedicated paths between the channel directors and internal caches in the Symmetrix arrays. That will increase system bandwidth from 1.6GB/sec. now to 64GB/sec., four times that of Symmetrix's closest competitor, Hitachi's Lightning 9900V array, the sources said.

Santa Clara, Calif.-based Hitachi last week tried to preempt EMC's move by announcing that it has doubled the storage capacity of the Lightning 9900V to 126TB in a RAID-5 configuration by adding new 146GB drives.

In addition, IBM today is expected to unveil a Bluefin-compliant storage management interface for its Enterprise Storage Server Model 800, known informally as Shark. Bluefin, a draft specification that the Storage Networking Industry Association hopes to finalize by the third quarter, is aimed at making it easier to manage multivendor storage-area networks.

IBM also plans to announce new disk drives that operate 50% faster than the current devices used in the Shark arrays, as well as expanded data-copying and disaster recovery features for mainframes that run Linux.

"Both [IBM and Hitachi] are clearly paying a lot of attention to EMC's announcement. They have no choice," said Tony Prigmore, an analyst at Enterprise Storage Group in Milford, Mass. "IBM's protecting its mainframe position, and Hitachi is protecting its capacity lead."

EMC is expected to announce three new Symmetrix models, increasing the product line's top capacity from 70TB to more than 100TB.

"They [EMC] really believe the architecture they have puts them at a tremendous performance advantage," Prigmore said. "That means when I get an unexpected workload, now I can manage through it without compromising the performance of any given application."

Toni Sacconaghi, an analyst at Sanford C. Bernstein & Co. in New York, said in a research note that EMC's ability to boost Symmetrix sales and regain lost high-end market share depends "in part on how it chooses to price its software and how competitors such as [Hitachi] respond in hardware pricing."

Sacconaghi said he doesn't expect a full refresh of the Lightning product line until next year. But Hitachi will likely announce several capacity and bandwidth upgrades this year, he added.

Likewise, Brian Truskowski, general manager of storage software at IBM, said the planned addition of a Bluefin-based programming interface "is only the beginning of what will be a series of product announcements . . . around the issue of interoperability."

KEY DETAILS

Rival Rollouts

- will announce three new Symmetrix models, increasing maximum disk capacity to more than 100TB and internal bandwidth to 64GB/sec.
- plans to add faster disk drives, a Bluefin-compatible management interface and expanded Linux storage features to its Shark arrays.
- is doubling the capacity of its Lightning 9900V arrays to 126TB in RAID-5 configurations and boosting the number of I/O connections that the devices support.

EMC, Other Vendors Team On E-mail Archiving System

Designed to help financial firms meet storage regulations

BY LUCAS MEARIAN

EMC Corp. last week said it's teaming with Iron Mountain Inc. and a vendor of content-archiving software to offer technology and services aimed at financial services firms that are under pressure to comply with federal mandates to retain e-mail messages.

The joint offering is built around EMC's Centera disk arrays, which are designed to store fixed data, and Enterprise Vault for Microsoft Exchange, a message archiving application developed by KVS Inc. in Arlington, Texas.

Boston-based Iron Mountain, which manages physical and digital records for corporate users, will provide storage services and can host the Centera arrays for banks and brokerages that don't want to install the devices in-house.

John McKinley, chief technology officer at Merrill Lynch & Co. in New York, said the regulatory requirements for storing e-mail and being able to quickly retrieve messages has created an environment in which managed archiving services could be useful.

"I think cost is certainly an important factor," said McKinley, who plans to leave Merrill Lynch at the end of this month. Large financial services firms might be able to afford to install and manage the necessary technology internally, McKinley said. "But there are a lot of organizations where putting the type of infrastructure in place to address all the compliance requirements may not make sense," he added.

The vendors declined to disclose pricing for the combined offering. However, a 5TB Centera array has a list price of $205,000, KVS's software costs about $250,000 for a 10,000-mailbox license, and Iron Mountain charges $30,000 to $40,000 for basic auditing and storage services over an initial 18-month period.

Using a Web portal, Iron Mountain will also be able to access e-mail traffic and other regulated data for the government if a company is audited or a disaster occurs, said Roy Sanford, vice president of content-addressed storage at Hopkinton, Mass.-based EMC.

The idea of hosted storage isn't unusual, and most of the top storage-management software vendors offer e-mail archiving and search tools. But Peter Gerr, an analyst at Enterprise Storage Group in Milford, Mass., said the bundled technology and services being offered by EMC, Iron Mountain and KVS are unique.

Their package may not necessarily be less expensive than piecing together an e-mail archiving system would be, Gerr said. But, he noted, "there's a lot of value in the fact that it's an integrated and pretested solution."

The KVS software also offers greater granularity than storage management applications do, in its ability to search out specific e-mails, Gerr said. "That's the nature of these SEC inquiries: 'Give us every piece of correspondence over the past year with these seven terms,'" he noted.

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Archiving Allies

The three vendors will provide the following e-mail retention capabilities:

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IRON MOUNTAIN will manage long-term archiving and indexing of messages at customer sites or in its own data centers.

Correction

Our story about Foote Partners' predictions on outsourcing trends on page 12 of last week's issue characterized the data as part of a "new report." In fact, the research is still ongoing, and the data was only preliminary.

IBM, Hitachi Try to Counter EMC's Symmetrix Upgrade

Storage vendors jockey for technology leadership in high-end disk arrays

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NEW MOON SYSTEMS

Homeland Security Dept. Faces Leadership Void

Private-sector IT waits to see who, what emerges

BY DAN VERTON

IN ONE OF his first moves as secretary of Homeland Security, Tom Ridge last week appointed former J.P. Morgan Chase Bank executive Alfonso Martinez-Fonts Jr. to serve as special assistant to the secretary for the private sector.

But much work remains to fill key leadership positions at the newly formed U.S. Department of Homeland Security and avoid losing the momentum in the public/private partnership on cybersecurity and critical-infrastructure protection, Bush administration and private-sector officials said.

"I worry that if the transition period drags on, we'll lose much of the gains made in establishing a trusted relationship with the leaders of critical infrastructure," said Roger Cressey, former chief of staff of the President's Critical Infrastructure Protection Board. "It is imperative that the new department sends a clear signal to the private sector on who the key contacts are and, most important, that they are empowered to speak on behalf of the secretary."

The sense of urgency comes as several high-level officials — who have led the government's efforts during the past several years to build a partnership with the private sector — have either left or plan to leave government service.

Richard Clarke, whose career as the nation's first anti-terrorism coordinator and cybersecurity czar spanned three administrations, plans to retire this month, *Computerworld* has confirmed. Clarke was instrumental in building the current partnership with the private sector and in drafting the national strategy for the defense of cyberspace, which has been signed by the president and will be released in final form this month.

Likewise, John Tritak, longtime director of the Critical Infrastructure Assurance Office (CIAO) at the U.S. Department of Commerce and another key player in the government's private-sector outreach effort, has also made a final decision to leave public service, according to sources close to him.

Add two more names to that list. Ron Dick, director of the FBI's National Infrastructure Protection Center (NIPC) since March 2001, left the agency in December for a position at El Segundo, Calif.-based Computer Sciences Corp.

And James Clapper, director of the National Imagery and Mapping Agency and a former director of the Defense Intelligence Agency, has backed away from an offer to lead the new department's Information Assurance Division, sources close to the deliberations confirmed.

IT professionals' reactions to the changes were mixed.

John Ervin, a systems administrator at Tessy Plastics LLC in Lynchburg, Va., is more concerned about who's in the trenches. The government needs to focus more on staffing frontline technologists to work with the private sector on stopping cyberattacks, he said.

But the departure of all of these "trusted interlocutors," as one private-sector official who spoke on condition of anonymity characterized them, means that the government is losing a lot of "institutional memory" at a time of great turmoil and uncertainty.

David Wray, a spokesman for the NIPC's transition office at the Department of Homeland Security, said all such fears of losing momentum in reaching out to the private sector are unfounded.

"We're bringing it all together under one roof, and we'll actually have resources and funding that will put us in a better position," Wray said.

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>
> ROGER CRESSEY, FORMER CHIEF OF STAFF, PRESIDENT'S CRITICAL INFRASTRUCTURE PROTECTION BOARD

Changing of the Security Guard

Who's Out?

RICHARD CLARKE, chairman of the President's Critical Infrastructure Protection Board

JOHN TRITAK, director of the Critical Infrastructure Assurance Office (CIAO)

RON DICK, director of the FBI's National Infrastructure Protection Center (NIPC)

JAMES CLAPPER, no longer in the running to take over the Department of Homeland Security's Information Assurance Division

Who's In?

ALFONSO MARTINEZ-FONTS JR., special assistant to the secretary for the private sector

HOWARD SCHMIDT, likely successor to Richard Clarke

NANCY WONG, acting director of the CIAO

ADM. JAMES PLEHAL, acting director of the NIPC

J.D. Edwards Upgrades CRM Tools, Adds Ties to Back Office

BY MARC L. SONGINI

J.D. Edwards & Co. last week took the next step in binding its back-office software with the customer relationship management (CRM) applications that the company bought through its acquisition of YouCentric Inc. in late 2001.

Denver-based J.D. Edwards announced Version 2.0 of its CRM suite, saying the upgrade includes 175 enhancements and expanded integration with its supply chain management and enterprise resource planning applications.

Robbie Herzig, senior marketing manager for CRM at J.D. Edwards, said the company's main objective for the new release "is to continue to build on the visibility the customers are asking for from the front office to the back office."

For example, J.D. Edwards has connected its contact center application to its field service software, letting mobile customer-service workers look at account histories, warranty data and other information, Herzig said.

There is also now a tie-in between the company's sales force automation applications and supply chain software. That feature will give demand planners access to real-time data feeds from salespeople in addition to historical sales information, she said.

The supply chain and CRM integration appeals to Brian Capone, director of marketing at Hutton Communications Inc., a Dallas-based distributor of wireless communications products. He said Hutton's sales force now relies on two systems — contact management software from Best Software Inc. in Reston, Va., and J.D. Edwards' OneWorld XE applications — to check inventory and do other supply chain-related functions.

But Hutton plans to replace Best's technology with J.D. Edwards' new CRM software within the next four months, Capone said.

The combination of the CRM and OneWorld XE applications should give Hutton's 50 mobile and in-house sales staffers an integrated set of software for doing things such as generating price quotes and checking product stock levels, Capone noted.

J.D. Edwards is also embedding multichannel customer-contact capabilities in the CRM upgrade and adding an option that lets mobile workers run sales applications when they're off-line and then synchronize the data with back-office systems when they reconnect to their corporate networks, Herzig said.

At its Focus 2002 user conference last June, J.D. Edwards promised increased ties between its back-office applications and the CRM tools developed by Charlotte, N.C.-based YouCentric [QuickLink 30542]. J.D. Edwards bought YouCentric 15 months ago after previously reselling Siebel Systems Inc.'s CRM software.

John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass., said J.D. Edwards doesn't offer as full a set of CRM functionality as Siebel and other vendors do.

But for most of the midsize users that J.D. Edwards targets, the CRM software "fits perfectly," he said.

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Looking Deeper, Staying Safer

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That's why Cisco Systems integrates security features into every part of the network, starting with the intelligent switches and routers that provide the foundation for today's business applications. As a result, you can implement whatever level of protection you need, wherever you need it, even as you implement new solutions and extend access to new users.

An intelligent network infrastructure looks deeper into streams of data to identify unauthorized or malicious users, allowing only appropriate users access to the systems and information they need. And because Cisco switches and routers come equipped with embedded firewalls, intrusion detection systems, user-authentication services, content filtering, virtual private network services, IP security, and other safeguards, you can create multiple layers of defense without compromising performance or complicating management.

By the same token, you'll find an array of security features integrated into Cisco PIX® Firewalls, VPN Concentrators, IDS appliances, IP phones, wireless LAN equipment, content delivery appliances, and virtually every other network device Cisco builds, as well as the Cisco IOS® Software that binds them all together.

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Cisco intelligent switches and routers offer an array of embedded security features, enabling you to implement the level of security you need today and to safely deploy IP telephony, wireless mobility, and other solutions in the future. Integrated features include:

Identity-based network services: Using the 802.1x authentication protocol, the network grants privileges based on personal logon info, rather than the device being used.

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CISCO SYSTEMS

BRIEFS

Siebel, IBM Plan To Link Software

Siebel Systems Inc. and IBM said they plan to work together to integrate Siebel's customer relationship management (CRM) software with IBM's WebSphere middleware products. Siebel's application server technology will be used to support only CRM-specific functions in the future, the companies said.

SAP Adds Tool for Homeland Security Functions . . .

SAP AG announced an application that's designed to support homeland security functions, including border management, emergency planning and information analysis. The company said the Security Resource Management software uses its new NetWeaver application integration technology and includes e-government tools.

. . . And Reports Q4 Increase in Profits

SAP also reported its fourth-quarter financial results, which showed a 49% year-over-year increase in profits despite a small revenue dip. Net income totaled $510 million at current euro-to-dollar conversion rates, up from $343 million in the fourth quarter of 2001. Revenue fell 2% to $2.45 billion, but SAP said it expects "modest" sales growth this year.

Short Takes

SYBASE INC. in Dublin, Calif., reported a $9.8 million fourth-quarter loss as revenue fell 11% year over year to $219.6 million. . . . The U.S. Supreme Court ruled that NEXTWAVE TELECOM INC. can keep 63 wireless spectrum licenses that the government tried to take back after the Greenwich, Conn.-based company sought bankruptcy protection in 1995.

Continued from page 1

Slammer

hold some responsibility for their negligence," said Mike Tindor, vice president of network operations at First USA Inc., an Internet service provider in St. Clairsville, Ohio.

Several of the network performance problems First USA suffered because of Slammer resulted from three unpatched systems that it was co-locating for customers. "Obviously, [the problems] could have been avoided if our customers had performed the proper security updates," Tindor said.

Yet despite the need, few companies have the resources it takes to keep current on all the recommended patches and security advisories that inundate them almost daily, users and analysts said.

"Systems administrators spend a lot of their time addressing day-to-day problems, so routine things such as updates get pushed into the background," said Jesse Fussell, president of Information Security Systems Inc., an Edgewater, Md.-based consultancy.

Patch Problems

Software patches themselves are often unwieldy and difficult to apply and sometimes can break the systems they are intended to fix.

For instance, the patch that Microsoft had made available for the hole Slammer exploited involved in some cases a "brutally slow and manual process," said Chip Andrews, owner of SQLSecurity.com, a site dedicated to securing SQL servers.

As a result, at least "some administrators put off the patch because of the sheer time it would take to patch a production machine," said Ben Koshy, technical manager at W3 International Media Ltd., a hosting company in Vancouver, British Columbia.

Pat Hymes, vice president of corporate information security at Wachovia Corp. in Charlotte, N.C., said maintaining patches can be a challenge for any organization.

"It can take a great deal of time and energy to download, test and implement service packs and hot fixes, especially in large organizations where they can impact hundreds of applications and thousands of servers," Hymes said. "The total cost of ownership for servers running some of these distributed [operating systems], databases and Web software is going through the roof due to the manpower being expended to maintain patches and respond to events like the SQL Slammer worm."

> **"We struggle with the same issues as the rest of the industry."**
>
> RICK MILLER, SPOKESMAN, MICROSOFT CORP.

Claude Bailey, an IT security analyst at one of the nation's largest financial management firms, said the problem lies not in detecting the vulnerability but in deploying the patches and fixes across an organization of 50,000 employees and guaranteeing that the patch won't cause more problems.

"We tested the original patch [for the SQL vulnerability], and it had problems," said Bailey. And now, in the middle of tax season, there's too much to lose in deploying patches that break other parts of the network, he said. As a result, the financial firm has placed a freeze on any such maintenance until tax season is over.

The patching issue becomes even harder when dealing with patches that touch core systems like a database server, said Eric Block, information security officer at Dallas-based Mary Kay Inc.

"Database administrators can get very nervous when you tell them that a security patch could break their server," said Brock. As a result, decisions about patches sometimes can become a "risk-rewards judgement call," he said.

Microsoft's Woes

Even Microsoft itself wasn't above such oversight last week, with several unpatched systems becoming infected by Slammer.

"We struggle with the same issues as the rest of the industry," said Rick Miller, a Microsoft spokesman. "Some don't patch for time management reasons, some out of oversight. At the end of the day, it should have been patched."

Vendors have contributed to the problem by failing to provide enterprise-class patching and updating processes, said Paul Schmehl, adjunct information security officer at the University of Texas in Dallas. The university lost Internet connectivity for about 13 hours because of Slammer, according to Schmehl.

"Most vendors are still writing software for individual boxes instead of thinking about scaling processes to make them usable," he said.

It is in response to such concerns that Microsoft is revamping its processes for developing and distributing patches, Miller said.

For instance, the company has begun to make available easy-to-use installers for automating much of the patching process, Miller said. Microsoft is also working on tools that help companies scan their networks and identify vulnerable systems more efficiently, he added.

"We recognize that we need to do a much better job developing and delivering patches," Miller said. "We are working on it."

Computerworld's Dan Verton contributed to this story.

MANAGE THOSE PATCHES!
New tools help, but there's still no easy way to identify new patches and prioritize installs.
QuickLink 30912
www.computerworld.com

Free Benchmarking Tool Could Have Detected SQL Hole

Not only could companies have slammed the door on the Slammer worm if they had installed the Microsoft patch, but they also could have prevented it by using a free benchmarking tool developed jointly by the government and the private sector.

The Consensus Minimum Security Benchmarks, also known as the Gold Standard, were made available to the public last July. Developed by the federal agencies in collaboration with the SANS Institute and the Center for Internet Security (CIS), the Gold Standard benchmark is used to test Windows 2000 Professional systems for proper configuration [QuickLink 33500].

Alan Paller, director of research at the SANS Institute in Bethesda, Md., said a National Security Agency study of the benchmark conducted that by running it on a network, a company could eliminate more than 90% of known vulnerabilities. The database-specific vulnerabilities exploited by the Slammer worm would have been among them, he said.

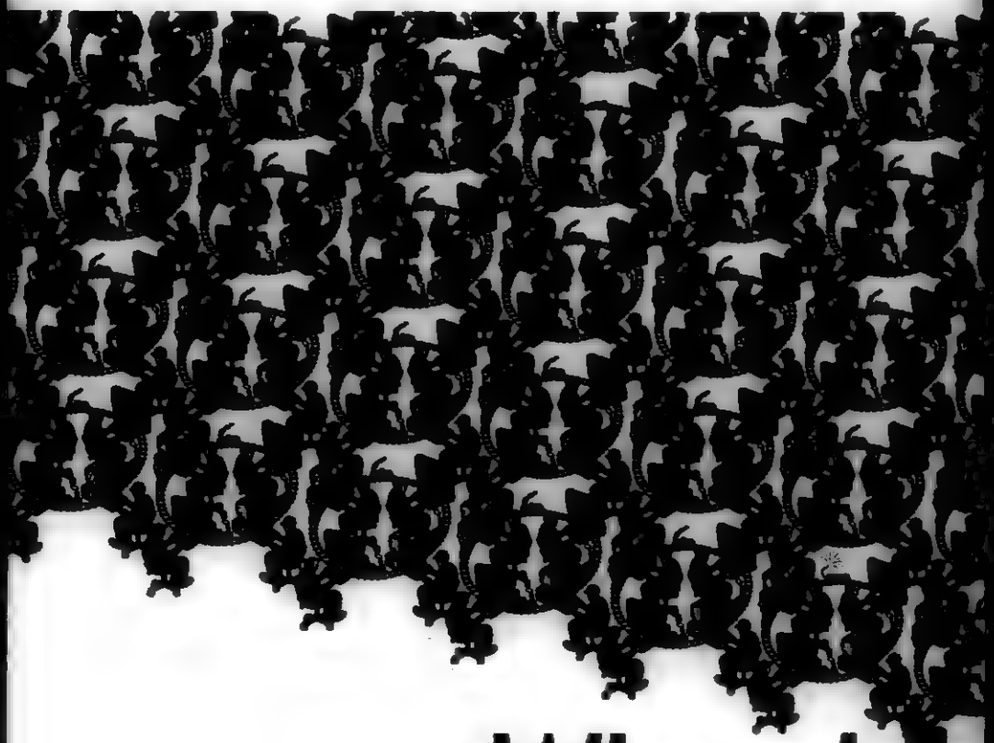
Pat Hymes, vice president of corporate information security at Wachovia, a CIS member company, said the Gold Standard benchmark serves as an "excellent baseline" for security testing. And because it's available for free, Hymes added, "there's no reason not to use it."

But awareness continues to be a challenge, said Clint Kreitner, president of CIS, a Hershey, Pa.-based nonprofit security standards consortium of more than 170 companies.

For example, Maurice Riefel, an IT security analyst at a major energy company in Louisiana, said he was aware of the benchmark but hadn't realized that it tested for the SQL database vulnerability exploited by the Slammer worm.

–*Dan Verton*

Your Enterprise Monday 10:32 A.M



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Continued from page 1

Cartridges

reproduce a cartridge chip's functionality.

And now, a company that has so far overcome the technological challenges posed by the printer makers is being sued by Lexmark International Inc. Lexmark alleges that Static Control Components Inc. (SCC) in Sanford, N.C., is illegally copying its printer computer chip technology.

The two sides will face off in a federal court hearing Friday in Lexington, Ky., the home of Lexmark. It's a case that the remanufacturing industry, also called the aftermarket, sees as key to its fate.

"This lawsuit is an industry killer," said Tricia Judge, executive director of the International Imaging Technology Council in Freehold, N.J. If remanufacturers are blocked from reproducing computer chips, Judge said, they won't be able to offer low-cost alternatives. "We have to win," she said.

Remanufacturers have about 25% of the toner cartridge market, according to industry estimates.

Eby-Brown Co., a $3 billion wholesale distributor of convenience store goods, is a large user of remanufactured cartridges. The Naperville, Ill.-based company saves 20% to 50% buying remanufactured cartridges, said Brian Freeman, network services manager at the company.

Eby-Brown has standardized on a limited model line of Hewlett-Packard Co. printers, so it's practical to keep an inventory of printer parts for in-house repairs, said Freeman. "Most companies are like me — we are extremely tied to our printer vendor," he said.

But this printer standardization also means the remanufactured toner cartridges are the only source of competition with those made by the printer maker. "Anytime there is no competition, the quality declines and the price increases," said Freeman.

The Lexmark lawsuit, filed Dec. 30, affects only two of SCC's 70 printer parts lines. SCC has stopped producing the chips for those cartridges, pending the outcome of this week's hearing. But SCC CEO Edwin Swartz said he worries other original equipment manufacturers (OEM) will follow Lexmark if it succeeds in court.

"The OEM is not the friend of the aftermarket," said Swartz. "Every cartridge that is remanufactured is one that the OEM doesn't get to sell."

Lexmark officials told *Computerworld* that the company offers users the option of buying cartridges without an up-front discount or "prebate" if they choose not to return the cartridges to Lexmark. Those cartridges can be remanufactured without SCC's chip and "will perform without loss of functionality," they said.

SCC acknowledged that that's the case but contended that businesses buy only the discounted cartridges. "It's all a sham to stop remanufacturing," Swartz said.

Lexmark's 17-page lawsuit alleges that SCC's computer chip infringes on its software copyright as well as the Digital Millennium Copyright Act (DMCA), the controversial 1998 law established to combat piracy. And it's the DMCA infringement allegation that makes the case a potentially far-reaching one.

Although the DMCA was originally aimed at stemming piracy of software, music and motion pictures, its anticircumvention provision applies to almost any copyrighted material that's being accessed, said David Hayes, chairman of the intellectual property group at Palo Alto, Calif.-based law firm Fenwick & West LLP.

Under the DMCA, it's conceivable, for instance, that a hardware maker could prevent interoperability with other systems by citing the law's anticircumvention provisions.

"In order to block competitors from interoperating with your products, all you need is some flimsy authentication handshake," said Fred von Lohmann, an attorney at the Electronic Freedom Foundation in San Francisco. "This same tactic can be used in almost any arena."

U.S. Toner Cartridge Market

	Black & White		Color	
	2002	2006	2002	2006
[redacted]	$8.4B	$8.2B	$628M	$1.1B
[redacted]	27%	35%	0%	21%

SOURCE: LYRA RESEARCH INC., NEWTON, MASS.

SHOP WISELY

Firms should use caution when doing business with toner cartridge remanufacturers.

QuickLink 36028
www.computerworld.com

CA Ships CleverPath Portal Upgrade, Bundles New Tools With Software

Rollout part of plan to ease integration burden for users

BY MARC L. SONGINI

Computer Associates International Inc. this week plans to announce a software suite that tightly integrates its portal server with business intelligence tools, an end-user dashboard, access-control technology and other capabilities.

The planned rollout is part of a bundling strategy CA detailed last month for its CleverPath Portal software [QuickLink 34755]. By combining the portal with various tools, CA hopes to take away some of the integration headaches for IT managers who currently have to try to cobble together different applications, said Ricardo Antuna, senior vice president of CleverPath marketing at CA.

Among the planned enhancements, he said, is the latest CleverPath Portal release. Version 4.5 will have new Java hooks and a redesigned user interface.

CA will also add several options to the portal, including a Lightweight Directory Access Protocol-compliant product that will let IT managers implement single sign-on approaches to authenticate end users who want to access information through the portal.

Compliance Tool

Also coming is a new dashboard-style user interface that will let business executives access key data via a single console, an end-user collaboration tool and a product that can scan a company's financial data to detect potential fraud. The latter tool, which is being offered through a co-development partnership with McLean, Va.-based IT consulting firm BearingPoint Inc., is aimed at helping companies comply with the Patriot Act and other government regulations.

Antuna said CA will also offer an upgraded version of a software tool that can be used to build business rules into systems. The new release will be able to generate rules that can invoke multiple systems through Web services and create automated business workflows.

CA's Portal Push

The software vendor plans to announce the following new or enhanced products as part of its CleverPath Portal offering:

CLEVERPATH FOR GLOBAL COMPLIANCE, to help companies comply with financial reporting rules.

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CLEVERPATH COLLABORATION OPTION, to support collaboration across multiple communications channels.

CLEVERPATH DASHBOARD, which provides a single user interface for business executives or other employees.

CSX Corp. is already beta-testing Version 4.5 of the portal and may upgrade by year's end, said Lisa Balter, director of commercial applications at the Richmond, Va.-based operator of railroads and other shipping businesses. Currently, CSX runs both CA's Unicenter enterprise management applications and CleverPath Portal 3.5.

Balter said CSX is also exploring the possibility of rolling out the new end-user dashboard. The dashboard is appealing because it lets end users drill down into data and manipulate the information in different ways, she said. Buying an integrated suite is preferable to installing and linking multiple applications, as long as the functionality meets acceptable levels, Balter added.

CleverPath Portal 4.5 and the regulatory compliance software are available now, and CA said the other tools are due in March. Pricing for the full suite totals about $200,000.

Continued from page 1

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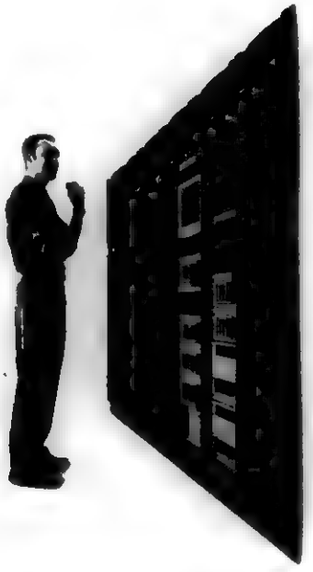

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Microsoft

MARYFRAN JOHNSON

Your Outsourced Future

READER REACTION was swift and scornful last week after we ran a story predicting that 35% to 45% of existing IT jobs in the U.S. and Canada will be outsourced, shifted to contractors or moved offshore within the next two years [QuickLink 35866]. So many jobs? So soon? No way. Headline-grabbing nonsense, this was.

That was my initial reaction, too. Analyst predictions tend to be notoriously off base, although we in the press cheerfully troop along and write stories about them anyway. As one reader put it, "I think that you guys are sometimes guilty of oversimplification of the issues." Indeed.

In 10 years, though, I suspect we'll see these painful outsourcing trends as the inevitable transition of a workforce in a maturing industry that plays a critical role in the emerging global economy. What IT is going through today mirrors what the automobile and electronics industries went through in previous decades, as once-valued, highly paid skills became commoditized, automated or more cheaply available elsewhere. New skills rise in value to keep pace with changing technologies, sharpening competition and shifting business needs. Outsourcing trends historically move in great waves, cresting in economic downtimes when cost savings become paramount.

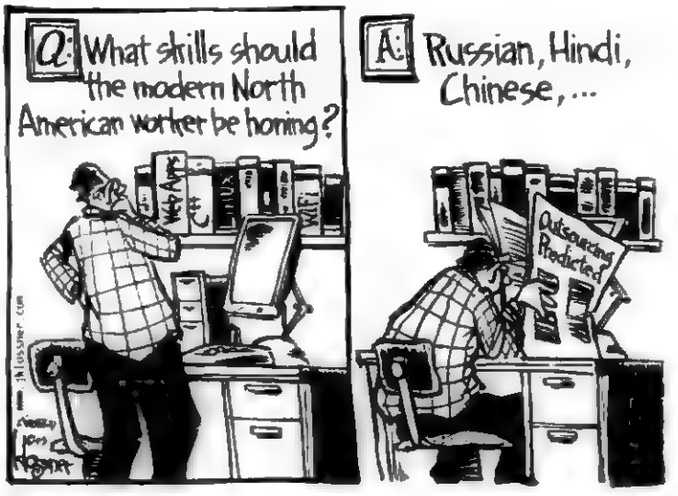
Our government has certainly embraced outsourcing. Federal IT outsourcing is expected to hit $15 billion annually by fiscal 2007 — a 127% increase over the $6.6 billion spent last year. That push is coming from two directions: a mandate to cut costs, and the increasing difficulty of replacing qualified technical and program management employees [QuickLink 35533].

We can also see outsourcing taking hold in the bellwether financial industry. Mega-deals are making headlines again, as they did in the early 1990s. J.P. Morgan Chase recently signed a seven-year, $5 billion deal with IBM. Bank of America inked a 10-year, $4.5 billion deal with EDS. Canadian Imperial Bank of Commerce signed up for $2 billion in IT services from Hewlett-Packard. And so on. When Gartner researchers surveyed 39 Fortune 500 banks a few months ago, they found half of them outsourcing back-office and operational tasks more extensively than ever. Intensifying competition, a depressed economy and the attraction of the pay-as-you-go model for IT services are a powerful trio of business drivers.

Offshore outsourcing is also rising, as the economic lure of cheaper programmer labor continues to beckon. The one wild card that may slow the trend this year is the threat of war with Iraq. Yet Forrester Research estimates that the $4 billion in U.S. wages that floated offshore in 2000 will become a riptide of $136 billion and 3.3 million IT-related jobs by 2015. Web-based collaborative tools, inexpensive bandwidth and standardized business applications make it easier to contract out maintenance and support.

In spite of all this, I see a silver lining in this outsourcing cloud: the way American IT executives are rising — or will rise — to the challenge of managing projects involving workers outside their companies and around the world. Forrester is releasing a report today called "Unlocking the Savings in Offshore," in which analyst John McCarthy lays out some of the best practices involved in making these projects work. They include centralized management, commitment and support from senior executives, and relentless project discipline.

No rocket science. No great mysteries. Nothing you can't handle. After all, isn't this the industry where the one constant is change?



PIMM FOX

Free Speech Benefits IT

THE IT COMMUNITY has always thrived on free speech. The exchange of information gives users essential ways to compare experiences, develop new products and enhance the affordability and usability of all types of systems. Unfortunately, the benefits of openness aren't acknowledged in the end-user license agreements that vendors force customers to sign.

Now, though, vendors may find that they'll have to rewrite all those agreements to take into account a decision recently released by New York State Supreme Court Justice Marilyn Shafer.

The ruling focused on a case involving language contained in Network Associates' license agreement prohibiting a user from publishing a review of its security software without prior approval. The court clearly stated that the ban was deceptive because the license agreement gave customers the impression that they would be violating the law when they would not.

In essence, the court said making someone afraid to write something is the same as preventing him from writing it in the first place. And this typically is what goes on with a license agreement.

License agreements restrain customers from disclosing vital product performance data, make it impossible for them to seek legal redress for damages caused by product flaws and can bar them from revealing their vendor experiences without first obtaining approval from the vendor. It's hardly surprising, then, that most customers have only good stories to tell.

Where's the benefit in that?

Imagine the motion picture industry making movie viewers sign an agreement granting prepublication approval rights to anything they may write about a film. All the reviews would be positive. With such a policy, the automobile industry could ensure favorable coverage before a would-be reviewer even switched on the ignition.

MARYFRAN JOHNSON

Your Outsourced Future

READER REACTION was swift and scornful last week after we ran a story predicting that 35% to 45% of existing IT jobs in the U.S. and Canada will be outsourced, shifted to contractors or moved offshore within the next two years [QuickLink 35866]. So many jobs? So soon? No way. Headline-grabbing nonsense, this was.

That was my initial reaction, too. Analyst predictions tend to be notoriously off base, although we in the press cheerfully troop along and write stories about them anyway. As one reader put it, "I think that you guys are sometimes guilty of oversimplification of the issues." Indeed.

In 10 years, though, I suspect we'll see these painful outsourcing trends as the inevitable transition of a workforce in a maturing industry that plays a critical role in the emerging global economy. What IT is going through today mirrors what the automobile and electronics industries went through in previous decades, as once-valued, highly paid skills became commoditized, automated or more cheaply available elsewhere. New skills rise in value to keep pace with changing technologies, sharpening competition and shifting business needs. Outsourcing trends historically move in great waves, cresting in economic downtimes when cost savings become paramount.

Our government has certainly embraced outsourcing. Federal IT outsourcing is expected to hit $15 billion annually by fiscal 2007 — a 127% increase over the $6.6 billion spent last year. That push is coming from two directions: a mandate to cut costs, and the increasing difficulty of replacing qualified technical and program management employees [QuickLink 35533].

We can also see outsourcing taking hold in the bellwether financial industry. Megadeals are making headlines again, as they did in the early 1990s. J.P. Morgan Chase recently signed a seven-year, $5 billion deal with IBM. Bank of America inked a 10-year, $4.5 billion deal with EDS. Canadian Imperial Bank of Commerce signed up for $2 billion in IT services from Hewlett-Packard. And so on. When Gartner researchers surveyed 39 Fortune 500 banks a few months ago, they found half of them outsourcing back-office and operational tasks more extensively than ever. Intensifying competition, a depressed economy and the attraction of the pay-as-you-go model for IT services are a powerful trio of business drivers.

Offshore outsourcing is also rising, as the economic lure of cheaper programmer labor continues to beckon. The one wild card that may slow the trend this year is the threat of war with Iraq. Yet Forrester Research estimates that the $4 billion in U.S. wages that floated offshore in 2000 will become a riptide of $136 billion and 3.3 million IT-related jobs by 2015. Web-based collaborative tools, inexpensive bandwidth and standardized business applications make it easier to contract out maintenance and support.

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Introducing Information Availability. It's business continuity and more.

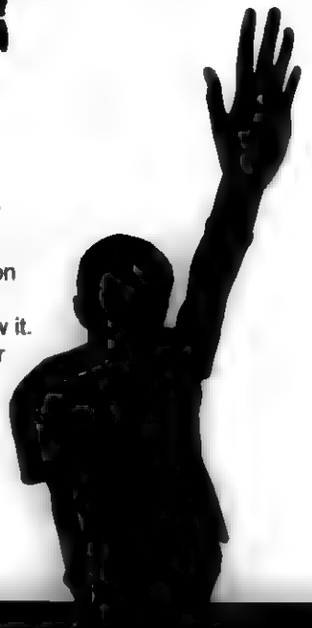
It's not just about protecting data. It's about keeping people connected to it so your business runs uninterrupted, 24x7.

Typical business continuity solutions go to great depths to back up applications, networks and business-critical information. But what they don't do is protect your organization's access to it all. That's where a SunGard Information Availability strategy comes in.

Information Availability goes beyond business continuity by combining technology, redundant infrastructure and technical expertise to keep your people and information connected, no matter what. When you understand the many ways disconnects can happen, you'll see why Information Availability is the best way to prevent them. Business continuity plans may incorporate one or more of the following features, but only a SunGard Information Availability strategy offers all of these *from one source.*

It's a place to go when workers can't go to work.

Business continuity plans rarely plan on an emergency closing your office or building. A SunGard Information Availability strategy does. We can place your people immediately at our over 15,000 end-user positions in up to 55 cities – all convenient to commercial centers and airports. And if you want to keep your people close, we can even come to you. With 39 fully-equipped mobile facilities, we have the most flexible mobile recovery fleet in the industry, ready to roll to virtually any location.



It's confident customers, always in contact with you.

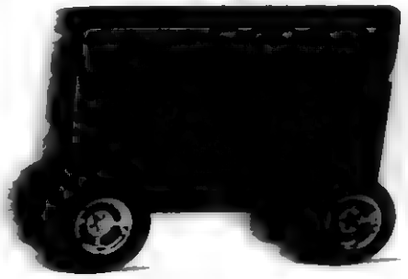
Disaster could well strike your company. But with an Information Availability plan from SunGard, your customers may never know it. SunGard can help you engineer a solution that meets your information availability requirements.

It's replication of your IT system.

Nobody's IT network of operating systems, servers and software works quite like yours. SunGard's Information Availability program can provide you with an optimally configured, perfectly maintained and scalable system, pre-tested, ready and waiting to continue your critical business processes at a moment's notice.

It's hardened facilities and high-level security.

SunGard maintains more than 3 million sq. ft. worldwide of strategically placed, hardened facilities, providing you with high availability to your information and virtually no downtime. Well-staffed facilities feature fully redundant power and communications, state-of-the-art equipment, multi-platform compatibility and high levels of security.



It's off-site data storage that's truly off site.

Some continuity plans incorporate in-house backup tapes and storage. But they're useless in a power failure, fire or evacuation. SunGard's off-site storage is a key part of Information Availability. Our file sharing, primary storage and data backup services are unrivalled for data integrity and reliability. And they free up your equipment and people for other purposes.

It's a dedicated, redundant network backbone.

Every SunGard location is connected by nearly 25,000 miles worldwide of dedicated network backbone, providing on-demand or dedicated DS1/DS3 protocol-independent communications.

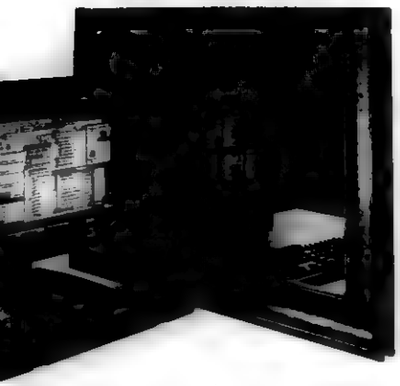
It's platform-independent professionals bringing it all together.

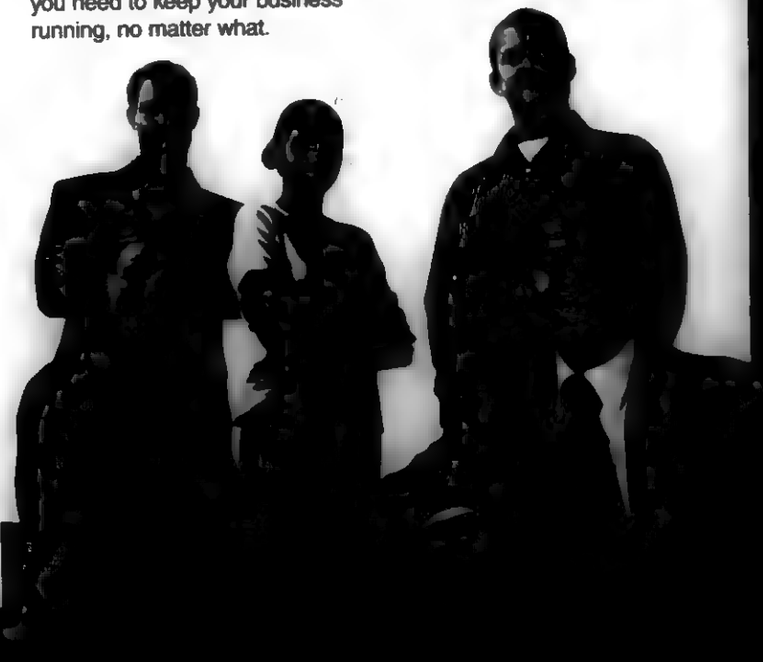
With SunGard, more than 2,000 Information Availability experts are at your fingertips. We can help you with everything from vulnerability assessment and impact analysis to planning, technology integration, network and architecture solutions, deployment, testing and certification. Everything you need to keep your business running, no matter what.

SUNGARD®

Availability Services

The Net Beneath You





Don't let lost access to information take your company down. Stay up and running with an Information Availability strategy.

Talk with us. An Information Availability strategy from SunGard can be a life-saver when it comes to keeping people and information connected. Data is more time-sensitive than ever. And SunGard's complete continuum of services can protect your information's availability, enterprise-wide. From tiered applications recovered as fast as 48 hours, to high availability applications in as little as 2 hours, to managed services that provide continuous access to critical information.

SunGard offers the industry's most comprehensive Information Availability services – from planning, traditional disaster recovery, network and managed services to IT outsourcing, professional consulting and high availability solutions. Plus, end-user recovery facilities where your people can go to reconnect with data in an emergency. In fact, nearly 90% of U.S. companies with $1 million or more in revenue are located within 35 miles of one of our facilities.*

Every day, we help ensure that over 10,000 clients worldwide have uninterrupted access to their business-critical information. They count on us to supply the people, technology and infrastructure necessary to provide multiple points of access to information, flexible alternate workplace options for their employees, and updated continuity plans and systems to meet their future technology needs.

SunGard is one of the largest providers of platform-independent business continuity, managed hosting services and more. No company has more ways to keep your business in business. See how your company rates on Information Availability right now. Take our Information Availability Challenge at **www.availability.sungard.com/iac**

*Source: Dunn & Bradstreet's MODI

SunGard: The Net Beneath You.

With SunGard you get

- the company that founded the recovery industry in 1978
- comprehensive support for more than 30 platforms
- 75 facilities in 10 countries with more than 15,000 end-user positions worldwide

SUNGARD
Availability Services

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THORNTON MAY

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EMERGING TECHNOLOGIES
Task-Centric Storage Takes the Stage
New inexpensive storage appliances based on Advanced Technology Attached disk arrays may redefine the traditional role of the application server. **Page 30**

QUICKSTUDY
Session Initiation Protocol
Learn more about this signaling protocol, which is used for Internet conferencing, telephony, presence, events notification and instant messaging. **Page 29**

OPINION
Just Pin It on Microsoft
The endless drumbeat of anti-Microsoft propaganda is a wonderful way for competitors to distract users from failures of their own making, says technology evaluations editor Robert L. Mitchell. **Page 34**

senior vice president of MIS at Wisconsin Physicians Service Insurance, created a 250-MIPS virtual Linux server

DAVID CROCKETT

MOVING INTO MAINFRAME LINUX

Running Linux on IBM big iron can deliver savings – but only with the right applications and upfront planning. BY ROBERT L. SCHEIER

MAINFRAME LINUX can boost application uptime and reduce support costs. But users and analysts recommend acting carefully when choosing which applications to move to the open-source operating system and when training staff in the required skills.

The attraction of Linux on the mainframe isn't so much the low cost of licensing Linux or the fact that users can modify it and rely on a community of developers to fix bugs, users say. Instead, the big draw is the ability to combine Linux with the mainframe's proven reliability, speed and management tools to drive down the cost of running critical applications.

"We're not interested in just getting the least expensive thing on the market," says Randy Lengyel, senior vice president of MIS at Wisconsin Physicians Service Insurance Corp. (WPS), a health insurer in Madison, Wis. "We want something that is reliable, functional and has great customer service from the [vendor]."

Hitting the Sweet Spot

The sweet spot for mainframe Linux today is server consolidation — replacing dozens or even hundreds of separate Intel-based Linux or Windows servers with a partition on the mainframe that dedicates a single processor, memory and other system sources to running Linux.

WPS created a virtual Linux server running on one 250-MIPS processor that was available within an IBM eServer zSeries 900 mainframe and did it at 40% of the cost of ordering, installing and configuring a new Intel-based server, says Lengyel.

A virtual server can be created within two to three minutes and deliver as much as nine times the throughput of a stand-alone server, he says. WPS, a longtime mainframe user, was drawn to running Linux on the mainframe as a way to leverage the mainframe's reliability and to keep support costs low.

Linux's Expanding Mainframe Role

Right now, the biggest use for mainframe Linux lies in consolidating infrastructure servers such as Web servers. But a few companies are already looking for new ways to use mainframe Linux to cut costs and increase efficiency.

Some are using application server environments such as WebSphere and WebLogic to run core business applications "in modern, Web-enabled or Web services environments," says Giga Information Group analyst Stacey Quandt.

Randy Lengyel, senior vice president of MIS at Wisconsin Physicians Service Insurance, says he hopes to do just that. If he could run his PeopleSoft financial applications on mainframe Linux, Lengyel says, he could easily create virtual servers when his accountants need them and switch that power to Web servers during peak enrollment periods for new members. Currently, he says, the servers that keep the accountants happy during their crunch time sit nearly idle the rest of the year.

Dave Ennen, technical support manager at Winnebago Industries, says he hopes to save money by running mainframe backup software on Linux. By using IBM's HiperSockets to stage legacy data to Linux running on the mainframe before backing it up, he says, he could use lower-cost Linux backup tools.

Over the next 18 months, says Quandt, mainframe Linux will enter a third phase, where corporate IT will use it to run not only business applications but also databases that currently run on z/OS. This development would let IT shops use the lower-cost Linux environment to run complete application environments that used to be scattered across multiple, harder-to-manage servers.

– *Robert L. Scheier*

The instability of its Windows NT servers was one reason why recreational vehicle manufacturer Winnebago Industries Inc. implemented Dallas-based Bynari Inc.'s InsightServer groupware application for Linux on an IBM zSeries mainframe.

Dave Ennen, technical support manager at the Forest City, Iowa-based company, says he had to reboot his Windows NT servers once a week in an effort to improve their stability. But "on the mainframe, everything is geared to staying up 24 hours a day, seven days a week," he says.

Winnebago already had a mainframe (an IBM S/390 Multiprise 3000 Enterprise Server) and a staff skilled in IBM's z/VM, an operating system that can divide each partition in a mainframe into multiple software-based virtual machines, each running its own operating system and applications.

Rather than go through the expense of training his staff for the upgrade from Windows NT to Windows 2000 and Windows Exchange Server 2000, Ennen says it was more cost-effective to use part of his existing mainframe capacity and his staff's mainframe skills to run its Linux-based e-mail system. However, "if you were going to go out and buy a mainframe" just to run Linux, he says, "it's going to be a little hard to justify."

Many observers say users should be running at least 20 to 25 servers before even considering consolidation into a mainframe Linux environment. Some of the best candidates for consolidation are infrastructure applications such as file and print services, e-mail, domain name servers and Web servers such as Apache.

But not every application is a natural for mainframe Linux. Windows applications are a poor choice, since they don't run on Linux, although Linux equivalents are available in many cases. And applications that have complex graphical user interfaces or that perform complicated data analysis can use so much processing power that it's more cost-effective to keep running them on stand-alone servers.

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Users have also been reluctant to move complex applications such as SAP R/3, which can take years to implement on distributed servers, onto a new environment. Although SAP AG has been among the first vendors to support Linux with its flagship products, Linux will represent only about 10% of new installs in 2003, says Manfred Stein, product manager for Linux Lab and Unix platforms at SAP.

Once you've identified applications to run on the mainframe, users and analysts recommend migrating them first to stand-alone servers running Linux. That's a good way to get support staff familiar with Linux before tackling the additional complexity of the mainframe, they say.

Training Unix veterans in mainframe Linux skills — or Linux veterans in Unix skills — can be one of the biggest challenges. Many organizations have one support organization for mainframes and another for Windows and Unix servers, says John Kogel, vice president of the systems and service management group at Candle Corporation of America in Des Plaines, Iowa. These groups must work together and learn new terms for familiar concepts, he adds.

Since beginning its move to mainframe Linux in January 2002, WPS has cross-trained two mainframe and two Unix staffers in the combined Linux/mainframe environment. Each employee then took his knowledge back to his respective group.

Choosing the Products

The choice of Linux distribution for the mainframe matters, say users and analysts. Nuremberg, Germany-based SuSE Linux AG has the closest relationship with IBM, so about 80% of organizations running production applications on mainframe Linux use SuSE software, says Stacey Quandt, an analyst at Giga Information Group Inc.

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But SuSE's dominance may not last, Quandt says, because Raleigh, N.C.-based Red Hat Inc. improved its mainframe support relationship with IBM in the second half of 2002.

The choice of mainframe operating system also makes a big difference. Users can run Linux in native mode on IBM's older, 31-bit mainframe OS/390 operating system and can prioritize application access to resources within a partition. But IBM's latest mainframe operating system, z/OS, supports higher-throughput 64-bit processing and lets IT managers prioritize applications across multiple partitions, says Peter McCaffrey, director of product marketing for zSeries mainframes at IBM.

Users who hope to consolidate hundreds of stand-alone servers on mainframe Linux should also plan to implement IBM's z/VM, recommends Quandt. Z/VM lets users create hundreds of virtual Linux machines within each partition. Without z/VM, users are limited to 15, one for each partition. And, says Ennen, with z/VM, you don't have to bring the mainframe down to create a new Linux partition. But z/VM has a steep learning curve.

Linux-Only Hardware

IBM also offers the Integrated Facility for Linux (IFL), a mainframe processor that runs only Linux under z/VM and costs as little as one-third as much as a similar processor used for general mainframe workloads, says Quandt. IFLs can run on IBM's Multiprise, eServer zSeries and S/390 Parallel Enterprise Servers.

Another advantage: Adding an IFL to a mainframe doesn't boost software licensing bills because IFLs aren't counted in capacity-based software pricing agreements, according to IBM.

For customers that don't have mainframes and might otherwise choose high-end Unix servers, Quandt points out that IBM offers a Linux-only z800 with three years of licensing and support at entry prices of less than $400,000, making it a cost-effective alternative to high-end Unix servers.

Mainframe Linux isn't a good fit for every application or every user. But the more you suffer from server sprawl, users and analysts say, the more you should consider it.

Scheier is a freelance writer based in Boylston, Mass.

Action Items

CONSIDER CONSOLIDATING servers that run infrastructure applications like e-mail.

LOOK for a Linux distributor with enterprise-class support, such as SuSE or Red Hat.

CROSS-TRAIN the Unix and mainframe staffs.

MIGRATE applications to Linux on Intel-based hardware first, then go to mainframe Linux.

FACTOR IN the costs and effort involved in adopting new mainframe operating systems, such as z/OS or z/VM, that might be required to support Linux partitions.

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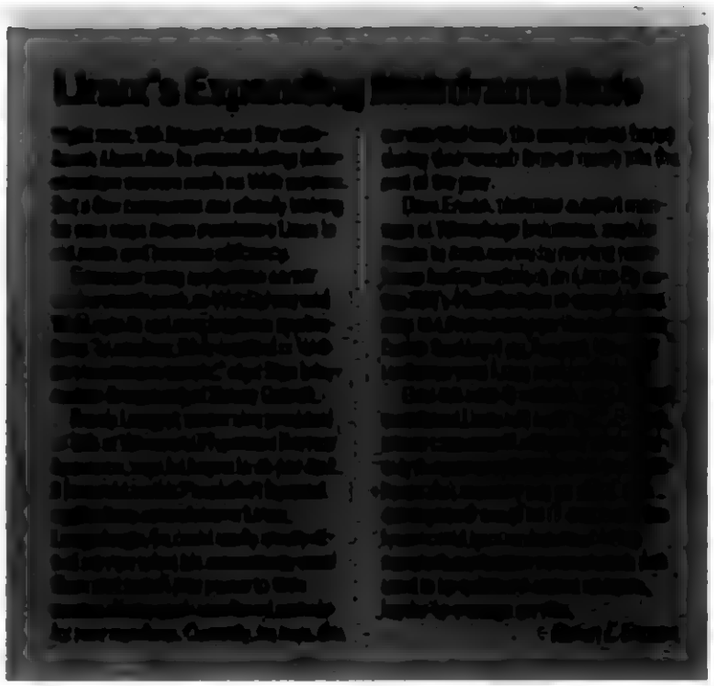

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Winning through server consolidation. Winnebago Industries lives by its e-mail system. By consolidating its functions onto one IBM **@server** zSeries running Linux, the company created an industrial-strength e-mail system, and saved on software licensing fees in the process. For a complimentary guide on server consolidation, visit **ibm.com**/eserver/winnebago

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Inside Trustworthy Computing

Microsoft's Craig Mundie sounds off on how the initiative is working within the company and for customers.

CRAIG MUNDIE *spent his first six years at Microsoft Corp. incubating a variety of non-PC computing and service offerings — including Windows CE, software for the Pocket PC and WebTV — for the company's consumer platforms division. But now the scope of his work is much broader.*

Mundie works with Chairman and Chief Software Architect Bill Gates on a comprehensive set of technical, business and policy strategies that spans Microsoft's entire product line. As senior vice president and chief technical officer of advanced strategies and policy, Mundie must coordinate the plans when their implementation crosses product groups.

Mundie's interest in technical and policy issues related to security and critical infrastructure has landed him on several government committees, including the National Security Telecommunications Advisory Committee. He also started and continues to sponsor Microsoft's Trustworthy Computing initiative.

Computerworld's Carol Sliwa interviewed Mundie about the Trustworthy Computing progress. Excerpts follow:

What effect did the companywide memo that Bill Gates issued in January 2002 have on the Trustworthy Computing initiative? That was sort of the final step in a companywide evangelism. At that point, it went from evangelizing the importance of this to the day-by-day practicing of the art of what you do about it. You have to train people. You have to assess where they are. You have to make it possible to measure these things.

How can we in the outside world tell how much progress Microsoft has made on Trustworthy Computing? Qualitatively, things like Bill's memo, observing the vast majority of people in the company acting as if they believe this was an important thing, is a qualitative way of deciding if we made progress.

In terms of the quantitative measurements, I think of them in two ways. There is, How do we keep score internally on whether or not we're really doing the right thing? What I said a year ago, and which we are working every month to do better, is to develop an internal measurement system where we're able to assess the progress that people have made, assess their level of understanding of the issues, provide training and then keep score of that as a way of creating management metrics that allow the management of the company to look in a holistic way at Microsoft and say, "Well, are all the groups getting it? Are they doing the right stuff?"

The ultimate outcome of this is, when you look at the products, do they exhibit better characteristics? And there, the anecdotal evidence which we begin to measure in a quantitative sense is certainly starting to support the claim that we will make a big difference here. If you look at Visual Studio .Net, which was the first product group to span down development in order to look at these particular security issues, one thing that's clearly observable is [that] we delayed the shipment of the product from Thanksgiving [2001] until February [2002] specifically because we made decisions to make changes. That costs real money, affects real programs and real people.

Right now, we're very pleased, because the number of security issues that have come up in that product since its release is de minimis.

What are some of the other areas where the effects of Microsoft's security review can be seen? [Internet Information Server] 6 was changed entirely in its installation configuration so that only the basic Web server, which is quite secure, is the thing that's standardly installed.

There have been other things people can observe in terms of the stand-down we did in Windows, where we stopped development this year for about 10 weeks. It produced a set of patches that we've started to push back out to the Windows update mechanism for some of the installed products. ... We released some new tools, like the Microsoft Baseline Security Analyzer.

In some sense, the first of the real Windows products ... where [trust] has had a lot of effect on the design will be the .Net Server release in the spring of [this] year, because ... we have stopped and gone back and made more fundamental changes.

The other thing that we think is going to be telling will be, Which way are all the vulnerabilities, particularly critical vulnerabilities, trending in terms of the use of the systems? We feel these efforts are starting to pay off and that our numbers will trend down in terms of the absolute numbers of bugs that are identified and vulnerabilities that are found and have to be fixed.

What is the greatest challenge going forward? In a technological sense, you're chasing a rocket ship. I mean, we continue to have the technology moving aggressively forward. We continue to scale up the capability of the systems. As they get bigger and bigger, complexity mounts, and to some extent, those things all work against the idea that, well, can we really get this thing stabilized and improved?

So to some extent, I always worry about the balance between having to make the product and the business go forward and trying to lock it all down. If things weren't moving, it would be a lot easier. But they have to keep moving, or there would be no business.

What has been your biggest disappointment in the area of Trustworthy Computing? We still end up with independent security research folks finding bugs that we don't find. ... We wish we would get to the point where they're no better able to find things than we are.

When I think about the industry, one of the disappointments I had is that there's no observable evidence, to me at least, that any other significant companies have really chosen to focus on this to the degree that we have. Certainly, if you look at the Linux community or IBM and the people advocating all the open-source approaches, there's about as big a dichotomy as you can imagine between what they say about that stuff and what it actually means.

One of my big disappointments as it relates to that whole phenomenon is basically the blind adoption and reiteration of all the myths around these things: Just because it's open, it must be more secure. People think that Microsoft is a whole lot worse at these things from an engineering standpoint than that community. Well, no, I don't think so. You look at Windows with 50 million lines of code. You look at Linux at, I don't know, 5 million lines of code. You look at the whole number of deployments, or at least the total number of people that are doing the analysis and attack on these things, and if we come out even, we'd say we must be doing something right. But in fact, we don't find a lot more. In fact, now we're increasingly finding less.

MORE ON TRUST

To read more of Craig Mundie's comments on Trustworthy Computing, the Palladium security features for Windows and the competition, visit our Web site:

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Session Initiation Protocol

DEFINITION

Session Initiation Protocol is a signaling protocol for Internet conferencing, telephony, presence, events notification and instant messaging. The protocol initiates call setup, routing, authentication and other communication features to endpoints within an IP domain.

BY MATT HAMBLEN

SESSION INITIATION Protocol (SIP), with its promise of serving as a single global signaling standard, has mushroomed in importance for networking in the past year. But it may be years from adoption because of technical barriers still to be surmounted, including problems with device interoperability and concerns that SIP will make networks more vulnerable, experts say.

QUICK STUDY

The idea behind SIP is to provide a simple, lightweight means for creating and ending connections for real-time interactive communications over IP networks — mainly for voice, but also for videoconferencing, chat, gaming or even application sharing.

Since the Internet Engineering Task Force launched SIP in 1999, hundreds of vendors have started to sell SIP-enabled phones and proxy servers globally. In one significant move, Microsoft Corp. built support for SIP into the Windows XP operating system.

A typical corporate scenario using SIP for an IP phone call would go something like this:

Caller X needs to speak to caller Y. Each of their companies has a SIP proxy server. X and Y can be using any of a variety of clients, including a PC software phone, or "softphone"; a SIP hardware phone; an analog phone with an adapter; or a SIP-enabled cell phone.

When it was turned on, X's client automatically sent a register message to his company's SIP proxy server, telling it to route calls to a specific IP address. X initiates a call to Y via a PC softphone by typing a text request that's sent to her company's SIP proxy server, which uses the Domain Name System to look up Y's domain. The invite request is forwarded to Y's company's SIP proxy server, which sees that X wants to call Y and forwards the invite request to Y's IP address.

Y's phone rings, or a screen pops up, and Y is asked if he wants to accept the call. His affirmative response, called a 200 OK, is sent to his company's proxy server, which forwards it to X's company's SIP proxy server, which sends the 200 OK to X's client.

An acknowledgment message, or ACK, is sent directly to Y's client, and the communication begins

SIP is designed to be a key component for integrated data and voice IP networks. For example, companies can run a cost-effective single wire to a desktop using IP (replacing the second line to a traditional phone) and have the PC operate as a softphone that enables a user to click on a name in a PC directory. The name is associated with a SIP URL, sending a message into a network cloud. Then, when a connection is established, the softphone user can communicate via a headset connected to the PC.

Industry Inroads

"SIP already has a tremendous stronghold in a multitude of areas," says David Fraley, an analyst at Gartner Inc. in Stamford, Conn. "Lately, SIP is the protocol of choice for new 3G wireless networks and phones."

Moreover, Cisco Systems Inc. and other manufacturers of IP public branch exchange (PBX) equipment are putting SIP into that hardware, while media gateway makers are adding it to network cores, Fraley says. Microsoft, Yahoo Inc. and America Online Inc. have made SIP a part of instant messaging sessions.

"What we'll have in the future is a single signaling protocol across all IP networks, and 10 years out all networks are going to be IP," Fraley predicts.

The principal intention, and advantage, of SIP is, of course, having a common signal across a multitude of devices, Fraley says.

But Tim McCracken, business development manager at Cisco, points out that interoperability isn't always as good as proposed. He says that for basic person-to-person calls, SIP works fine. However, beyond the basic connection and call waiting and call holding, there are hundreds of features, such as call transferring and call billing, that are being delayed due to interoperability problems.

Craig Cotton, a manager of product marketing at Cisco, says his company is "bullish" on SIP but questions whether it can evolve to deliver all the functionality enterprises want.

Cisco officials worry that SIP, written as a peer-to-peer protocol, could be inadequate for organizations that need a signaling protocol for client/server networks. But Fraley says SIP proxy servers can be created to overcome this problem.

At WorldCom Inc., SIP "has opened entire lines of business," says Teresa Hastings, director of multimedia services engineering. In fact, the company is already working with Microsoft on a beta version of a Windows XP server supporting SIP, says Henry Sinnreich, a distinguished member of engineering at WorldCom. The company in August launched a commercial IP telephony service called Connection that depends on SIP.

Despite such high hopes, there are concerns that SIP could pose network security problems as it becomes more universal. "If you have a single signaling technology running from telephones over the Internet into core networks and everywhere else, there's a lot more room for malicious behavior," says Fraley.

The peer-to-peer nature of SIP also raises related concerns about management and control in general, Cotton says.

"With the traditional client/server, [the datacom manager] is in control and you know all the users, but with peer-to-peer, you have a lot of features on a device and you don't go through a central repository," says Cotton. "Eventually, with a SIP proxy server, we'll get that control, but how long will it take in a pure SIP environment to get pure management and control and security?"

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SIP Architecture

The diagram below shows a SIP architecture for use in a corporate network. SIP standardizes information transfer between the clients of individual end users, between the SIP proxy and redirect servers and to a SIP gateway that also provides connectivity to the public switched telephone network and the company's legacy PBX. The user clients are directly linked to the SIP gateway via Real Time Transfer Protocol.

Task-Centric Storage Takes the Stage

Outlook: New intelligent, inexpensive ATA-based storage appliances are solving application-specific problems – and may redefine the traditional role of the application server. By Robert L. Mitchell

NETWORK APPLIANCE INC.'S NearStore ushered in the era of using inexpensive, Advanced Technology Attached (ATA) disk arrays for disk-to-disk backup or secondary, near-line storage. The product, launched in March 2002, offers faster backup and recovery times at a cost per megabyte that's competitive with tape backup systems. Now vendors are rushing to add application-specific intelligence to ATA-based storage appliances that reduces application server workloads while offering more efficient ways to store and retrieve data.

EMERGING TECHNOLOGIES

Perhaps the best example is Centera, EMC Corp.'s system for indexing, storing and retrieving "fixed content" files. In Centera's Content Addressed Storage scheme, the client application bypasses the server's file system by making calls to a proprietary application programming interface (API). Centera intercepts each file storage request, strips off the metadata (such as date and time stamps) and runs a hashing algorithm to create a unique, 27-character content ID. It then returns a content descriptor file (CDF) to the client application that points to both the stored object and its metadata. Thereafter, the application need only request the stored object's content ID. Abstracted from the storage media in this way, the application needn't worry about disk I/O, tracking the file path or keeping up with changes in the back-end storage configuration.

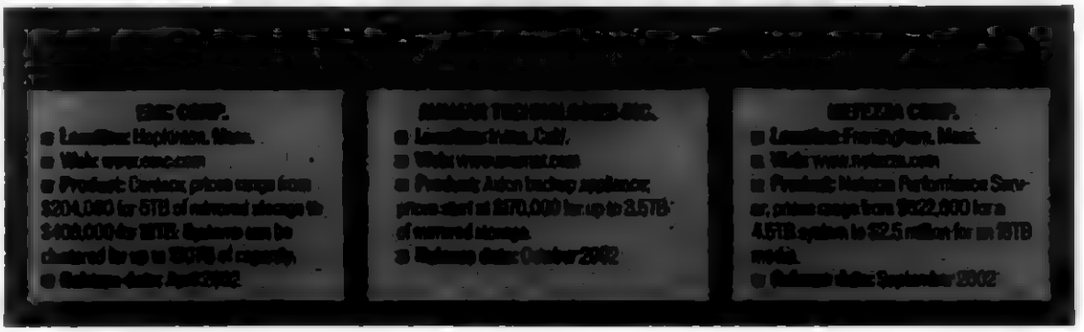
The bottom line: "You should need less of a server . . . and the applications should run more efficiently on lower-cost compute platforms," says Steve Duplessie, an analyst at Milford, Mass.-based Enterprise Storage Group.

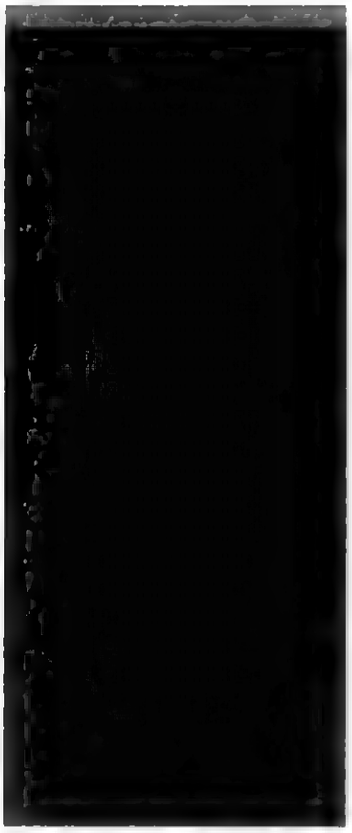
Centera's technology also eliminates redundant file storage by creating multiple references that point to a single instance of the stored file. For example, to store an archived e-mail file attachment sent to 1,000 users, Centera would create 1,000 CDF references to a single content ID, which in turn would reference a single, stored file.

Start-up Avamar Technologies Inc. takes this technology one step further to address the problem of backup inefficiencies. While Centera's CDF technology can eliminate storage of redundant files, Avamar's Axion backup appliance indexes the individual data blocks that make up those files on disk in order to eliminate both file and partial file redundancies. When a sentence changes in a document, for example, Axion updates only the affected blocks within that file.

"We're so much more efficient [that] we can store 10 to 100 times the amount of daily backups that you could on a [disk-to-disk backup system that is] mirroring tape backup," says Jed Yueh, Avamar's executive vice president. The result is a system that requires less space for backups, can restore faster and can efficiently back up distributed systems over a wide-area network, he says.

Another start-up, Netezza Corp., has taken the intelligent storage concept the furthest by embedding parallel processing power with individual disk drives. It designed the Netezza Performance Server as a "data appliance" that optimizes business intelligence queries against very large databases, replacing the traditional Oracle database running on high-end Unix servers and EMC storage arrays. CEO and cofounder Jit Saxena says disk I/O is a bottleneck when querying such databases. Netezza's parallel processing architecture packages what it calls Snippet Processing Units (SPU) with each





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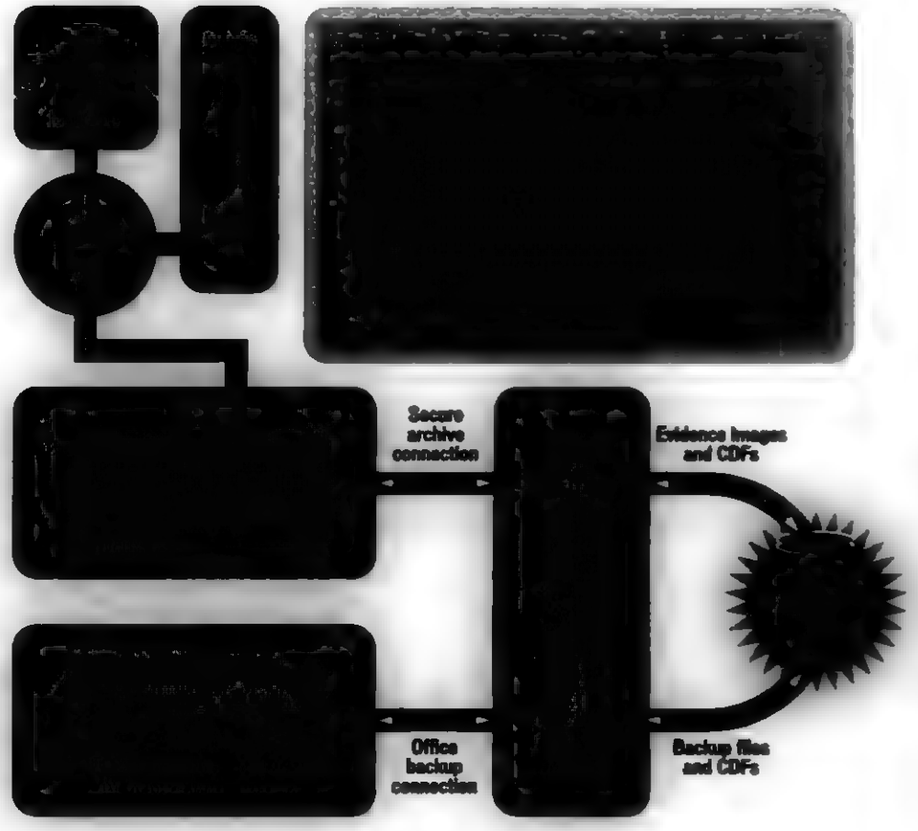
– *Robert L. Mitchell*

Southern California High Tech Task Force

HIGH-SECURITY EVIDENCE AND BACKUP SYSTEM



Task-Centric Storage Takes the Stage

Outlook:

...are solving

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By Robert L. Mitchell

NETWORK APPLIANCE INC.'S NearStore ushered in the era of using inexpensive, Advanced Technology Attached (ATA) disk arrays for disk-to-disk backup or secondary, near-line storage. The product, launched in March 2002, offers faster backup and recovery times at a cost per megabyte that's competitive with tape backup systems. Now vendors are rushing to add application-specific intelligence to ATA based storage appliances that reduces application server workloads while offering more efficient ways to store and retrieve data.

EMERGING TECHNOLOGIES

Perhaps the best example is Centera, EMC Corp.'s system for indexing, storing and retrieving "fixed content" files. In Centera's Content Addressed Storage scheme, the client application bypasses the server's file system by making calls to a proprietary application programming interface (API). Centera intercepts each file storage request, strips off the metadata (such as date and time stamps) and runs a hashing algorithm to create a unique, 27-character content ID. It then returns a content descriptor file (CDF) to the client application that points to both the stored object and its metadata. Thereafter, the application need only request the stored object's content ID. Abstracted from the storage media in this way, the application needn't worry about disk I/O, tracking the file path or keeping up with changes in the back-end storage configuration.

The bottom line: "You should need less of a server . . . and the applications should run more efficiently on lower-cost compute platforms," says Steve Duplessie, an analyst at Milford, Mass.-based Enterprise Storage Group.

Centera's technology also eliminates redundant file storage by creating multiple references that point to a single instance of the stored file. For example, to store an archived e-mail file attachment sent to 1,000 users, Centera would create 1,000 CDF references to a single content ID, which in turn would reference a single, stored file.

Start-up Avamar Technologies Inc. takes this technology one step further to address the problem of backup inefficiencies. While Centera's CDF technology can eliminate storage of redundant files, Avamar's Axion backup appliance indexes the individual data blocks that make up those files on disk in order to eliminate both file and partial file redundancies. When a sentence changes in a document, for example, Axion updates only the affected blocks within that file.

"We're so much more efficient [that] we can store 10 to 100 times the amount of daily backups that you could on a [disk-to-disk backup system that is] mirroring tape backup," says Jed Yueh, Avamar's executive vice president. The result is a system that requires less space for backups, can restore faster and can efficiently back up distributed systems over a wide-area network, he says.

Another start-up, Netezza Corp., has taken the intelligent storage concept the furthest by embedding parallel processing power with individual disk drives. It designed the Netezza Performance Server as a "data appliance" that optimizes business intelligence queries against very large databases, replacing the traditional Oracle database running on high-end Unix servers and EMC storage arrays. CEO and co-founder Jit Saxena says disk I/O is a bottleneck when querying such databases. Netezza's parallel processing architecture packages what it calls Snippet Processing Units (SPU) with each

Tech Specs

EMC CORP.
- **Location:** Hopkinton, Mass.
- **Web:** www.emc.com
- **Product:** Centera; prices range from $204,000 for 5TB of mirrored storage to $408,000 for 10TB. Systems can be clustered for up to 150TB of capacity.
- **Release date:** April 2002

AVAMAR TECHNOLOGIES INC.
- **Location:** Irvine, Calif.
- **Web:** www.avamar.com
- **Product:** Axion backup appliance; prices start at $170,000 for up to 3.5TB of mirrored storage.
- **Release date:** October 2002

NETEZZA CORP.
- **Location:** Framingham, Mass.
- **Web:** www.netezza.com
- **Product:** Netezza Performance Server; prices range from $622,000 for a 4.5TB system to $2.5 million for an 18TB model.
- **Release date:** September 2002

RAIN Explained

Under the hood, both Centera and Axion storage appliances use what are called Redundant Arrays of Independent Nodes (RAIN) to achieve redundancy and improved reliability. Both systems consist of independently functioning storage nodes that fit inside a standard 19-in. cabinet. Each node includes one or more disk drives, a CPU, memory, and Ethernet connections that serve as the communications backplane within the box. Like network-attached storage devices, each node runs its own operating system. (Centera runs a variant of Linux it calls CentraStar.)

RAIN is an implementation of RAID across nodes, rather than disk arrays. Centera uses RAIN for disk mirroring. Axion supports "RAIN-5," a node-level implementation of RAID 5, which requires fewer redundant drives.

The RAIN architecture also enables scaling. In Centera, for example, up to 16 individual racks can be clustered for up to 150TB of mirrored storage, and up to seven clusters can be arranged into a "domain" to support up to 1.05 petabytes of data.

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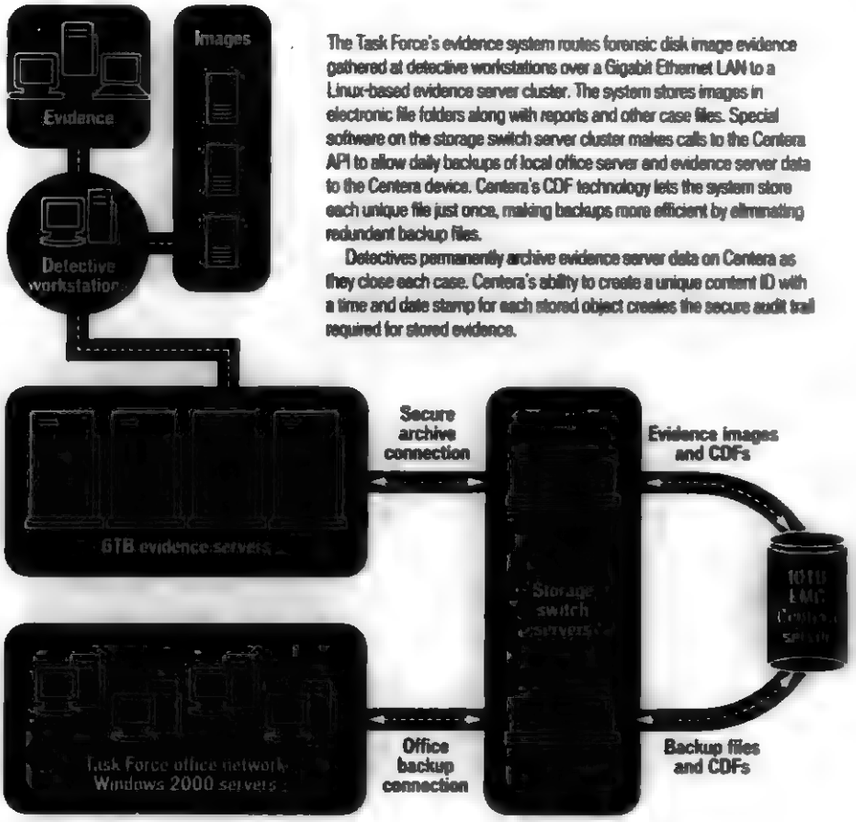

The Task Force's evidence system routes forensic disk image evidence gathered at detective workstations over a Gigabit Ethernet LAN to a Linux-based evidence server cluster. The system stores images in electronic file folders along with reports and other case files. Special software on the storage switch server cluster makes calls to the Centera API to allow daily backups of local office server and evidence server data to the Centera device. Centera's CDF technology lets the system store each unique file just once, making backups more efficient by eliminating redundant backup files.

Detectives permanently archive evidence server data on Centera as they close each case. Centera's ability to create a unique content ID with a time and date stamp for each stored object creates the secure audit trail required for stored evidence.

Missing PKI Root Key Causes a Panic Attack

A potentially compromised root key threatens to undermine the entire corporate public-key infrastructure. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

MY COMPANY has a formal process to deal with staffers who are leaving our company. It helps us close accounts quickly and deal with complicated situations like firings. We don't want someone to find out from our team that he's lost his job, rather than from human resources or his manager. So we must follow a complicated series of steps. Recently, we had a misstep.

In our process, the PC support group disables network and e-mail accounts, other teams disallow access to the appropriate accounts on their systems, and finance ceases mobile phone and remote-access service and recovers hardware from the employees.

I'd always felt we were doing well at balancing the need to act quickly with the need to protect the feelings and confidentiality of departing employees. Then I was called and told that someone who had left a month ago, let's call him "Nick," had logged into a critical server and that important files were missing.

A junior staff member, whom I'll call "Bob," had taken over Nick's work and couldn't find the test root key when he tried to issue test private keys for our customers. While searching on the server that held these files, he discovered that someone had logged in using Nick's account and deleted it.

In a public-key infrastructure (PKI), everything boils down to the root key. If you have the root key, you can issue your own keys for any part of the system and pretend to be whomever you like. Without our root key, we could issue no new keys and would have to rebuild our PKI from scratch — a daunting prospect.

Alarming Activity

At first, I wasn't too worried, since this was just the test system. I had Bob disconnect the machine from the network and give me the IP address the connections were coming from. I then asked the network team to trace it. The address fell within a range we allocate for remote access, and it could have come only from Nick's house. It turns out that Nick's Windows account had been properly closed, but the telephone company hadn't shut down his line, and his Unix account was still active.

Even more alarming were the initial reports from the analysis of the disconnected machine. Unix stores a history of previous commands users have run, and it showed that Nick's account had conducted a vast cleanup operation. The contents of directory after directory had been listed and then deleted.

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This could be a sign of normal tidying up — or of a not-very-skilled malicious user. Unix writes the history file to disk when you disconnect. If you want to get rid of it, you have to connect again, delete the history and leave once more. Otherwise, like Nick, you leave the entire set of commands issued in the session. With the full history, we could see he had visited the directories with the keys in them but hadn't copied or opened any of the files before deleting them.

The root key was safe, because Nick hadn't looked at the contents. But could it be recovered so that new test keys could be issued? Or would we have to make a new one and reissue the entire test environment trust infrastructure?

Normally, we would use a disk utility to recover the files, but with so many files deleted at the same time, tracking down the ones we needed wouldn't be easy. Then Bob pointed out that the important files, including the root key, had been copied to a Windows NT shared drive.

Share Scare

Meanwhile, I made an angry call to the telephone company and chased down the heads of the systems operations group, which quickly plugged the holes and corrected the process. It seemed that Nick had merely meant to clear up his files and free up disk space. No harm had been done. Or had it?

Bob connected to the NT share, one of our company-wide temporary file-sharing spaces that's open to all users. He navigated to the directory used by his team, then went to the section for the test keys, in a folder called Test. But what was the folder next to it, called Live?

My heart missed a beat. The keys to our live system are produced under total care and close supervision, processed on machines not connected to external networks and carefully encrypted whenever they are transferred to backups.

I pictured the result of them lying around on a wide-open NT share available to thousands of staffers. We would have to shut down our key systems, investigate all access to confirm it was legitimate and notify all users. The humiliation and ridicule from our customers and competitors would be huge. "Live?" I asked in a nervous tone.

"Don't worry," Bob said. "Someone just added the directory to keep the structure consistent with all our others. We always have a Live and Test. Look, it's empty — always has been."

I checked the backup logs to confirm that Bob was correct before letting out a long sigh of relief. By concentrating all the trust and security of the system into a few small files, PKI does limit what you have to protect and makes it easier to focus your efforts. But PKI's root key also makes it easier for things to go horribly wrong, as my experience shows. ●

WHAT DO YOU THINK?

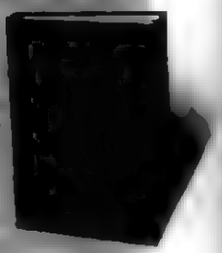
This week's journal is written by a real security manager. "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

QuickLink a1500

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/smjournal

SECURITY LOG

Security Bookshelf



Honeypots: Tracking Hackers, by Lance Spitzner, Addison-Wesley Professional, 2002.

Lance Spitzner, a guiding light in the Honeynet Project, has produced a masterful summary of the current state of the art for "honeypots" – security systems whose value lies in their being probed, attacked or compromised. By distracting hackers from real targets and capturing their tactics, honeypots help make networks more secure.

Spitzner takes the reader on a tour of the history of honeypots, reviews the six major commercial and freeware products and outlines the steps involved in setting up a honeypot. He also includes a chapter covering the current legal status of this approach to security.

The book includes an extensive CD-ROM with background reading and many of the software tools Spitzner discusses.

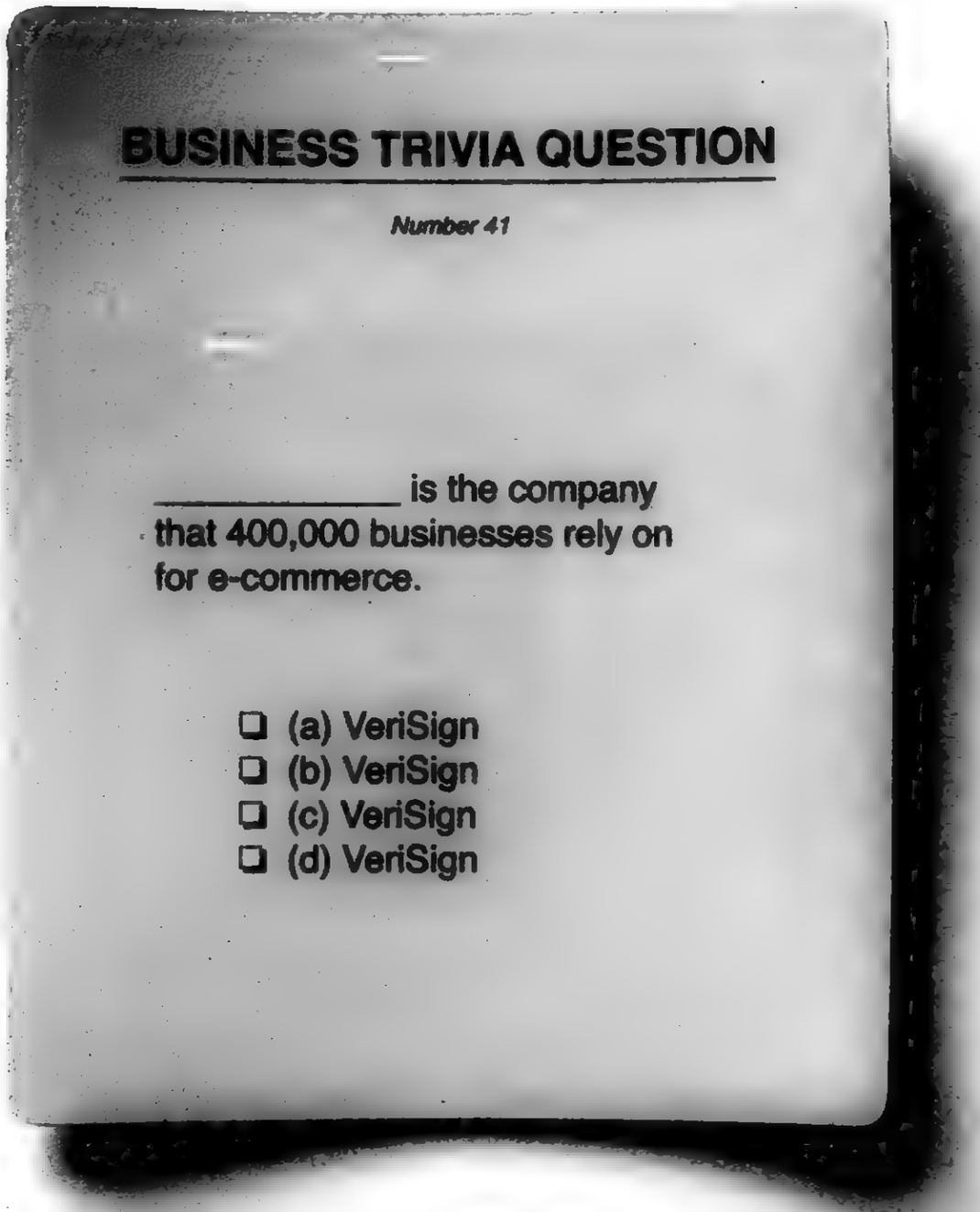
The writing style is a bit stilted and repetitive, but as a resource on honeypots, this book is a must-have.

– Vince Tuesday

A Better Browser

Antivirus software intercepts and scans e-mail file attachments at the point of entry, but files downloaded using a browser aren't scanned until after they're saved.

Secure IE, an Internet Explorer add-on from Boston-based Winfrew Software, blocks access to these files until they've been scanned. It also makes defining security zones easier and can block ActiveX, Flash and pop-up windows. Pricing starts at $28.95 per seat; volume pricing of $15 to $20 per seat is available.



We're also the company that enables 7 billion network connections every day. VeriSign has spent the last seven years building a secure infrastructure for the Internet. We'd like to do the same for your business. VeriSign can help you deploy a trusted infrastructure so you can conduct secure communications and transactions. Soon you'll know why 475 of the Fortune 500 use VeriSign.

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VeriSign
The Value of Trust™

BRIEFS

Media Exchange Appliance Debuts

Zultys Technologies in Sunnyvale, Calif., last week announced the MX1200, a media exchange appliance for integrating voice over IP, data, video and fax with one software interface. It runs on the Linux operating system using standard protocols such as the Session Initiation Protocol, Voice XML and the Telephony Application Programming Interface.

The MX1200 scales from 25 to 1,200 users, and prices range from $20,000 to $212,000, depending on the number of users.

Microsoft Updates MOM 2000

Microsoft Corp. has announced enhancements to its Microsoft Operations Manager (MOM) 2000 software, which helps companies manage Windows environments. The enhancements include about 30 management pack updates with application-specific information for common Microsoft server scenarios; Service Pack 1 with globalization capabilities; and support for clustering the MOM database, a MOM Resource Kit to help users improve efficiency and an updated software development kit.

Compuware Offers Vantage 8.5

Compuware Corp. in Farmington Hills, Mich., released an instant reporting upgrade to its Vantage application performance management line. Version 8.5 will include a Web-based user interface to manage an entire enterprise from a single console, allowing views into clients, servers and network nodes and links.

The new reporting tool allows IT staff to combine in-depth system-performance data with information about the end user's experience and then immediately publish an integrated report that can be distributed via e-mail or to other Web sites. Pricing for Vantage 8.5 starts at $19,000.

ROBERT L. MITCHELL

Just Pin It on Microsoft

MICROSOFT HAS BECOME the company that the computer industry loves to hate. It's downright fashionable these days to blame everything on the "convicted monopolist." But that attitude also serves as a convenient vendor smoke screen that distracts the industry from more important issues — such as building good products, listening to the customer and developing new technologies.

ROBERT L. MITCHELL is *Computerworld*'s technology evaluations editor. Contact him at robert_mitchell@computerworld.com.

Is Microsoft truly responsible for everyone's failures in this industry? To listen to its competitors, one might think so.

Vendors that can't compete have always needed someone to blame, someone to sue. Why not Microsoft? What other reason could explain why competitors' "technically superior" products fail to catch on? How about this: Many vendors are so cocksure that they know what's best for corporate IT that they fail to listen to what IT managers really want. Instead, they try to force-feed managers technologies they don't need. Microsoft has no monopoly on arrogance.

If there's one thing Microsoft is good at, though, it's listening to the customer. In fact, one could argue that the problems technologists hated most in Windows 9x — poor security and a lack of reliability — are a direct result of listening too closely to end users, who were demanding ease of use and ever more features. With its stated reliability and security initiatives, Microsoft now has a laser focus on the needs of corporate IT, and the ship is slowly turning. The lawyers are ready.

Few companies have been vilified to the extent that Microsoft has. Even cigarette maker Philip Morris (now Altria Group Inc.) gets more respect these days. In online forums, a subculture of hate has arisen where Microsoft has been accused of everything short of building weapons of mass destruction. And those who view alternative technologies as a personal religion see Microsoft as a threat to their very existence. The Great Satan must be toppled.

Far removed from these arguments sit most corporate IT managers, who don't care about intrigue. They want products that make good business sense. Products like Microsoft's Exchange, SQL Server and Systems Management Server aren't gaining ground in corporate America because they're being forced on IT. They're getting in because they have features IT has been requesting.

And the idea that Microsoft's products are inferior is bunk. If you don't believe that, ask a corporate programmer who has worked with Visual Studio .Net and the .Net Framework. Or an Exchange 2000 administrator. Or early users of Windows Server 2003.

In most cases, Microsoft has consistently churned out technically solid products. Are they category leaders? Often not. Do they have weaknesses? You bet. But in corporate IT, where slow and steady is the name of the game, a good-enough product with enterprise-class support will do just fine.

It's well known that Microsoft can spend huge sums to establish itself in a new business. It's true that the company leverages its hegemony in desktop and departmental server software to gain footholds in new markets. But its dominance beyond software is overrated. Microsoft ranked 72nd on the Fortune 500 list last year. Its revenue, at $28 billion, is about one-third that of IBM, which is just as aggressive and customer-focused — and is pushing a Linux strategy that actively competes against the Windows franchise.

Microsoft isn't invulnerable. It's still protecting a proprietary Windows architecture in a world that increasingly demands open systems. Key businesses outside of Windows and Microsoft Office, from MSN and Xbox to cell phones and set-top boxes, lost money to the tune of $1 billion last year. And with the market for its Windows franchise maturing, Microsoft tacitly acknowledged that it's unlikely to grow as it once did by declaring a modest shareholder dividend in January — an event that rocked the industry.

This is the Evil Empire that's responsible for all of our problems? I don't see it. Yes, Microsoft can be a ruthless competitor. Yes, the government declared that the company abused its monopoly power in the operating systems market and used that advantage to drive competitors out of key markets. But the biggest complainers aren't the small guys who got squashed by the Microsoft elephant. It's the other big boys in the herd who often bang the drums hardest. Those vendors should take responsibility for their own competitive missteps and keep the focus on the customer, where it belongs.

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QUOTE OF THE WEEK

"Too often people think they have to create Fort Knox. If you're in the nuclear power business, you're right at the top. But if you're in baked goods, nobody's looking to knock off the Keebler elf."

– Jay M. Williams, senior vice president and chief technology officer at The Concours Group. Page 37

STEAL THIS IDEA

Getting the Right Person At the Right Time

Dow Chemical reduced its hiring cycle time across 900 offices in 65 countries by consolidating its efforts through an application service provider. **Page 40**

Perk Watch: BMWs Are Out, Bowling Is In

Companies are doing their best to keep IT talent. A wonderful boss, good career growth opportunities and the prospect of fun are key to luring pros for the long term, says Cognos CIO Rob Collins (left). **Page 38**

When Judith Franklin was charged with dramatically improving customer service in Minnesota's Driver and Vehicle Services division, she emphasized delivering functionality fast.

BARB JORDE

WHEN Yanking THE Mainframe ISN'T AN OPTION

Minnesota's solution may have been cheap and inelegant, but it works just fine. By Connie Winkler

WHEN EX-WRESTLER Gov. Jesse Ventura promised to shape up Minnesota's government, the state's Driver and Vehicle Services (DVS) division was taking as long as four months to renew a driver's license or issue car registrations and license plates. Complaining was useless because the 30-person call center couldn't answer the 1.5 million calls it received annually. The system was a joke.

"Courts would tell citizens to call DVS to find out when their driver's license was reinstated, for example, and citizens would just laugh because they knew it was impossible to get through on the phones," recalls Judith Franklin, manager of enterprise technology support for DVS and the person charged with untangling the mess.

Or, more dangerously, police would stop drivers on the roads and have no way of knowing for sure whether a license was suspended or had been reinstated as motorists claimed.

As part of the totally paper-based system, various forms for licenses and registrations piled up at DVS in St. Paul and across an assortment of third-party companies that the state contracts to process DVS paperwork. Consequently, the information was keyed by about 30 data entry workers into an archaic, 1970s vintage mainframe database system known as Supra from Cincom Systems Inc. in Cincinnati. To generate and decipher reports from the data, DVS users needed dot-matrix printers, Cobol programmers and highlighter pens. The system was a mess.

That was three years ago. Today, citizens receive renewed driver's licenses in three to seven days by applying either via the Internet or at one of the hundreds of third-party driver's license contractor sites, the majority of which are connected via a sister Web system.

In the courts, 1,200 judges get immediate access to driving records, and police are beginning to download driver's license photos to car computers to aid in their work. Back in St. Paul, DVS operations and budgets are being revamped, and, as a result, the more than two-dozen data entry workers — many of whom were hired 20 to 30 years ago — are now asking what their new jobs are going to be. According to DVS, they're being reassigned to other jobs at a savings to DVS of about $72,000 a month.

But getting here wasn't easy.

Under New Management

"Our new management is very much into managing us as a business," says Franklin. "We needed to have a technology infrastructure that supported the business practices we wanted to change."

CASE STUDY

DVS chose Verastream Host Integrator software from Seattle-based software vendor WRQ Inc. and commodity servers running a Microsoft SQL Server database as a cost-effective solution. This intermediary server-based tier uses component technology to extract the valuable business-logic nuggets from the old code residing on the mainframe and to link the new Web-enabled front end to the green screens and IBM S/390 back end, which is still running under CICS in the state's Department of Administration (see diagram, next page).

As so many state governments now face huge budget shortfalls, this front-

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end approach is "fairly common because there are so many state back-end systems that require a complete overhaul," says Thom Rubel, program director for IT at the National Governors Association in Washington. "Most states are trying to do it this way because redesigning everything is too expensive. They're trying to create open architectures so they can create systems that don't require wholesale change on the back end."

A bonus for states is that adding self-service capabilities frees up employees for other jobs. "There are efficiencies to be gained, and many states are trying to identify still-manual processes that don't need to be there," says Rubel. "States don't always get rid of people, but they redeploy them to functions they haven't been able to do for lack of people funding."

Avoiding Back-End Overhauls

For Franklin, who was brought in to give DVS its own computing capability, make the agency more accountable and dramatically improve customer service, redesigning the mainframe system wasn't an option.

"I've talked with other states which dropped such projects after two years because they bit off too much in wanting to change the whole back end," she says. "They spent multiple millions of dollars, but after several years, they dropped the project. . . . Everyone had lost interest because there was no deliverable." Ultimately, Franklin adds, DVS wants a new back-end database, but that's a long-term project.

For now, Franklin emphasizes delivering functionality fast. "You have to go ahead and make some moves. You can't wait until you've designed everything — the business will have changed in the two years it took you to redo everything," she says.

Because the Supra system was a closed, proprietary product with little application documentation, there was no way to hook in application programming interfaces or other connections used by current technologies. "If it had been IBM's DB2 or Oracle's database, there would have been all sorts of tools we could use," she explains. The other issue: Franklin had only three programmers, none of whom had worked with Web systems or databases before.

Franklin turned to WRQ, with which she had worked in the past, to connect sundry desktop systems to mainframes. Verastream was installed in September 2001, and by November the small team had the driver's license renewal process online. The initial Verastream software and server hardware cost about $25,000, but the system is now up to five servers, representing an investment of about $100,000.

Many systems designers today may find such a solution inelegant. But it reflects the wider reality that employees, partners and customers want access to information on demand. They don't want to wait months or years to get the capability. Yet, existing legacy systems weren't designed for such flexibility, and IT budgets are tight. That leaves many IT managers trapped between legacy systems and the "expectations of the Web generation," notes WRQ President Shaun Wolfe.

Another big plus for DVS is that Verastream's component technology allowed DVS to reuse chunks of code containing the business logic for a specific application, such as computing the tax on a car based on its age.

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Improved Access

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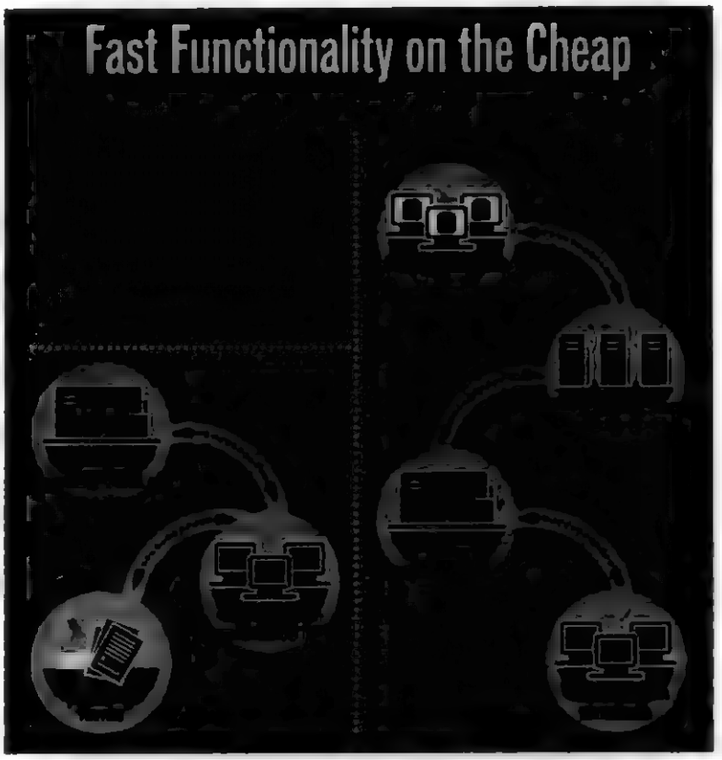
At *www.dps.state.mn.us/esupport*, the state's hundreds of judicial and law enforcement agents and business partners, such as car dealers and private license-processing businesses, can get password access to conduct their business. Courts and the police can read and update driver's license records. The business partners can renew or duplicate driver's licenses, schedule driver exams and renew registrations. Some pilot sites are even issuing duplicate titles. These private agents now conduct more than 50% of vehicle renewals and 10% of driver's license renewals online.



At these third-party business sites, distributing the data entry via the Web to where the citizen is submitting the application dramatically improves accuracy. If the eye exam is missing from the application, the processing stops, rather than the error being caught three weeks later in St. Paul. Such errors would require that the third party chase down the citizen for a re-exam, which is just one of the horror stories from the previous process, Franklin reports.

Indeed, reworking the DVS systems to serve citizens has shaken out many rat's nests and inequities. Currently, private companies are able to buy the state's DVS information — at no profit to the state — and resell it back to the citizens. Now, says Franklin, "our goal is to distribute the information to the citizens whose information it is," eventually eliminating the middleman companies that now sell it back to citizens for a fee.

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Minnesota's experience is mirrored across the nation. States have been the last holdouts for the hierarchical mainframe-based systems of the 1960s and 1970s, says the National Governors Association's Rubel. That situation has endured because of constitutional and statutory requirements, but the organization's best-practices group is seeing a surge in new systems-migration strategies.

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■ **Manage executive expectations.** "An IT audit program will not happen overnight," says David Hoelzer, director of Global Information Assurance Certification and manager of the Advanced Systems Audit track of the SANS Institute, a cooperative security research and education organization in Bethesda, Md. Depending on the size of the organization, it will take at least several weeks, he says. "Prepare management for the work that will be required of them to assist you," he adds, because they'll need to help correct any faulty policies and practices that are uncovered.

■ **Map it out.** Work with technology and business analysts to draw a high-level schematic of the vulnerable intersections of technology and business, Vernon suggests.

Consider security tools. There is software that can scan your network and produce a list of areas of exposure. There are also tested methodologies such as OCTAVE from the CERT Coordination Center at Carnegie Mellon University in Pittsburgh that help you build a security program to industry standards. Your colleagues in the security group can help you find the most useful tools for your company's needs. "They take the best practices and roll them up into a product that the IT manager can plug in," Vernon says. "It may not be all you need, but it will be a far cry from where you currently are."

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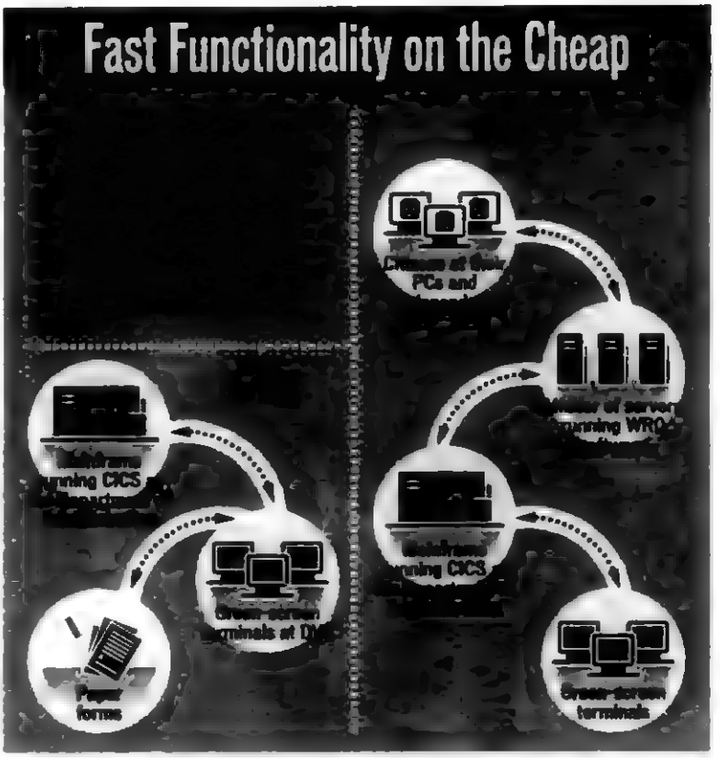

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IT Security Resources

CERT Coordination Center
www.cert.org
■ A center of Internet security expertise at the Software Engineering Institute, a federally funded research and development center operated by Carnegie Mellon University. Information and training on protecting your system, reacting to current problems and predicting future problems.

SANS Institute
www.sans.org
■ Research, education and training on IT security issues.

Center for Internet Security
www.cisecurity.org
■ Methods and tools to improve, measure, monitor and compare the security status of Internet-connected systems and appliances.

Internet Security Alliance
www.isalliance.org
■ A forum for sharing information on security issues.

Information Security Forum
www.securityforum.org
■ An international corporate membership organization whose members share information about security issues.

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Perk Watch: BMWs Are Out, Bowling Is In

Companies are doing their best to keep IT talent. By Barbara DePompa

A ROSE FINALLY DID IT.

Competing IT services firms in Michigan had been doing everything they could to move in on The Epitec Group Inc.'s growing IT services business. Underbidding on IT staffing contracts. Wining and dining corporate accounts. Even m[illegible]ing plays for the company's IT talent.

So when Holly Maguire, manager of employee relations and "maestro of corporate harmony," discovered that every one of Southfield, Mich.-based Epitec's programmers and consultants had been presented a single rose and offered a free lunch by a competing IT services recruiter, she was forced to act.

After making several phone calls to the competing firms' management — in effect, telling them to cease and desist — Maguire met several rose recipients for lunch to chat about their jobs and future prospects at Epitec.

The lesson: It's critical to stay in touch and keep key IT talent happy.

Maguire acknowledges that belt-tightening has made it tough to find new ways to keep personnel content without breaking the bank. "We've never offered enormous monetary bonuses, but we do try hard to keep our IT professionals happy," she says. The company uses fairly inexpensive employee appreciation initiatives.

Other businesses are working harder to keep communication lines open, delivering straight talk about corporate performance to help IT employees understand, first, how well or poorly the company is performing and, second, the impact of their contributions on the business.

For example, Cognos Inc., a business intelligence software company in Ottawa, recently staged a few in-house events during which a marketing executive spoke to the IT department to describe how recent networking and software improvements had radically improved productivity for marketing executives in Australia.

Another senior executive talked about how an upcoming upgrade of Cognos' database to Oraclelli will dramatically improve shipping and distribution processes within the company.

The reason for the communication? After months of bad news about layoffs and other economic declines, "we wanted our employees to know we understand they are working hard, and we appreciate their efforts," says Rob Collins, CIO at Cognos.

The significantly scaled-down bonuses, perks and incentives that budget-strapped companies have to offer these days are keeping IT workers on board — for now. At Epitec, for instance, an account representative visits each IT consultant once a month to talk about work or air grievances. The corporate newsletter lists employees recognized by peers for outstanding work.

An "award patrol" delivers special plaques and balloons to those who have earned praise on the job. The company hosts an employee appreciation month featuring events like office-wide pizza lunches and family bowling nights once a week for four weeks. And IT staffers receive gifts for staying with the company, such as a leather portfolio after three years and a watch at 10 years.

In addition, while some companies have cut benefits such as matching 401(k) contributions, Epitec actually added that benefit this year.

Now the company boasts a 98% project completion rate — which means IT staff assigned to specific projects either complete those projects or are hired by the client again 98% of the time — a statistic that Epitec says is unrivaled in the IT services industry.

Keeping IT talent on board is no longer solely about stock options and designer coffees. It's important to provide work/life balance, say analysts and recruiters. And it's "even more critical to connect an IT professional's job to specific business goals to improve your chances of retaining top IT talent," says Phyllis Klees, a partner at Deloitte & Touche LLP's Human Capital Advisory Services practice in San Jose.

At Cognos, the onus is on management to make IT personnel understand the importance of their contributions on the job, Collins says. And that's not always easy to do. The lesson is that "the length of an IT professional's stay at any company is most affected by whether he or she has a wonderful boss, good career growth opportunities and whether he or she is having fun," Collins says.

He says many companies fail to retain employees "because they think when times are tough, we better shut up." But he says that behavior is completely wrong. "If you hide information from employees, hideous things like Enron can emerge. A culture of secrecy is not in anyone's best interest," Collins says.

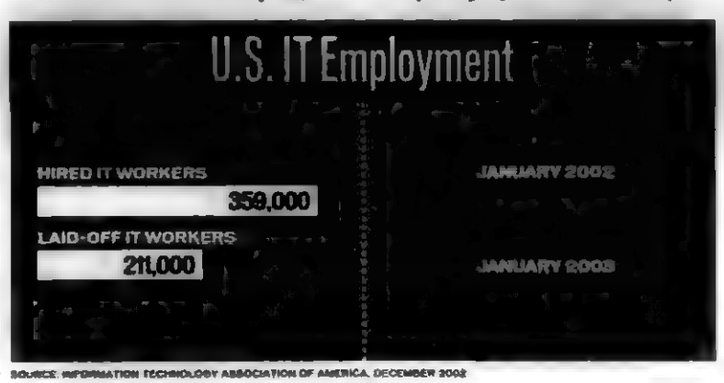
Meanwhile, recruiters, human resources executives and CIOs say that although more IT professionals are available for hire, finding workers with the right skill sets to meet the increasingly rigorous demands set by corporations is difficult. "There's more talent to choose from, but it's still challenging to find those with the experience and skills to meet our corporate clients' growing list of requirements," Maguire says.

Analysts and recruiters also say some companies have taken advantage of the skills glut to vigorously upgrade their IT workforces — in many cases, they're firing IT workers and hiring lower-cost but more-skilled people to replace them. And some who are still holding on to their jobs say having a job right now is compensation enough.

But CIOs and other recruiting experts worry that after months of layoffs and corporate belt-tightening, there will likely be much turnover as the need for IT talent rises, creating a talent shortage all over again.

The Information Technology Association of America (ITAA) in December reported that U.S. companies hired 359,000 IT workers between October and December 2002 and dismissed 211,000 IT employees, for a net gain of 148,000 workers. The total number of U.S. IT workers stood at 10.1 million last month, compared with 9.9 million in January 2002, according to the ITAA.

The bottom line: "Most IT professionals are tired of hearing continuing news about layoffs at companies like General Electric and Motorola," says Maria Schaffer, an analyst at Stamford, Conn.-based Meta Group Inc. "If companies continue to operate purely in a cost-cutting mode, as soon as the economic situation improves, the best performers will leave."



SOURCE: INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA, DECEMBER 2002

DePompa is a freelance writer and editor in Germantown, Md. Contact her at bdepompa@comcast.net.

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(SOUNDS LIKE A SOLID BUSINESS PLAN TO US.)

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Getting the Right Person At the Right Time

BY JULIA KING

DOW CHEMICAL CO. was used to receiving literally thousands of résumés — via postal mail and e-mail — which would pile up and go ignored until a hiring manager was presented with a job requisition for a chemist, database specialist, manufacturing manager or maybe a plant operator. Manually sifting through the résumés to find the people with the right skills for the job could take weeks or even months. Add to that another several weeks to contact the appropriate applicants, set up and conduct interviews, and review notes from those interviews, and a full financial quarter could pass before a new employee was actually hired and working at the company back in early 2001.

Today, Dow's hiring cycle time is down from an average of 95 days to 30 to 35 days. Its headhunter and other recruiting costs are down 25%, and it has cut its job advertising costs by 35%.

This is primarily the result of implementing an automated résumé-tracking and worker-profile system hosted by RecruitSoft Inc., a San Francisco-based application service provider. The system has paid for itself within nine months of deployment and has earned a 6-to-1 return on investment over the past two years, according to Jon Walker, Dow's human resources global director.

STEAL THIS IDEA

How It Works

All job applications and résumés generated by newspaper advertisements, Internet job boards and recruiter referrals are directed to Dow's corporate Web site, where they are immediately funneled into the RecruitSoft system. Dow hiring managers who tap into the system's central repository can immediately review résumés. They can also create templates to ask applicants very specific questions in order to validate their experience and expertise.

For example, for a European sales job opening, a template might include questions about the applicant's passport status, ability to travel and language skills.

"The faster you can talk to [applicants], the more you can share your goals and culture, and the faster you can make a match," says Walker. "We're a science and technology company, not just a chemical company, so we're trying to hire the same technology people as Intel or finance people as Merrill Lynch." Even in a down economy, speed is critical to acquiring the best and the brightest talent, he notes.

Even more useful is the system's central repository, which now contains thousands of résumés against which Dow hiring managers can quickly compare incoming job requisitions.

Walker tells the story of a young woman who was rejected for an auditor's job in the office of the comptroller. Later, a financial analyst position opened up in the company's finance department. "But before they even advertised the job, this woman's profile popped up against the requisition, and they hired her on the spot. When you hire someone before you even post the job, it reduces your cycle time immensely," Walker says.

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>
> JON WALKER, HUMAN RESOURCES GLOBAL DIRECTOR, DOW CHEMICAL CO.

"Before, when we had paper résumés, we had no centralized way to do any kind of consistent workflow," he says. "Now the deal is we have a system that doesn't sleep."

The Web-based RecruitSoft system also allows Walker to create future employee supply-and-demand scenarios by analyzing the experiences, skills and competencies contained in worker profiles stored in the central repository. "We're now able to track the right people," he says.

Looking ahead, Walker says he foresees Dow exchanging applicant profile information with other companies, excluding Dow's direct competitors.

"Why not do this, especially if the company is a customer of ours?" he asks. "We could go from 100,000 profiles to 1 million profiles to create a talent pool and a network that works better for everyone."

■ WHO: Jon Walker, human resources global director, Dow Chemical Co., Midland, Mich.

■ PROBLEM: Receiving lots of résumés, complete with all the trendy IT and business buzzwords, but not having a consistent, cost-efficient or effective way to quickly and accurately assess job seekers' true abilities or their potential for success at the company.

Dow, a $28 billion company with more than 900 sites in 65 countries, is organized into eight global business units, none of which had the ability to archive and track résumés. This meant that a hiring manager in one business unit had no way of knowing about a qualified job seeker who may have applied to the company through a different business unit.

■ SOLUTION: Dow implemented a central electronic repository into which all incoming résumés from around the world – including those posted from third-party, Web-based job boards – are directly funneled. Skills profiles are created for all applicants and are automatically checked for a match each time a new job requisition is entered into the system. An application service provider was hired to install and then manage the technology on a day-to-day basis.

Getting the Right Person At the Right Time

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NEWSMAKER

ALEX ZOGHLIN, chief technology officer at Orbitz LLC, will leave the company in April but plans to stay on as a consultant. Zoghlin recruited his own team of developers and has positioned the travel reservations company with what he estimates is a 40% cost savings from its Linux platform. As a result, Orbitz is able to offer consumers an easy-to-use online booking tool with a wide range of travel choices. He spoke with *Computerworld*'s Joan Conalvio about some of his other accomplishments at Orbitz.

Compared with an average of less than 24 months, three years as CTO is a long time. What made you stay? I had some specific personal goals; I wanted to be part of developing the best software development team. There are key ingredients to starting [and building] the best companies, and one of them is people. . . . I wanted to be part of a team that was going to grow through one of those spurts.

How did you recruit your software team? Great developers want to work with great developers. . . . Our recruitment process is very painful. About one out of 100 applicants [is hired, and we have 50 to 60 developers now]. . . . I started with a few great core developers and then told them they needed to hire people better than themselves. No matter where I look, I see people greater and better than those that hired them on. . . . That excellence in people is not just in our software team, it's also the CEO, CFO and HR staff. They're great people that took a long time to hire because of the skill set, drive, desire, execution, operational history [we look for]. I leave the company in great hands.

How do you see yourself as a leader? I see myself standing on the shoulders of giants, mostly because of my hiring style, hiring people better than me and then getting out of the way. . . . I spend a lot of time making sure bureaucracy doesn't get in the way of efficiency. And the end result is I end up looking really good, because I let the people I hire do their jobs.

JOHN BERRY

ROI or Your Money Back

THIS YEAR, we might witness the injection of a powerful new dose of value into value-based contracting. As vendors continue to build their sales efforts around an ROI narrative — and some will — their customers are likely to be concerned about the profit impact of IT investments, not just how long it takes the vendor to return a help desk call.

At least a few companies are already infusing their IT investment decision-making with financial models to forecast expected returns. At the same time, more than a few vendors have begun to build their sales pitches around the ROI story. The emergence of these parallel agendas suggests that we will see more value-based contracting in the future. Deals will be struck in such a way as to reflect the customer's keen desire to link some percentage of the IT vendor's compensation to measurable financial outcomes. Should this forecast hold, the implications for the vendor/customer relationship will be profound.

These kinds of contractual arrangements aren't entirely new. In the broadest sense, value-based contracting means that some of a vendor's compensation is at risk and dependent upon a customer achieving certain financially driven results from the IT investment. The ability to shift some of the cost burden and risks of an IT investment has been a powerful tool that customer companies have used to design contracts for IT services, hardware and software. Under one value-based approach known as gain-sharing, vendor and buyer share in the quantifiable dollars saved or generated from the user's IT project. In a shared risk/reward arrangement, the buyer and vendor share in the cost of the development of the project and in the subsequent spoils.

Likewise, service-level agreements (SLA) have been constructed to ensure that predefined performance goals, such as system uptime and availability or tech support turnaround times, are met. If these guarantees aren't met, the vendor reimburses the end user or pays a penalty.

Now, how about a value-based contract with an SLA guaranteeing market share percentage increases, faster inventory turns, reductions in procurement errors or increases in sales per rep? The logic is simple: If vendors are determined to sell their products and services based on a metric-driven economic value message, then customers will expect them to earn part of their compensation based on these performance indicators.

Is the day coming when the company CFO cuts a check for a technology purchase only after the investment reaches some threshold ROI or beats the expected payback period?

If so, vendors are facing a more demanding marketplace in which the financial returns they peddle in their sales and marketing efforts become the foundation of rigorous financially driven SLAs. This puts their compensation at risk.

The implications of this arrangement are equally profound for the customer. Metrics built into such SLAs will oblige the buyer to treat the vendor as a true business partner, perhaps for the first time.

The prospective customer will be required to share sensitive business process data, its cost structures and perhaps its road map for future product or service innovation. Many companies shopping for IT resist sharing cost data, let alone the value drivers moving the organization. Given the kind of strategic, consultative role the vendor will inevitably find itself in as it negotiates the sales contract, there's no avoiding the fact that buyer and seller will need to slow-dance through the process, not bang heads in the mosh pit, as uncomfortable as that dance might be.

How can this new value-based relationship flourish otherwise? If the prospect seeks an arrangement in which it pays for IT based upon ROI results but then refuses to reveal the unique levers that drive its profitability, how can an equitable contract be drafted? Vendors would likely feel as if the wool was being pulled over their eyes.

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Software Engineers needed: Seeking candidates possessing MS/BS or equiv. and/or rel. work experience. Part of the req. rel. work exp. must include 1 year designing, implementing and supporting multi-tier systems, working with EJB technologies and RDMS. Duties include: Analyze, design and develop technical workflow of projects and provide tech support to client websites and apps. Experience with JSP/HTML/DHTML, CSS & JavaScript a plus. Mail res., & ref. to: Guzman & Company, 1200 Brickell Ave, 14th Floor, Miami, FL 33131.

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Programmer Analysts needed. Seeking qual. cand. possessing BS or equiv. and/or relevant work exp. 1 year of the required relevant experience must include working with J2EE, Unix & iPlanet. Mail resume & ref. to: iCompliance, Inc., 4955 Evergreen Valley Way, Alpharetta, GA 30022, ATTN: HR

Do Lo Rus Cash Systems is seeking a Systems Team Leader for Lisle, IL. Candidate will direct a team of programmers who will develop and maintain systems and applications used to manufacture, service and maintain: (1) teller cash dispenser and currency counters using pattern and magnetic counterfeit detection methods, and (2) high volume coin counter and counterfeit rejection machines for use in banks and financial institution. Will direct programmers using Oracle products operating in a UNIX environment and manage Crystal Enterprise operating on an IBM ASA 400 computer to track manufacturing lead times and delivery of TCD and high volume coin and currency counters to ensure contracts are completed as required. Will direct team members to verify data integrity and to maintain proper data recovery and backup systems and hardware failures. Will also direct team members using Crystal Reports and Crystal Enterprises to provide various reports including statistical data of service response repair times. Please send resumes to Information Technology Department, 795 South 12th Street, Watertown, WI 53094.

SENIOR SOFTWARE ENGINEER to install, configure, maintain and troubleshoot UNIX servers under SUN Solaris and AIX operating systems using DNS, NIS, NFS, Veritas NetBackup and Tivoli Storage Manager. Develop specialized scripts to automate and monitor production operations using Shell. Install and configure software including Oracle HACMP, IBM ESS SHARK, EMC SAN, RS/6000 SP2, SUN Solaris E10000, Veritas Cluster, LANFREE backup, Oracle Financial, PeopleSoft, P690 Regatta Server and Disaster recovery of SP2. Support Storage Area Network and enterprise-class RAID arrays. Conduct routine hardware and software audits of UNIX servers for compliance with established standards, procedures and configuration guidelines. Monitor and tune system for optimum performance. Require: Bachelor's degree in Computer Science/Engineering, or a closely related field with five years of progressively responsible experience in the job offered or as a Systems Administrator. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ramona Moody, Land Lease Real Estate Investments, 3434 Peachtree Road, NE, Suite 600, Atlanta, GA 30326; Attn: Job SD.

Data Warehouse Analyst - Min Edu - Bachelor's Degree or equi, Min Exp-Adequate industry experience. Job may involve working at various unanticipated locations throughout the US. Please send resumes to e-centives, Inc., Attn: HR, 950 Tower Lane, Suite # 1750, Foster City, CA 94404.

Computers. Programmer Analysts needed. Seeking candidates possessing BS or equiv. and/or rel. work experience. Part of the req. rel. work exp. must include 2 years working with Oracle Designer, Developer, Application Server and PL/SQL, JAVA and Oracle cluster experience a plus. Duties include: Design, develop and implement Oracle database applications; Perform data modeling & analyze and resolve technical problems. Mail res., & ref. to: American Arbitration Association, Attention: Human Resources, 335 Madison Ave Floor 10, NY 10017. Equal Opportunity Employer M/F/H.

S/W Engineers to lead teams to analyze, design, develop, test and implement Software Apple using Oracle RDBMS, Oracle Financial ERP Appls, PL/SQL, XML, Perl, Pro*C, C++, Unix Shell Scripting and Object Oriented Techniques on Sun Solaris, Unix and Windows OS; perform database admin. and tuning; interact with clients for req analyses and feasibility study; evaluate team members & train end users.Require: MS or foreign equiv in CS/Engg (any branch) with 3 yrs exp or BS in Finance/Business or foreign equiv in any of the above field with 5 yrs relevant progressive exp. F/T. High Salary. Travel Involved. Resume to: HR, Fourth Technologies, Inc., 1108 N. Bethlehem Pike, Suite 8, Lower Gwynedd, PA 19002.

Consulting Svcs. Engr. Atlanta, GA. Mult. openings. Consult w/ clients & potential clients on transportation resources & needs. Design & impl. strategies for more efficient use of client resources, using company transp. planning technologies. Document client's transp. reqmts. & propose solutions. Apply company techs. to enable planning sys. integration w/ existing client sys., impl. client-specific software code & processes. Req.: MS in Indus. Eng. Working knowledge (academic coursework or exp.) of Visual Basic, Java, C++, SQL & NT Server logistical analysis to improve efficiency, & supply chain principles. Pass mandatory proficiency test. Résumé: Velant, Inc., Attn: Recruiting, 900 Circle 75 Pkwy., Ste. 300, Atlanta, GA 30339.

Business & Information Systems Administrator. Administer and manage company information structure. Perform all IS related functions. Support, maintain, and enhance current JD Edwards ERP system to achieve business strategies and objectives. Create, maintain, and distribute business reports from ERP system. Design and maintain company custom software. Oversee and perform all IT related functions. Position is located in York, Nebraska. B.S. degree req'd (or equiv. education or experience) w/ major in Comp. Sci. or related field. 2 yrs. of experience req'd. Must have proof of legal authority to work in the United States. Send resume to Joe Kardoe, 15159 Andrew Jackson Hwy 78 West, Fair Bluff, NC, 28439. This advertisement is paid for by the employer.

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NET2S is a leading International Consulting and Engineering firm specializing in communications technologies. We are presently seeking to fill the following positions:

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Develop and implement marketing strategies. Manage sales life cycle including client presentations and negotiations. Oversee project management including deployment and roll out. Co-manage project center.

Must possess excellent communication skills as well.All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street Suite 400, New York, NY 10005; Fax. (212) 279- 1980; Phone (212) 279-8585; or Email jobus-nv@net2s.com

IT ARCHITECTURE PROJECT MANAGER - Direct & coord. IT projects w/ fin. ind. clients, mainly German banks. Req'd: Fin. MBA & 4 yrs. exp. in job or Soft. Development job w/in fin. ind. Fluency in Germany; extl. exp. w/ IT projs. & BA in CS or rel'd field. Exp. w/ Kondor+, Oracle, Sybase, ACBS, & SQL. Send resumes to Levada Consulting, Inc. 303 South Bdwy, Ste. 100, Tarrytown, NY 10591. Attn: M. Holzmann.

Software Engineer II (2 openings) Develop, integrate and customize software components into wireless products. Work w/ GSM/GPRS Protocol stack development and prototype hardware, source 3rd party software and internally develop software components using C/C++, Real-time O.S., Unix. Also debug both software and hardware. Req. Bachelor's in C.S., E.E. or related field + a min. of 2 yr exp. in job offered. Resume to HR, Matsushita Mobile Communications Development Co. 1225 Northbrook Pkwy, Suwanee, GA 30024

Asst. Data Analyst. Asst. Data Analyst in analyzing req., proc. & prob. to design, develop & test S/W app. to process or improve existing comp. Sys. Req: BS in Comp. Sci. or Info. Sys. 40 hr/wk. Job/Interview Site: Lawndale, CA. Send resume to Globiwest Mgmt. Consultants, Inc., 14814 Hawthorne Blvd., Lawndale, CA 90260.

Data base analyst.

Full time, competitive salary offered. Requires bachelor degree in computer science and 2 yrs experience in job of software or programmer analyst. Experience to include use of visual basic v. c++, Msaccess and SQL server. Must have proof of legal authority to work permanently in the U.S. no phone calls. Interested applicants should send resume to Nick Shah, Chem - Impex Int Inc, 935 north dillon wood, dale, IL 60191

Software Developer

Full-time position in Wheaton, IL. In this position you will deliver quality code in a collaborative environment, as well as document and communicate technical and architecture information as needed. Required Master's degree in Engineering, Computer Science or related field, 1+ year of experience in developing N-tier DNA application using ASP, VB.COM, DCOM, SQL server, javascript, remote scripting; 6+ months experience in developing in Web Farm Environment; and 6+ months of development experience in ASP.net, VB.net, XML, XSL and Xpath. Contact rrwenski@warrantycheck.com.

Sr. Programming Analyst (multiple positions). Design customized techn appl programs. Install & config program prod. Determine tech infrastructure & comm. Req. Test appl. Analyze, design & develop app. Interfaces using IBM AS400, RPGLE, C/400 & Java/400. Req. BS in Comp. Sci., Comp. Eng. Or Elect. Eng. And 5 yrs exp as Programmer 40 hr/wk. Job/interview site: Irvine, CA. Send resume to SVI Solutions, 5607 Palmer Way, Carlsbad, CA 92008.

Software Engineer, Medical Applications. Design, develop and test software for radiation treatment planning systems including prototype development, Client-Server model development, algorithm implementation, and extensive validation testing in conformance with FDA requirements utilizing Motif, C (including pointer memory management), C++ and UNIX shell scripts. Requires BS in Computer Science, Engineering, Physics or related field. Must be presently eligible for permanent employment in the U.S. Send resume to Human Resources, Attn: JFB, Computerized Medical Systems, 1195 Corporate Lake Dr., St. Louis, MO 63122.

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IP Support Engineer wanted at our location in Nutley, NJ to support technical issues for scheduled daily Network Migration for Reuters Product and Instinet. Bachelor's degree in Telecommunications or a related field and at least 2 years of experience in Telecommunications required. Experience must include TCP/IP and Cisco. Must speak Cantonese. Please e-mail resumes to Rebecca.gustamente@radianz.com (subject: Code 0312).

Database Administrator, Electronics Distribution Co. Minimum 6 years exp. Design, program, and implement database applications. Provide database systems administration, including managing users, defining user security policies, and disaster recovery. 40 hrs/wk, 9AM-5PM. Competitive salary. Send resume to: Whale Enterprise, 5730 Oakbrook Pkwy., Ste 175, Norcross, GA, 30093.

Engineers needed in Santa Clara, CA to develop lab automation applications software using graphical programming and object oriented programming languages. Use ASP, Java Script, JSP for web based applications. Must have a Bachelor's degree in Electrical Eng and 1 1/2 yrs. exp. in job offered performing duties listed above. E-mail resumes to ruth.hale@vi-tech.com at VI Technology. Put code ENG on the resume.

Software Engineer

Design, develop & maintain software for weather analysis system. Build communication system with weather sensors & radar data center. Research & develop visualization rendering system for weather data. M.S. in CS or rel. & 6 mos. exp in above pos. or rel. w/bbl to use C/C++, VC++, Win32, 2D/3D computer graphics, Image processing, GIS, Oracle, SQL, HTML, multiport serial I/O communication protocols. 40.0 hrs/wk. 9-5. Send resume to: Mr. John W Wessinger, Chief Operating Officer, Baron Services, Inc., 4930 Research Dr., Huntsville, AL 35805.

Software Engineer – Min 2 yrs exp. Duties include: analysis, design & development of commercial applications including data modeling & database design using COLD FUSION, ASP, COM, MFC, VC++, Verity Search Engine, NetGenesis, Java, EJB and Oracle database. Must have Master's degree in Comp Sci, Comp Engg or Elec Engg. Send resume to: Netage Consulting, Inc., 810 Eisenhower Blvd, Suite 21, Middletown, PA 17057.

S/W Engineers to analyze, design, develop client server apps with OO methodology using Java, C, C++, VC++, J2EE, XML, UML, JavaScript, COM, CORBA, etc. on Weblogic, IIS under Windows, UNIX, DOS OS; interact with clients & analyze user needs, customize software for client use to optimize operational efficiency; assist in quality assurance. Require MS or foreign equiv. in CS/Engg (any branch) and 1 yr exp in IT. High salary. Travel required. Send Resumes to: HR, Opal Soft, Inc. 3150 Almaden Expwy Ste 205, San Jose, CA 95118

LLbrys, Inc. a fast growing software Development Company is looking for

Computer Consultants:
Should have a bachelor's degree in computer science/related field with 2 years experience in 5 of the following: Oracle Java, J2EE, HTML, Java Script, EJB, XDI, Web Server, Magic, TCP/IP, Oracle, XML, DB2,OS/MF/COBOL, VB, Teradata, Crystal reports

We accept foreign education equivalent of the degree, or the degree equivalent in education and experience.

Send Resume to SVA@LISSYS INC COM Attn: 0241 Fairway 211, Des Plaines, IL 60018

Senior Project Leaders

Abbott Laboratories in Bedford, MA seeks qualified Senior Project Leaders. Bachelors degree in Computer Science, Computer Technology or related required with experience in architecture, design and development of Component Based Technologies. Respond by mail to Abbott Laboratories, Dept. 323, Bldg. AP6D2, 100 Abbott Park Road, Abbott Park IL 60064-32537. An EOE. Refer to ad code: KE-MED-121.

Software Enng - Develop and maintain comp. systems for trading, comm., inter/intranet businesses, etc. utilize SAS platforms, Oracle, SQL Server, etc. Provide tech. supp. in OS internals, etc.; Min. 3/yrs exp. in job offd or related and B.S. in Enng, Bus. or related. Exp. ref. req'd. Send res: Anid Infosoft, 2204 Haley St. Oxford, MS 38655

Programmer

Developing software applications for the company, updating existing applications; solving database & networking problems. B.S. in C.S. or rel w/skill to use C, Java, VB, ASP, SQL, Perl, JavaScript, Visual C++, HTML. Must be Sun Certified Programmer for Java, & Microsoft Certified Database Administrator. 40 hrs/wk 9-5 Resume to: Ms Sephura S Long, President, The Prize Corporation, 5959 Shallowford Road, Suite 309, Chattanooga, TN 37415

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B.S. in Comp. Sc, EE, Electronics, or similar + 18 mo. exp. in SAP R/3. In-depth know. of BW, SEM, Quality Mgmt, SAP Portals, $100,000.00/yr. Travel req'd. Work site locations vary. Must have perm. work auth. to be employed in the U.S. Send resume to McKeesport CareerLink, ES Supervisor, 345 Fifth Ave., McKeesport, PA 15132-2600. Refer to job order # 301989.

SAS Programmer Analyst. Utilize statistical tools and methods to develop/write computer programs for clinical studies using Statistical Analysis System (SAS), MVS, JCL, TSO, ISPF, DB2, Win 2000. Bachelor degree in MIS, Stat, or stm field, or equiv, req'd, as is 2 yrs exp as a SAS PrA or in a stat prog position. In lieu of a bach degree and 2 yrs exp, employer will accept masters degree, or equiv in edu or exp. Prior exp or edu must include exp with SAS and clinical studies. Competitive salary. May be assigned to various locations in US. Resumes: W Tankersley, Resource Mgr, Computer Task Group, Inc. Job No 1886.31, 5875 Castle Creek Pkwy, Ste 208, Indianapolis, IN 46250

Several computer related positions available for large software development, support and sales company. Degree, technical skills & experience vary per position. Send resume to Susan Stubbs, MAPICS, Inc. 1000 Windward Concourse Parkway, Suite 100, Alpharetta, Georgia 30005.

Sunrise Systems Inc., has multiple openings in PA, NY & NJ areas for experienced prgs. System/ Prog Analysts, Database Admin/ Analysts, Database Dev/ Designers, Software/ Computer Engr, Unix/ Network/ NT Admin in the areas of Oracle, Unix, C/ C++, Windows NT, Java, Web Development, SAP, etc. We offercompetitive salary based on experience. Send resume to:Sunrise Systems Inc. PO Box 4847 Metuchen, NJ 08840

Stellar Services seeks an experienced systems engineer. Must have a Master's degree in Computer Science/ Engineering, and 2 years of experience in Web access security, and Windows NT environment analysis, and design. Knowledge in security protocols & architecture, Virus protection and strong technical writing skill are required. Please send resume and cover letter to HR Dept., 158 5th Avenue, Suite 1134, New York, NY 10010.

Manager, Lead and Senior Consultant positions in Washington, DC, Philadelphia, McLean,Va. Position's require bachelor's (some positions require master's) degree in Computer Science, Engineering (any field), Business, Information Systems or related field and 2 to 5 yrs of experience in systems analysis, development or management, database or systems requirements or consulting, project or engagement management, or related exp.

Competitive salary and benefit offered. Please fax resume to 1-888-APPLYDT and identify job code: ERNORVBCPWB.

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Database Administrator (Teradata & SQL Server) Business Objects Administrator. Install, upgrade, configure & consolidate database servers; monitor resource, database usage & security, assist w/logical degns, physical implmen of data & capacity planning; dvlp custom ETL tools & disaster recovery plans; perform Business Objects sftware installation, upgrade & admin. BS in Comp Sci, MIS, Engg or related field +1 yr exp in job offd or as Database Admin or similar duties under different job title. Exp to incl Teradata DBA, SQL Server DBA, & Microstrategy & Business Objects Admin. 40hrs/wk, $55,216/yr. Must have proof of legal auth to work in US. Send your resume to IA Workforce Center, 215 Keo Way, Suite 100, Des Moines, IA 50309-1727. Please refer to Job Order IA1101660. Employer paid ad.

SOFTWARE ENGINEERS (8 positions): require Bachelor's in Engn-eering/Computer Science/Mathematics/Science or closely related field with experience providing skills in described duties, at $65,000 per year; Senior Software Engineers (8 positions) with Master's and two years experience, at $70,000 per year. Provide on-site consulting in design, analysis and development of software applications for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase, e-commerce and web applications development in Microsoft Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 applications on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: YASH Technologies, Inc., Human Resources 605 17th Avenue, Suite 1, East Moline, IL 61244

Director of Sftware Applics & Prgmg-LA. Manage & coord comp prgmg & sftware applic activities. Bach in comp. sci., CIS or relid comp. fld +4 yr exp in job offd or as sftware dvlpmt mgr. Must be proficient in Code Warrior on MacOS, MS Visual C++, x86 Assembly, Power PC Assembly, Nintendo GameCube OS & Python, & familiar w/3-D graphics & human interface dsgn. Send resume & ltr to Wendy McAfee, Vivendi Universal Games, 6080 Center Dr., Los Angeles, CA 90045.

DATABASE ADMINISTRATORS Following design specifications and instructions from senior database managers and database architects, DBAs will apply knowledge of data base management systems to design logical and physical data bases; coordinate physical changes to data bases and codes, and tests, maintain and implement physical data base. Duties include: assist in the day-to-day operation of Oracle data base systems in UNIX mainframe environment including ETL table creation, table analysis, table indexing, query creation, and implement query and ETL requests from internal staff analysts and scientists using ACCESS or another database system. Min. Reqts: BS/BA (foreign equivalent accepted) in CS, IT, EE or related AND 2 yrs exp in job offered OR 2 yrs exp in related occup. as Oracle Data Base Administrator PLUS, must have demonstrated knowledge of: (1) Oracle data base architecture in UNIX mainframe environment; (2) SQL, PL/SQL and SQL Loader; and (3) data base maintenance. Basic pay is $83,200 per year for full-time employment (Mon-Fri., 9-5) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 20011528 and or Case No. 20015267, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114.

IT Specialist (Denver) - Order, install, maintain, configure & implement MVS & OS/390 software prod., relating to DB2 & CICS on an IBM mainframe. Track changes using Vantive's PCRM prod. for release implementation. Perform Systems Admin. functions for DB2, CICS & assoc. products using SMP/E, JCL, VSAM, JES3, TSO/ISPF, BMC tools, CAFC, Oracle Gateway, SEQUELLINK, Mainview for DB2, & Network Data Mover (NDM). Troubleshoot & maintain software prod. & OS/390 to ensure problems are rapidly diagnosed & fixed; participating in Hotsite planning & regularly scheduled disaster recovery tests; Perform capacity mgmt & tuning activities incl. definition & modification of databases & assist w/implementation of an optimal relational database design. Req: 3 yr exp SW Eng/DB Admin, + Wkg knowledge of: DB2 & CICS Sys. Programming on IBM Mainframe w/OS/390, DB2 DBA,SMP/E, JCL, VSAM, JES3, TSO/ISPF, BMC Tools, CAFC, Oracle Gateway, SEQUELLINK, Mainview for DB2, Network Data Mover; Hot site planning, capacity planning, physical database design. Send resumes to: Colorado Dept of Labor, Tues Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202. Ref job #CO50036800

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NET2S is a leading International Consulting and Engineering firm specializing in communications technologies. We are presently seeking to fill the following positions:

- Sr. Tibco (RV, Integration Mgr) Developer
- TIBCO/TIBARCH Systems Engineer
- Sr. Security Systems Engineer

All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street Suite 400, New York, NY 10005. Fax: (212) 279- 1882. Phone (212) 279-4988 or Email: jobs-ny@net2s.com

Boehringer Ingelheim Pharmaceuticals, Inc. has an immediate opening in its Ridgefield, Connecticut facility for the position of Lead Business Analyst.

Provide business knowledge and technical leadership in identifying projects, conducting feasibility studies, evaluating system design and determining cost/benefit and economic justification on all IT projects to address the systems and technology needs of the assigned business area.

Must possess a Bachelor's degree or its equivalent in Business Administration, Computer Science, Information Systems or a related field and relevant experience with SAP-Business Analyses skills in SD and HR modules, the development of custom database programs using Oracle, Visual Basic and SQL-based RDBMS, automated tools to automate SAP test script specifications and Software Project Implementation and Analysis.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC0103 or it will be rejected

Forward resume to: BI Staffing Center, PO Box 534, Waltham, MA 02454. Fax number (781) 663-2431. Email: jobs@bi-careers.com

Unix Systems Administrator (Info Tech Specialist 4) Support client/server applics on ITD & agency servers on an enterprise LAN/WAN & internet envrmt, incl all phases of ADI admin in complex internet envrmts, web admin, and setup & maintenance of WebSphere, SSL, MQ Series, & DB2; shell scripting in CSH & KSH; provide dsgn services for high availability, high capacity secure hardware platforms, & service related to entire matrix of ITD provided, cooperative, or agency consulting BS in Comp Sci MIS or Engg or equiv education & exp +2 yrs exp in job offd or as Comp Consultant or similar duties under different job title. 2 yrs exp or equiv education & exp w/ADI; WebSphere, MQ Series; install/operate multi-job & personal comp, networks, database mgmt systms, servers, dwp business appl processes, operating system prgms, sftwr mgmt training; IT customer service, dsgn & admin internet sites. Need 12 sem hrs or 8 mos. exp or comb in: Linux, prgmg lang, SAS, Unix, other mainframe/midrange/mini operating systms, personal comp, systms prgmg/mgmt. 40 hrs/wk, $40K/yr. Must have proof of legal auth to work in US. Send your resume to IA Workforce Center, 215 Keo Way, Ste 100, Des Moines, IA 50309-1727. Please refer to JO IA1101661. Employer paid ad.

EXPERIENCED IT PROS NEEDED

DBAs, PM, & Proj. Managers to design, develop, admin, and support DBs. Sybase, SQL Server, Informix, Oracle8 Rdb. Disaster recovery plan/implement, per tuning, back up/ restore, and troubleshoot. Expert in WinNT, VAX/VMS, SCO/Unix, TCP/IP, PowerBuilder, Access, and C++. MS Proxy/SMS Server & IIS to develop web DB applications. Expert RDB theories, CASE & RDBMS physical implementations required. Job Location: San Francisco Area and Phoenix. Please submit resume to Apex Software, Inc., 4716 E. Cactus Road, #205, Phoenix, AZ 85032

Business Process Analyst. Work Sched 8:00AM-5:00PM 40 hrs/wk, $84,377.70 PIA. Design, evaluate, analyze, develop & support corporation's central vehicle invoicing & cost of sales systems. Evaluate, define software testing methods, redesign infrastructure & process, & analyze systems using COBAL, CICS, DB2, JCL, VSAM, IMS-DB & C/C++. Analyze design, implement, & support of database for the vehicle invoicing, dealer billing, tracking systems, Electronic Data (EDI) & SAP interface for several countries & Account Receivables at corporate & plant levels. Use multiple application development tools, including Visual Basic and C/C++, management system, interface with end?users to develop system requirements & provide in-depth applications support. Work in technical environment including Microsoft Windows 95/98 & IBM RS6000 Unix. Improve all aspects of vehicle invoicing & dealer billing, tracking & cost of sales systems & improve software quality & integrate with existing systems on client. Bachelor's Any Engineering Degree 2 Yrs. exp in Job or Related Occupation(s) of Engineer Computer Programmer, Programmer Analyst or Systems Analyst. 2 Yrs. of Related Occupation exp must include evaluation, defining of software testing methods, redesign of infrastructure & process, & analyses of systems using COBAL, CICS, DB2, JCL, VSAM, IMS-DB & C/C++, which may be concurrent with Related Occupation exp. Employer Paid Ad. Send resume to MDCD, P.O. Box 11170, Detroit, MI 48202. Ref No. 202587

Network Engineer. The network engineer will provide technical consulting, network implementation, device configuration, router and switch installation & troubleshooting services for clients. Manage implementation of network projects & develop & maintain program specs & documentation. Experience with Microsoft BackOffice family of products, multi-vendor UNIX network design and implementation, firewalls and other aspects of network security required. Must have experience in Frame Relay packet switching, network management, ISDN, CSU/DSU, SNA/SDLC/SNMP, and protocol analysis. Employment requires B.S. in computer science or electronics engineer & 2 yrs. Exp in job offered. Must possess current certifications as follows: Microsoft Certified Systems Engineer; Cisco Certified certificates for Design Engineer & Network Professional & Design Assoc.; and Checkpoint certificates for security Engineer and Security Administrator. Will work 45 hr wk, 8:00 am to 5:00 pm; no OT. est. $70,000 per yr. Send resume to Illinois Department of Employment Security, 401 S. State St. – 7 North, Chicago, IL 60605. Attn: Lourene Bulos. Ref # V-IL 33767 – IS An Employer Paid Ad. No Calls – Send 2 copies of both resume and cover letter. Only fully qualified should apply.

Computers - Sr. Technical Consultants needed Seeking qual. cand. possessing MS/BS or equiv. and/or rel. work exp. Part of the exp. must include 2 yrs. working with BeanERP. Work with 3 of the following: Java, XML, BeanERP, Bean OpenWorld, VB. Must be willing to travel as req'd. Fwd. resume & ref. to: e-Emphasys Tech., Attn: HR, 219 E. Chatham St., #102, Cary, NC 27511.

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'A Little Leeway'

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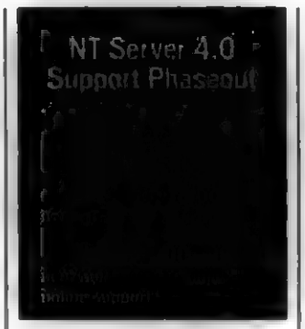
Although Microsoft's decision to tack on an additional year of support for Windows NT Server was generally lauded by users and analysts, the extension doesn't cover all of the company's support options. Pay-per-incident and security "hot fixes" will be available through Dec. 31, 2004, but the company will no longer provide nonsecurity hot fixes to premier support holders after Dec. 31, 2003.

A hot fix is a modification to commercially available Microsoft product code to address a specific problem. As of Jan. 1, 2004, any customer wanting a nonsecurity hot fix will have to obtain a custom contract, according to a Microsoft spokesperson.

Bob O'Brien, a group product manager in the Windows server division, said the year-end elimination of nonsecurity hot fixes was "a customer satisfaction and business decision, given we are continuing to see an increase in Windows 2000 deployments coupled with a decrease in NT 4 requests for fixes." He added, "The trend toward migration and consolidation is a better area to focus resources."



How much of an impact the elimination of nonsecurity hot fixes will have remains to be seen. Microsoft acknowledged that corporate users typically request them.

Louis said KeyCorp has requested hot fixes related to Dynamic Host Configuration Protocol and Domain Name System over the past 36 months, and the company will weigh the potential risks that would be corrected with nonsecurity hot fixes and decide what support it will need going forward.

Dwight Davis, an analyst at Boston-based Summit Strategies Inc., criticized Microsoft's decision to fragment the NT Server support extension. He said it could confuse customers and "diminish the glowing aftereffect" that Microsoft hoped to gain from the otherwise positive changes.

The changes will affect many companies. Tom Bittman, an analyst at Gartner Inc. in Stamford, Conn., estimated that 50% to 70% of the Windows server operating system installed base is still NT 4.0.

O'Brien claimed that only 35% to 40% of the Windows server installed base is NT 4.0. He said extending key support provisions was common sense "if you want to have a relationship with these customers for the next seven to 10 years."

Rob Enderle, an analyst at Giga Information Group Inc., said he thinks Microsoft also has seen customers turn to Linux, based on feedback his firm is getting from clients.

Niche Vendors Catch Users' Eyes at Lotusphere

They fill gaps in Notes, Domino functionality

BY TODD R. WEISS
ORLANDO

Among the 5,000 attendees from around the world at last week's IBM Lotusphere 2003 conference were IT leaders from companies on separate but similar missions: to find out how to make their Lotus Notes and Domino systems meet their specific needs.

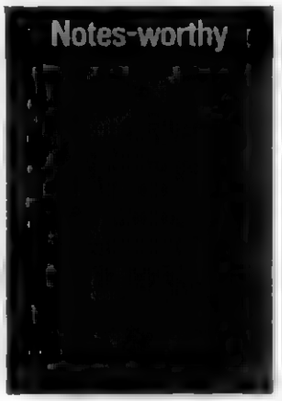
And often, the answers came not from IBM, but from niche companies that build add-ons for Notes and Domino.

James Greene, senior Lotus Notes infrastructure analyst at Duke Energy Corp. in Charlotte, N.C., was looking to solve the problem of e-mail eating up storage space. One possible solution was PKZip Professional Edition 6.0, featuring integration with Notes.

The product, from PKWare Inc., compresses and encrypts attachments [QuickLink 35865]. It would reduce Duke Energy's e-mail storage needs and add security for the 25,000 Notes users and 5,000 Microsoft Exchange users Greene supports. "It seems that maybe using the attachment feature [to compress the file size], encrypting it and then sending it out may be the solution," Greene said.

Michael Bulis, program manager for industrial manufacturer Ingersoll-Rand Co. in Woodcliffe, N.J., wanted knowledge management improvements for Notes and Domino and was looking at List Server for Domino 3.x products from Bright Ideas Software Inc. in Edison, N.J. The software would let him streamline how users send e-mail to multiple recipients.

Currently, some users send broadcast e-mails that devour costly bandwidth. Bulis would like to set up listservs, which would reduce storage and message distribution needs. The changes, which Bulis wants to implement during the next five years, will affect about 25,000 users worldwide.



"Some of this is vaporware," he said. "But generally, half of vaporware makes it to reality."

Nicholas Behrmann, global messaging manager at General Motors Corp., was investigating administration and management tools for Notes and Domino to help reduce costs and improve service.

Part of his mission was to look over tools that could be used by GM's IT outsourcer, Electronic Data Systems Corp. "I'd rather have them purchase a tool set, rather than reinvent the wheel," Behrmann said. Among the products he checked out was Netherlands-based AedifiComm BV's WorkplaceControl for Notes.

Perry Hiltz, Lotus administrator at chemical company Henkel Corp. in Gulph Mills, Pa., wants to consolidate domains for Notes to reduce the complexity of his systems. One possible solution: the Common Migration Tool for Notes Domains package from BinaryTree Inc. in New York.

"This basically does everything we've been doing in a manual way," Hiltz said. He said it would let him conduct migration processes from his desk, without having to travel. It would cost $50,000 to deploy, but its long-term savings would result in a payback.

Joe Sise, Notes administrator for the Brunswick Boat Group in Knoxville, Tenn., was looking at Notes management tools from DYS Analytics Inc. in Wellesley, Mass., and researching spam fixes for his 3,500 users. Spam is "an increasing problem," he said. "We've tried to filter it. . . . But it's like sand in your hand. You get some of it, but most of it falls through."

NO-FRILLS E-MAIL

IBM will offer a cheaper-than-Notes product to extend e-mail access to all workers.

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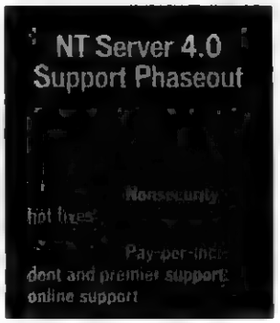
Although Microsoft's decision to tack on an additional year of support for Windows NT Server was generally lauded by users and analysts, the extension doesn't cover all of the company's support options. Pay-per-incident and security "hot fixes" will be available through Dec. 31, 2004, but the company will no longer provide nonsecurity hot fixes to premier support holders after Dec. 31, 2003.

A hot fix is a modification to commercially available Microsoft product code to address a specific problem. As of Jan. 1, 2004, any customer wanting a nonsecurity hot fix will have to obtain a custom contract, according to a Microsoft spokesperson.

Bob O'Brien, a group product manager in the Windows server division, said the year-end elimination of nonsecurity hot fixes was "a customer satisfaction and business decision, given we are continuing to see an increase in Windows 2000 deployments coupled with a decrease in NT 4 requests for fixes." He added, "The trend toward migration and consolidation is a better area to focus resources."



How much of an impact the elimination of nonsecurity hot fixes will have remains to be seen. Microsoft acknowledged that corporate users typically request them.

Louis said KeyCorp has requested hot fixes related to Dynamic Host Configuration Protocol and Domain Name System over the past 36 months, and the company will weigh the potential risks that would be corrected with nonsecurity hot fixes and decide what support it will need going forward.

Dwight Davis, an analyst at Boston-based Summit Strategies Inc., criticized Microsoft's decision to fragment the NT Server support extension. He said it could confuse customers and "diminish the glowing aftereffect" that Microsoft hoped to gain from the otherwise positive changes.

The changes will affect many companies. Tom Bittman, an analyst at Gartner Inc. in Stamford, Conn., estimated that 50% to 70% of the Windows server operating system installed base is still NT 4.0.

O'Brien claimed that only 35% to 40% of the Windows server installed base is NT 4.0. He said extending key support provisions was common sense "if you want to have a relationship with these customers for the next seven to 10 years."

Rob Enderle, an analyst at Giga Information Group Inc., said he thinks Microsoft also has seen customers turn to Linux, based on feedback his firm is getting from clients.

Niche Vendors Catch Users' Eyes at Lotusphere

They fill gaps in Notes, Domino functionality

BY TODD R. WEISS
ORLANDO

Among the 5,000 attendees from around the world at last week's IBM Lotusphere 2003 conference were IT leaders from companies on separate but similar missions: to find out how to make their Lotus Notes and Domino systems meet their specific needs.

And often, the answers came not from IBM, but from niche companies that build add-ons for Notes and Domino.

James Greene, senior Lotus Notes infrastructure analyst at Duke Energy Corp. in Charlotte, N.C., was looking to solve the problem of e-mail eating up storage space. One possible solution was PKZip Professional Edition 6.0, featuring integration with Notes.

The product, from PKWare Inc., compresses and encrypts attachments [QuickLink 35865]. It would reduce Duke Energy's e-mail storage needs and add security for the 25,000 Notes users and 5,000 Microsoft Exchange users Greene supports. "It seems that maybe using the attachment feature [to compress the file size], encrypting it and then sending it out may be the solution," Greene said.

Michael Bulis, program manager for industrial manufacturer Ingersoll-Rand Co. in Woodcliffe, N.J., wanted knowledge management improvements for Notes and Domino and was looking at List Server for Domino 3.x products from Bright Ideas Software Inc. in Edison, N.J. The software would let him streamline how users send e-mail to multiple recipients.

Currently, some users send broadcast e-mails that devour costly bandwidth. Bulis would like to set up listservs, which would reduce storage and message distribution needs. The changes, which Bulis wants to implement during the next five years, will affect about 25,000 users worldwide.

Notes-worthy

Vendors that provide add-ons for Lotus software include:

DYS ANALYTICS: Improved administration and management applications

BINARYTREE: Notes and Domino migration and consolidation tools

BRIGHT IDEAS SOFTWARE: Listserv management tools

TEAMWORK SOLUTIONS: Workflow add-ons

"Some of this is vaporware," he said. "But generally, half of vaporware makes it to reality."

Nicholas Behrmann, global messaging manager at General Motors Corp., was investigating administration and management tools for Notes and Domino to help reduce costs and improve service.

Part of his mission was to look over tools that could be used by GM's IT outsourcer, Electronic Data Systems Corp. "I'd rather have them purchase a tool set, rather than reinvent the wheel," Behrmann said. Among the products he checked out was Netherlands-based AedifiComm BV's WorkplaceControl for Notes.

Perry Hiltz, Lotus administrator at chemical company Henkel Corp. in Gulph Mills, Pa., wants to consolidate domains for Notes to reduce the complexity of his systems. One possible solution: the Common Migration Tool for Notes Domains package from BinaryTree Inc. in New York.

"This basically does everything we've been doing in a manual way," Hiltz said. He said it would let him conduct migration processes from his desk, without having to travel. It would cost $50,000 to deploy, but its long-term savings would result in a payback.

Joe Sise, Notes administrator for the Brunswick Boat Group in Knoxville, Tenn., was looking at Notes management tools from DYS Analytics Inc. in Wellesley, Mass., and researching spam fixes for his 3,500 users. Spam is "an increasing problem," he said. "We've tried to filter it. . . . But it's like sand in your hand. You get some of it, but most of it falls through."

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Bug Chase Bungle

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Here's how it works: When a bug chaser like NGS finds a security problem, the company warns its clients (who pay for the service) and the vendor involved (who has to fix it). Then the bug chaser tells CERT, so CERT can confirm the problem and prepare its own alert. The public isn't usually told for 45 days, so the vendor has time to develop a patch.

At least that's how it's supposed to work. But since April 2001, CERT has also made vulnerability reports immediately available to the Internet Security Alliance, a CERT-sponsored group whose member companies pay dues ranging from $3,000 to $70,000 per year. None of that money goes to the bug chasers; it all goes to CERT.

While that fact isn't a secret, it wasn't widely known. At least the people at NGS didn't know that when they gave away their best stuff to CERT, CERT was selling it on the side. No wonder NGS wasn't happy when it finally realized what was going on.

The upshot? CERT loses early access to a major bug chaser's work. Now CERT will find out about NGS's research when NGS issues an advisory, like the rest of us.

And IT people lose confidence in CERT as the clearinghouse for the most up-to-date, comprehensive IT security information.

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FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

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Or CERT can restore its credibility by killing that program and finding another way to get the few million dollars it currently generates. Maybe the money could come from the government's new homeland security budget. That would be a cheap way of making America's IT infrastructure safer.

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Bill wouldn't even miss it. ◗

Unclear on the Concept

When will the new spam filters be working? software development chief asks IT VP pilot fish. "I just logged onto my Hotmail account, and it's still clogged with spam." Fish gently points out that the filters work only on the company's own mail servers, not a personal Hotmail account. "Well, I know," sputters red-faced software chief. "But I accessed it from here at work!"

SHARK TANK

Get Back!

Hard disk on this executive's laptop has failed, and his most important e-mail folder may be gone. "But don't worry," he tells support pilot fish. "I had a backup plan. Whenever I get something really important, I'd e-mail a copy to myself and put it in a different folder." Fish groans. "Which was actually located on the same hard drive."

Picture This

New not-very-techie IT boss complains to help desk pilot fish that his new laptop's DVD player won't work with CDs. "It's not backwards-compatible," he says. As fish watches, manager puts in a CD, and music begins playing. So what's the problem? fish asks. "Yeah, there's sound," boss says, "but no picture!"

Heavy Equipment

This telco is getting into the data networking business, and the VP of IT insists on having technical sales meetings, says a pilot fish who attended one. Things are moving fine until one engineer suggests replacing all the customer's existing hardware with racks of new equipment – or so he puts it. "What about a forklift upgrade?" "Let's not get into that here," VP says. "We're only interested in providing the communications equipment."

Mind Reader

Six weeks into this ill-conceived data warehouse project, everything is behind schedule, says the pilot fish who's the only one working on it. Finance department manager tells him, "You've been working on this for the last six weeks and have not met any of our deadlines. To get a better idea of the current situation, I ask you, what hasn't been completed that we assume you completed?"

Well, He Was

Job-hunting pilot fish wants to be on time for his interview, so on Saturday afternoon, he takes a drive to find the right building. He does – and to his surprise, there are two guys standing outside, so fish strikes up a conversation. "You have an interview?" one asks. "For what job?" IT director, fish says. "I bet Joe would like to know about that," he tells his companion, then explains to fish, "Joe's the director of IT now."

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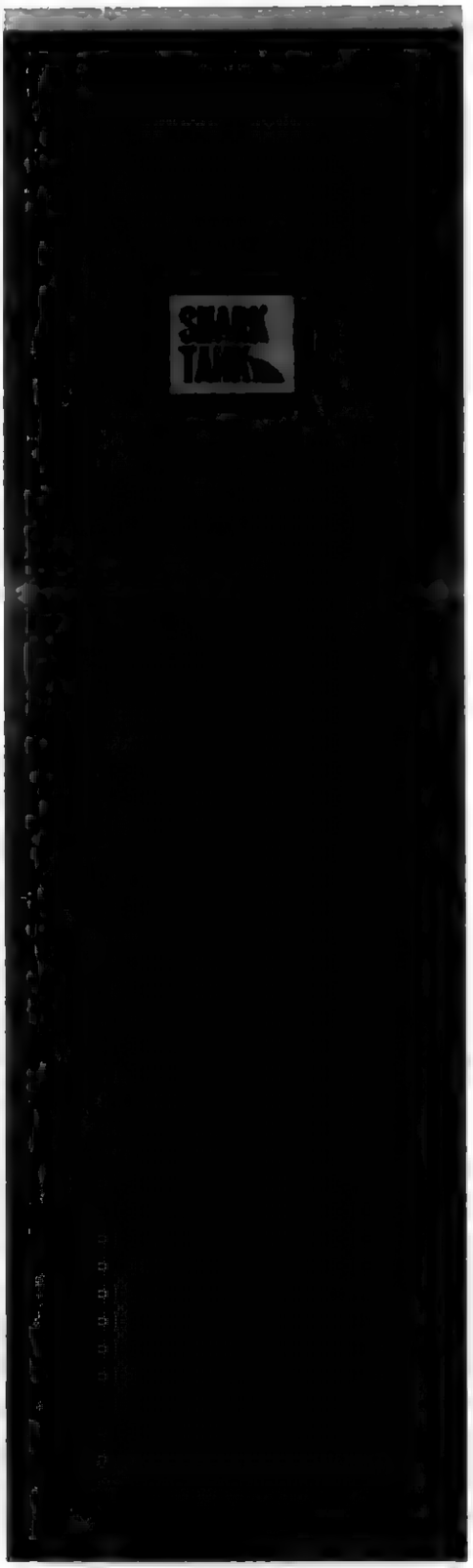

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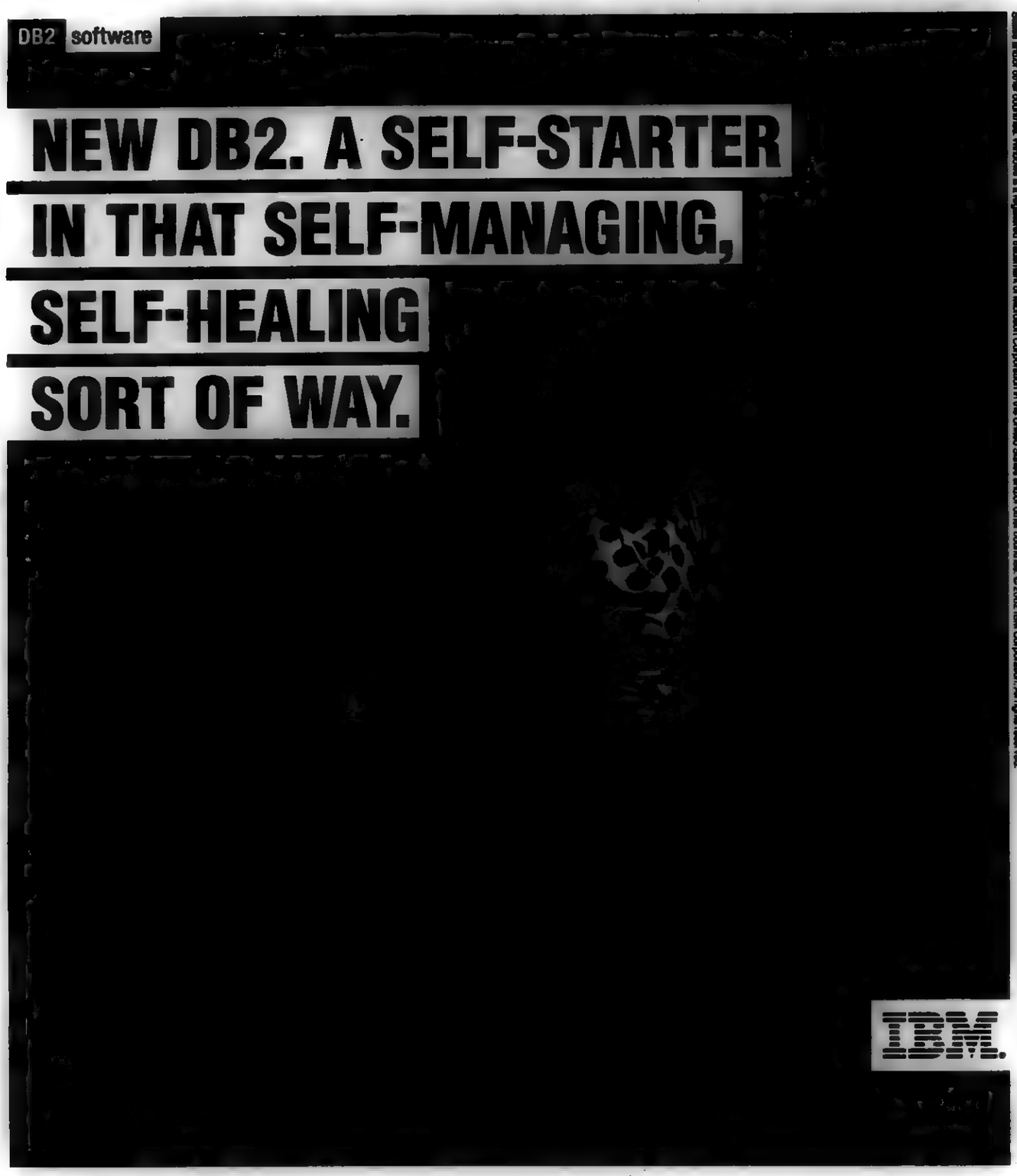

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portfolio management tools: Promise and pitfalls

Why it's hard to kill doomed projects.

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$1.8B IT Rollout Is Rx for Kaiser

HMO halts internal medical records project with IBM, switches to commercial software

BY BOB BREWIN

Kaiser Permanente Health Plan Inc. last week announced a $1.8 billion project to deploy an automated medical records system for its 8.4 million members, its second attempt to use technology to eliminate paper-based charts and files.

Analysts said the new system, which is intended to be used by Kaiser's 11,000 physicians and their patients, would be the largest health care IT system ever developed outside the federal government in terms of cost, scale and scope.

Oakland, Calif.-based Kaiser, the largest nonprofit health maintenance organization in the U.S., plans to use software developed by Epic Systems Corp. in Madison, Wis., to store medical records electronically. Epic's software provides a repository that integrates all types of data, including patient charts, physician order entry forms, clinical notes, nursing documentation and pharmacy information.

Kaiser had previously worked with IBM to develop

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REID HORN

Play SQUEEZE

IN THEIR QUEST to come up with even more ways to wring out savings, IT leaders are exploring everything from striking harder agreements with vendors to reselling services and joining purchasing consortia. One example: Wyndham International CTO Mark Hedley (left) is considering swapping hotel rooms in return for computer equipment from hardware vendors. **SEE PAGE 41**

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IT Goes on a Mission

GPS/GIS Effort Helps Pinpoint Shuttle Debris

BY BOB BREWIN AND PATRICK THIBODEAU

Within hours of the space shuttle Columbia's disintegration over East Texas, geographic information system departments at Stephen F. Austin State University in Nacogdoches, Texas, marshaled their researchers and students to help pinpoint the location of shuttle debris. Their ongoing work is expected to help investigators determine what went wrong.

The data collection effort is aiding the search by defining the path of the debris and narrowing the area to search, according to Darrel McDonald, director of the university's Humanities Undergraduate Environmental Sci-

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IT Cutbacks at NASA Raised Safety Concerns

BY DAN VERTON

NASA has a history of IT workforce management and funding problems that may have contributed to safety oversights, according to critics and independent government audits.

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"The existing workforce was stretched thin to the point where many areas critical to shuttle safety, such as mechanical engineering, computer systems and software assurance en-

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Cutbacks, page 7

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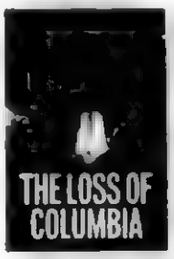

Shuttle Investigation
For our latest coverage of the investigation into the space shuttle tragedy, visit our Web site. QuickLink a2900

If you'd like to share your thoughts on the search for answers, please head to our online discussion forum. QuickLink a2910

Our research section has more Web resources on *Columbia* and the shuttle program. QuickLink a2890

Steps to a Secure WLAN
MOBILE/WIRELESS: James Lin lays out his strategy on how to secure a WLAN and talks about problems with 802.11 that could complicate your plans. QuickLink 36170

Get More From Your Assets
OPERATING SYSTEMS: Avanade's technology infrastructure practice director Christopher Burry offers tips on wringing more efficiency from your IT infrastructure. QuickLink 35690

Courting the CIO
STORAGE: IT staff directors at the Federal Reserve Bank of New York offer advice on how to make sure your CIO doesn't take storage for granted. QuickLink 35941

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The Online Store QuickLink a2430

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Debris

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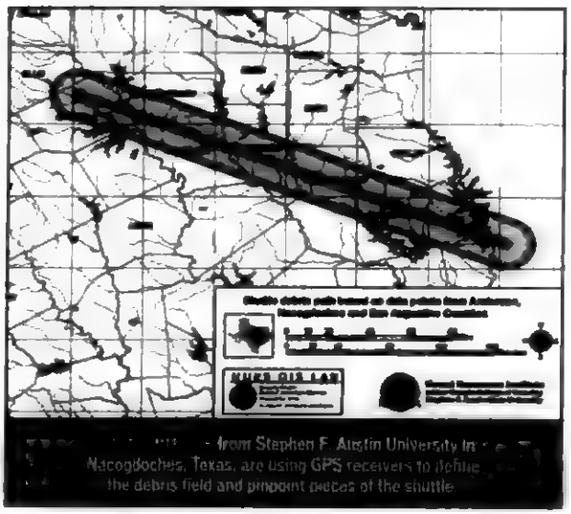

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Gary Jeffress, coordinator of geographic information science at Texas A&M University-Corpus Christi, said the shuttle investigators will likely use the location data to identify which parts of the shuttle disintegrated first in order to reconstruct the disaster.

New Parts-Marking Technology Would Have Helped Investigators

BY JAIKUMAR VIJAYAN

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The 2-D marking system, called Data Matrix, is based on compressed symbology technology patented by a Canton, Mass.-based company called RVSI and released for use in the public domain.

The Data Matrix symbol is a checkerboardlike mark that's etched permanently onto a surface. The mark is scanned using a charge-coupled device or optical reader. It's similar to a bar code, but it's capable of storing up to 100 times more information than a bar code, RVSI officials said. Data Matrix symbols were designed to withstand extremely harsh conditions, said Donald Roxby, director of The Symbology Research Center, a Huntsville, Ala.-based unit of RVSI.

"Tests at Marshall [Space Flight Center] verified the mark would survive the 18,000-mile-per-hour slipstreams and temperatures in excess of 2,300 degrees" associated with orbiter re-entry, he said. "The symbols could sustain up to 30% damage and still provide 100% of the [encoded] data."

Jerry Berg, a spokesman for the Marshall Space Flight Center in Huntsville, said the organization was unable to comment because the official in charge of the Data Matrix effort was not available.

But since the 2-D etches are typically made during the manufacturing process, Roxby said, none of *Columbia*'s parts — except for three tiles that were recently replaced — carried the Data Matrix symbol.

The symbols would have made it easier for investigators to identify parts of the *Columbia* orbiter, he added.

Data Matrix symbols of various sizes and on different materials are being tested on the International Space Station to see how well they hold up in space, Roxby said. "The last photos we saw show these marks to be still in very good condition and readable," he said.

The goal behind marking parts in this manner was to improve NASA's ability to check the manufacturing history and operational data of parts use in a shuttle, said Erin Binder, a director at Golden Valley, Minn.-based Veritec Inc., another company that has also worked with NASA to develop a compressed symbology standard for marking shuttle parts.

Unlike bar codes, which don't work on certain surfaces and can peel off, compressed symbols like Data Matrix can be applied permanently to a variety of surfaces, Roxby said.

To mark the three tiles on *Columbia*, small recesses were etched out of each tile and filled with a ceramic paint that would melt permanently into the tile from the heat on re-entry, Roxby said.

Storage Key To NASA Investigation

BY LUCAS MEARIAN

NASA officials said last week that voice messages, video and photos being collected from the public are creating a data picture that will play a key role in determining the cause of the *Columbia* disaster. The trick will be managing that data.

Agency officials said they're considering using tools developed in-house, including a Web-based application called the InvestigationOrganizer that was rolled out in November, to aggregate the data. The application provides data storage, management and analysis capabilities to accident investigation teams.

Tina Panotin, chief engineer at NASA's Ames Research Center at Moffett Field in California, said in an e-mail interview last week that InvestigationOrganizer "is currently being assessed against the investigation teams' requirements, as are other options."

NASA is asking members of the public to send videos and photos of the shuttle breakup to an FTP site at **www.nasa.gov/columbia/COL_upload.html**.

"The public has been tremendously responsive. They've been responding to the Web sites; they've been responding to the hot lines," Robert Mireison, chief of news and information at NASA headquarters in Washington, said during a press briefing last week.

In the past, NASA said its accident investigation teams had no standard methods or tools for information storage, management, dissemination or analysis.

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Whether InvestigationOrganizer is used or not, Panotin said, "all data is being treated with the appropriate security and with the consideration that the data must be made available to the investigation teams."

NASA Reinvents Troubled IT With Help of Private Sector

Space agency reaches out to improve mission software, business systems.

BY PATRICK THIBODEAU
WASHINGTON

THE *Columbia* disaster has confronted NASA at a time when the agency is working to move past a troubled IT history that includes canceling major business-system projects, being victimized by security breaches and dealing with software glitches that have doomed unmanned probes.

Two attempts by NASA to replace its disparate, proprietary business systems, which are used to manage its $15 billion budget, ended in failure. But just as disturbing for the agency was the software bug blamed for the loss of the Mars Polar Lander in 1999. "Software testing was inadequate," a NASA study said.

To address these problems, NASA is increasingly reaching out to the private sector for help to improve mission software and is adopting private-sector business practices and systems. Together, these efforts are changing the way NASA manages IT.

The space agency's largest IT project is its $644 million effort to create an enterprise backbone for finance, human resources and other business functions to replace its disparate systems.

NASA is using an enterprise resource planning system from SAP AG to build its backbone, adding business processes as modules, said Mike Mann, head of NASA's Integrated Financial Management Program. That's in contrast to the monolithic $186 million management system from KPMG Peat Marwick LLP (now BearingPoint Inc.) that NASA scrapped in 1999.

Moreover, the NASA inspector general early last year criticized the agency for poor IT security procedures, and NASA systems have been repeatedly hacked. Last August, for example, a hacker managed to obtain design documents pertaining to the next generation of reusable space vehicles [QuickLink 32042].

But NASA Acting CIO Paul A. Strassmann, who took the post last year, said the agency has made "remarkable progress." For instance, NASA's root server, one of the 13 servers worldwide that manage the Domain Name System, was one of only five to survive October's massive denial-of-service attack. The recent Slammer attack affected fewer than 40 of NASA's thousands of servers, and they were immediately identified and isolated, Strassmann said.

Although NASA is just catching up to private companies in modernizing business systems, it's playing a lead role in the development of highly dependable systems — software that tolerates hardware faults and security problems.

NASA has a history of leading in this area, but after the 1999 Mars Polar Lander failure, the agency knew it could benefit from private help, said Henry McDonald, who at the time headed the NASA Ames Research Center at Moffett Field in California.

McDonald last year spearheaded a $23 million dependable computing program in collaboration with Carnegie Mellon University. Pittsburgh-based Carnegie Mellon, a leader in the effort to improve software dependability, last month established a West Coast campus at Moffett Field.

The dependable computing initiative may ultimately help banks, hospitals and critical industries. "There are many, many applications that would benefit, and NASA is among those," said Jan Aikins, chief technologist for information sciences at Ames.

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Cutbacks

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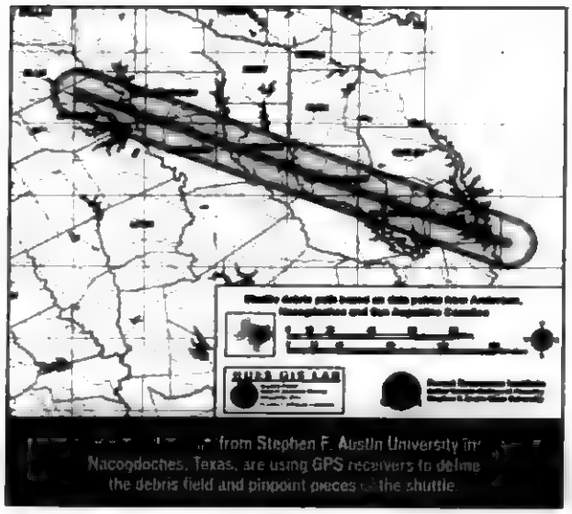

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AT DEADLINE

Microsoft Releases Slammer Tools

Microsoft Corp. made available prerelease versions of three software tools designed to help IT managers find systems vulnerable to the Slammer worm, which used a patched security hole in Microsoft's SQL Server 2000 database to cause widespread disruptions to the Internet last month. Microsoft said the tools are still under development and are being provided "as is."

Bank to Cut IT, Back-Office Jobs

Bank of America Corp. said it will cut about 1,000 IT and back-office operations jobs by the end of March as part of an effort to cut costs. The Charlotte, N.C.-based bank didn't break down the planned cuts but said IT won't be hit as hard as back-office functions such as check processing. Its combined Technology and Operations division currently has 22,000 workers.

Insurer Picks Perot For Outsourcing

Perot Systems Corp. in Plano, Texas, said it's negotiating a 10-year deal to manage IT and back-office business process operations at Blue Cross & Blue Shield of Rhode Island. About 800 of the Providence-based insurer's 1,740 workers will be offered jobs at Perot. The contract is expected to be worth at least $450 million, Perot said.

EDS Says Profit, Sales Down in Q4

Plano-based Electronic Data Systems Corp. reported net income of $390 million for the fourth quarter, down 11% from the year-earlier total of $405 million. Revenue dropped 5% to $6.5 billion, down from $6.8 billion. The IT services firm said it expects another year-over-year revenue decline this quarter.

MARK HALL • ON THE MARK

Teradata Steals Oracle's Data Mart Users . . .

. . . in a consolidation program. And Oracle Corp. has taken a bit of revenge. Teradata, a division of Dayton, Ohio-based NCR Corp., this week is announcing that it has successfully migrated more than 400 data marts into a few dozen Teradata data warehouses. And **"more than 75% of the data marts are Oracle,"** crows Vickie Farrell, vice president of Teradata warehouse marketing. Her company has put Oracle data marts in its crosshairs, developing technology training programs for Oracle users and specific data migration tools for Oracle 11i and wooing Oracle users at the annual conference run by the International Oracle Users Group (IOUG) for the past two years. Farrell said Teradata had already paid for booth space at this coming April's event, but just last week heard that **Oracle had asked the IOUG to refund its competitor's money and to ban it from the exhibitor's arena.** That's money from Oracle's users that Teradata would rather not get.

■ While on the subject of money and consolidation, by late March, Nexsan Technologies Inc. will be shipping its ATABeast disk vault system **with plenty of capacity and cheap enough to replace all** of your tape backup, nearline and online storage systems. According to Diamond Lauffin, senior executive vice president of the Woodland Hills, Calif.-based company, the 4U-high device comes packed with 42 256GB ATA disk drives. The fully configured machine gets you 10.5TB of capacity for a mere $42,000 — that's less than four-tenths of 1 cent per megabyte. Lauffin argues that disk-to-disk (D2D) products from his company and others will kill tape backup technology sooner rather than later. According to Steve Kenniston, an analyst at Enterprise Storage Group Inc. in Milford, Mass., "Nexsan is right on the sweet spot of disk-to-disk backup." Kenniston figures that **two factors keep tape backup systems alive against the incursion of D2D.** First, he says, is the high comfort level of aging systems administrators with tape technology. Second, government regulations and company policies about storing critical data offsite. In five years, he thinks, any technology, political or company issue will disappear. Along with tape. ■ **But will your browser vanish in the future** as well? Not in five years, but if more vendors follow the path being beaten by SRC Software Inc. in Portland, Ore., you'll probably be using it a lot less. Now in its 20th year, SRC sells budget planning and forecasting tools. Its I-Net Budgeting 9.2 product combines proprietary software with Microsoft Excel and SQL Server or Oracle databases. Right now, says co-founder and Executive Vice President Andrew Ferguson, remote users access the application through a browser running a Java client. But when the next version ships sometime in the second quarter, **users can skip the browser and go right to the Web in Excel.** So, will bean counters soon be surfing the Web in Excel? Don't count on it, says Ferguson. But you know they'll want to.

■ E-commerce sites may want to entice you to browse their sites using avatar technology from YaPanda Software Corp. The recently funded start-up is touting that **your avatar will make you immortal** because it can use your image and soon, your own voice coupled with a detailed knowledge base of your likes, dislikes, desires and phobias that can be shared when visiting any YaPanda-enabled site. While the value of having **Steve Ballmer's and Larry Ellison's avatars scurrying around the Web forever** is debatable, Anthony Carson, CTO and founder of the Chickasha, Okla.-based company, claims that e-commerce companies will be able to exploit the knowledge bases in each avatar for "extremely effective personalization." ■ A less-unnerving way to get close to your customers is through CRM. But deciding which CRM software is best for your company has always been an issue. On Feb. 19, Bethesda, Md.-based ISM Inc. will announce on its Web site the top 15 CRM packages. In case you didn't know, there are 171 to choose from. Up from 166 last year. **How where's consolidation when you need it?**

Nortel Set for Switch Battle With Cisco

BY MATT HAMBLEN

Nortel Networks Ltd. today plans to unveil five new and upgraded switches for corporate users, a rollout that one analyst said should help the struggling vendor match offerings from Cisco Systems Inc. in competitive bidding battles.

Two of the new switches include virtual private network (VPN) functionality based on the Secure Sockets Layer (SSL) protocol, and all of the devices are focused on providing a company's employees, customers and business partners with secure Internet access to mission-critical applications, Nortel officials said.

The switches are designed to support "optimized connectivity over the Internet," rather than application access only within corporate intranets, said Greg Merritt, vice president of enterprise marketing at Nortel. Prices range from $7,000 to $32,000; the devices start shipping late this month.

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Nortel's rollout includes two Layer 7 switches for application traffic management, including one with SSL support; a high-end SSL routing switch; a routing switch for midsize users; and a data center aggregation device.

AT DEADLINE

Microsoft Releases Slammer Tools

Microsoft Corp. made available prerelease versions of three software tools designed to help IT managers find systems vulnerable to the Slammer worm, which used a patched security hole in Microsoft's SQL Server 2000 database to cause widespread disruptions to the Internet last month. Microsoft said the tools are still under development and are being provided "as is."

Bank to Cut IT, Back-Office Jobs

Bank of America Corp. said it will cut about 1,000 IT and back-office operations jobs by the end of March as part of an effort to cut costs. The Charlotte, N.C.-based bank didn't break down the planned cuts but said IT won't be hit as hard as back-office functions such as check processing. Its combined Technology and Operations division currently has 22,000 workers.

Insurer Picks Perot For Outsourcing

Perot Systems Corp. in Plano, Texas, said it's negotiating a 10-year deal to manage IT and back-office business process operations at Blue Cross & Blue Shield of Rhode Island. About 600 of the Providence-based insurer's 1,740 workers will be offered jobs at Perot. The contract is expected to be worth at least $450 million, Perot said.

EDS Says Profit, Sales Down in Q4

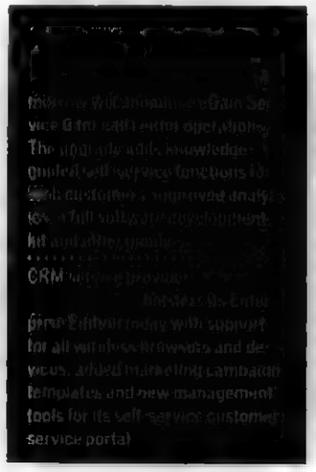
Plano-based Electronic Data Systems Corp. reported net income of $360 million for the fourth quarter, down 11% from the year-earlier total of $405 million. Revenue dropped 5% to $5.5 billion, down from $5.8 billion. The IT services firm said it expects another year-over-year revenue decline this quarter.

MARK HALL • ON THE MARK

Teradata Steals Oracle's Data Mart Users . . .

. . . in a consolidation program. And Oracle Corp. has taken a bit of revenge. Teradata, a division of Dayton, Ohio-based NCR Corp., this week is announcing that it has successfully migrated more than 400 data marts into a few dozen Teradata data warehouses. And **"more than 75% of the data marts are Oracle,"** crows Vickie Farrell, vice president of Teradata warehouse marketing. Her company has put Oracle data marts in its crosshairs, developing technology training programs for Oracle users and specific data migration tools for Oracle 11i and wooing Oracle users at the annual conference run by the International Oracle Users Group (IOUG) for the past two years. Farrell said Teradata had already paid for booth space at this coming April's event, but just last week heard that **Oracle had asked the IOUG to refund its competitor's money and to ban it from the exhibitor's arena.** That's money from Oracle's users that Teradata would rather not get.

■ While on the subject of money and consolidation, by late March, Nexsan Technologies Inc. will be shipping its ATABeast disk vault system **with plenty of capacity and cheap enough to replace all** of your tape backup, nearline and online storage systems. According to Diamond Lauffin, senior executive vice president of the Woodland Hills, Calif.-based company, the 4U-high device comes packed with 42 256GB ATA disk drives. The fully configured machine gets you 10.5TB of capacity for a mere $42,000 — that's less than four-tenths of 1 cent per megabyte. Lauffin argues that disk-to-disk (D2D) products from his company and others will kill tape backup technology sooner rather than later. According ■ Steve Kenniston, an analyst at Enterprise Storage Group Inc. in Milford, Mass., "Nexsan is right on the sweet spot of disk-to-disk backup." Kenniston figures that **two factors keep tape backup systems alive against the incursion of D2D.** First, he says, is the high comfort level of aging systems administrators with tape technology. Second, government regulations and company policies about storing critical data offsite. In five years, he thinks, any technology, political or company issue will disappear. Along with tape. ■ **But will your browser vanish in the future** as well? Not in five years, but if more vendors follow the path being beaten by SRC Software Inc. in Portland, Ore., you'll probably be using it a lot less. Now in its 20th year, SRC sells budget planning and forecasting tools. Its I-Net Budgeting 9.2 product combines proprietary software with Microsoft Excel and SQL Server or Oracle databases. Right now, says co-founder and Executive Vice President Andrew Ferguson, remote users access the application through a browser running a Java client. But when the next version ships sometime in the second quarter, **users can skip the browser and go right to the Web in Excel.** So, will bean counters soon be surfing the Web in Excel? Don't count on it, says Ferguson. But you know they'll want to.



■ E-commerce sites may want to entice you to browse their sites using avatar technology from YaPanda Software Corp. The recently funded start-up is touting that **your avatar will make you immortal** because it can use your image and soon, your own voice coupled with a detailed knowledge base of your likes, dislikes, desires and phobias that can be shared when visiting any YaPanda-enabled site. While the value of having **Steve Ballmer's and Larry Ellison's avatars scurrying around the Web forever** is debatable, Anthony Carson, CTO and founder of the Chickasha, Okla.-based company, claims that e-commerce companies will be able to exploit the knowledge bases in each avatar for "extremely effective personalization." ■ A less-unnerving way to get close to your customers is through CRM. But deciding which CRM software is best for your company has always been an issue. On Feb. 19, Bethesda, Md.-based ISM Inc. will announce on its Web site the top 15 CRM packages. In case you didn't know, there are 171 to choose from. Up from 166 last year. **Now where's consolidation when you need it?**

Nortel Set for Switch Battle With Cisco

BY MATT HAMBLEN

Nortel Networks Ltd. today plans to unveil five new and upgraded switches for corporate users, a rollout that one analyst said should help the struggling vendor match offerings from Cisco Systems Inc. in competitive bidding battles.

Two of the new switches include virtual private network (VPN) functionality based on the Secure Sockets Layer (SSL) protocol, and all of the devices are focused on providing a company's employees, customers and business partners with secure Internet access to mission-critical applications, Nortel officials said.

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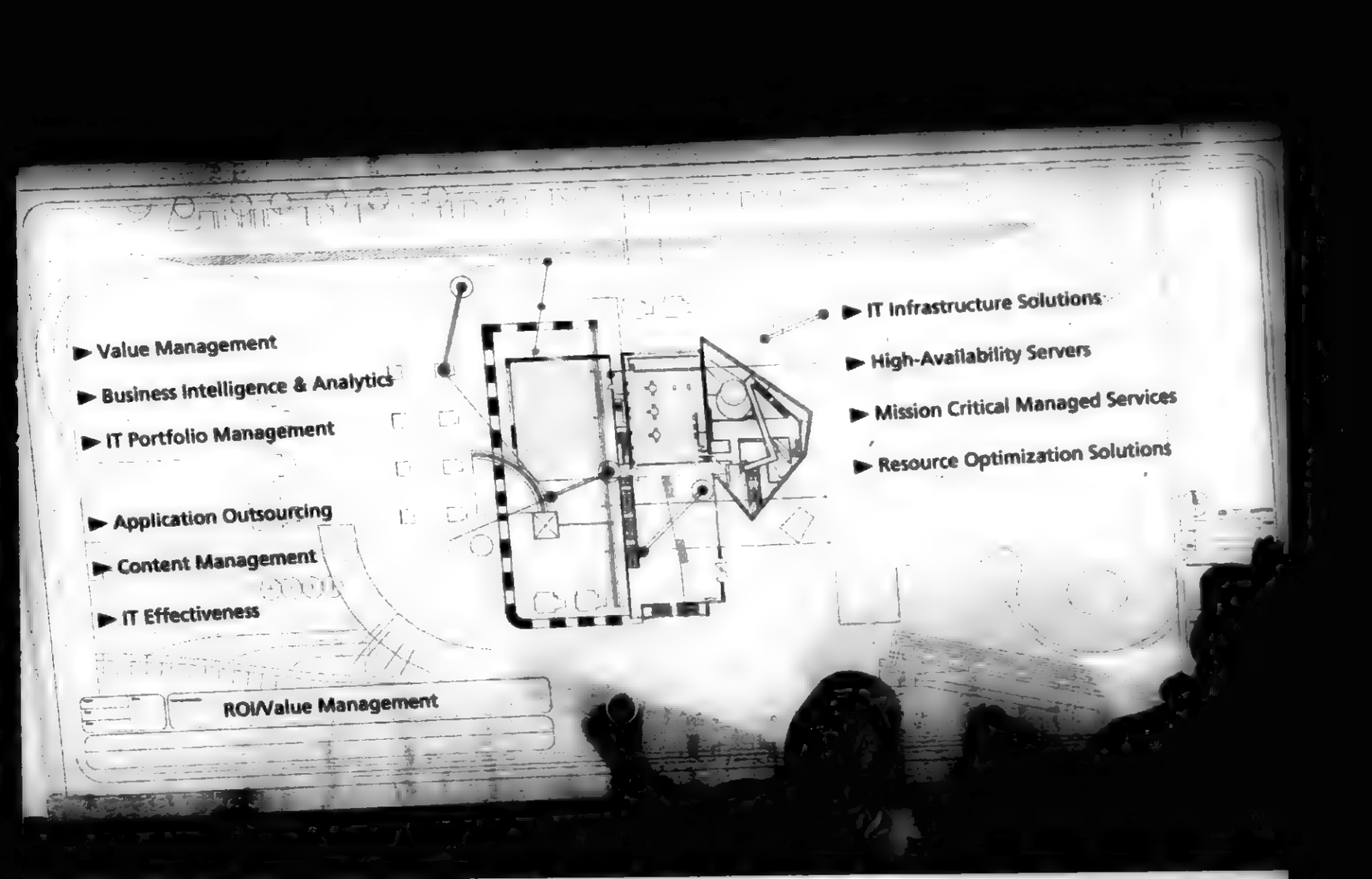

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BRIEFS

Windows XP Java Ruling Put on Hold

A federal appeals court in Richmond, Va., issued a stay order putting on hold a lower-court ruling that would require Microsoft Corp. to start offering Sun Microsystems Inc.'s Java software with Windows XP by early June. The appeals court's decision came just hours after Microsoft detailed the steps it planned to take to comply with the ruling in an antitrust lawsuit filed by Sun.

Microsoft Files Sendo Countersuit

In another case, Microsoft filed a countersuit against Sendo Ltd., a Birmingham, England-based mobile phone maker that in December charged the software vendor with stealing its intellectual property. Microsoft denied the allegation and claimed that Sendo broke a mobile phone development contract between the two companies.

Cisco Says Profits Up, Sales Down

Cisco Systems Inc. reported $981 million in profits for its second quarter, which ended Dec. 31, up 50% from $660 million in the same quarter last year. But revenue fell 2% to $4.7 billion, and Cisco CEO John Chambers said users are slowing down buying decisions because of continued economic concerns. Customers are even more cautious than they were three months ago, Chambers added.

Short Takes

SAP AG said Hasso Plattner, its co-chairman and CEO, has stepped away from daily operations and handed over software development to Shai Agassi, who had been in charge of new technology areas. . . . COMPUTER ASSOCIATES INTERNATIONAL INC. said it bought Netreon Inc., a Mountain View, Calif.-based developer of storage software.

Sun Technology Targets Low-End Server Market

Mass rollout includes blade servers, 12-CPU system, virtualization software

BY JAIKUMAR VIJAYAN

SUN MICROSYSTEMS Inc. today will announce a slew of hardware and software products aimed at lowering technology ownership costs and reducing complexity for users. The mass rollout also heralds a fresh assault by Sun on the low end of the server market.

The products are coming from several different business units at Sun and include a line of blade servers based on a mix of Intel Corp.'s chips and Sun's own UltraSPARC processors. Sun officials last week said the company will also unveil blade server virtualization software, a 12-processor midrange system and CPU upgrades for its high-end servers (see chart).

The agenda also includes price cuts that will reduce the cost of some high-end systems by as much as 35% and the addition of services aimed at helping users implement Sun's new N1 data center resource-optimization technologies.

On the Offensive

The laundry list of announcements comes at a time when Sun, like its major server rivals, is trying to jump-start a business that has been slowed by the sluggish economy.

"They're trying to find new spots where they can make a few bucks while doing what they need to do to push their existing products out the door," said Charles King, an analyst at The Sageza Group Inc. in Mountain View, Calif.

Andy Ingram, a marketing vice president at Sun, said the product launch is designed to show that the company can deliver on the N1 vision with technology that reduces costs, complexity and the time it takes to get a return on investment. Sun also wants to signal that it "is committed to competing in the low-end market really aggressively," he added.

The Sun Fire B1600 Blade Platform technology will lead Sun's charge at the low end. Although Sun is behind its top rivals in shipping blade servers, the B1600 devices offer enough differentiation to attract attention from users, said James Garden, an analyst at Technology Business Research Inc. in Hampton, N.H.

Sun is the first vendor to let users put blade devices based on different processors in the same chassis, Garden said. The new servers also are the first hardware offered by Sun with support for N1 virtualization software that's designed to let IT managers quickly configure blade server farms.

Later this year, Sun said it will add specialized blade servers for IT security and content load-balancing uses.

Such capabilities should address some of the scaling and IT resource-utilization challenges users face when dealing with Web-based applications, said Craig Richardson, assistant vice president of hosting at Telus Corp.'s Business Solutions unit in Vancouver, British Columbia.

Telus is Canada's second-largest telecommunications company and one of Sun's biggest customers in that country. Richardson said the new blade servers will let Telus offer more efficient performance-scaling options to its large customers. And the support for putting both Intel and UltraSPARC chips in one box gives lower-end users more technology choices, he said.

The 12-CPU V1280 rack-optimized Unix server will top Sun's mass volume product line and was designed to be priced competitively with similar Wintel boxes, Ingram said.

The College of Oceanic and Atmospheric Sciences at Oregon State University in Corvallis is using the V1280 to consolidate 12 applications that were running on different servers and operating systems. "The system has given us a unified way to manage those processes," thereby reducing ownership costs, said Chuck Sears, manager of research computing at the university.

Sun is also boosting the performance of its high-end Sun Fire 12K and 15K servers by adding a 1.2-GHz UltraSPARC III chip to the systems. In addition, the company is dropping prices on some high-end configurations. For example, a Sun Fire 12K with four CPUs and 8GB of memory will now start at $551,987 instead of the current list price of $653,590. ▶

N1 Strategy Starts to Take Shape

The virtualization software for Sun's new blade servers is only the first in a series of products and services that the company plans to roll out this year as part of its N1 data center resource management strategy, according to Yael Zheng, a director in Sun's N1 business group.

In the second half of the year, Sun will release an enterprise version of the virtualization software that will let IT managers pool and allocate various computing resources, Zheng said. Like the blade server release, the enterprise edition will be based on technology Sun bought in November as part of its acquisition of Fremont, Calif.-based Terraspring Inc.

Sun is also working to deliver storage virtualization capabilities using technologies initially developed by Pirus Networks Inc., an Acton, Mass., company that Sun also purchased in November.

Atlanta-based Cingular Wireless is one of the early users piloting N1 technologies, Zheng said. Under a multiphase implementation plan, she said, Cingular plans to use N1 software to pool a mix of computing and storage resources in a bid to reduce data center complexity and costs. Cingular will detail its N1 implementation plans as part of today's rollout.

Sun will also detail new N1-related services, including an $80,000 architecture assessment service aimed at helping companies figure out the transition requirements for using N1 tools in their data centers.

– Jaikumar Vijayan

Product Push

Sun plans to announce the following technologies:

SUN FIRE V1280 LOW-END SERVER: Supports up to 12 UltraSPARC CPUs and 96GB of memory, with prices starting at $127,495.

SUN FIRE B1600 BLADE PLATFORM: Supports Intel- and UltraSPARC-based blade servers in a single chassis. Intel blades will run Solaris and Linux; SPARC blades will run only Solaris. Prices start at $8,795.

N1 PROVISIONING SERVER 3.0 BLADES EDITION SOFTWARE: Virtualization tool for combining multiple blade servers into a shared processing resource that can be allocated to different applications as needed.

SUN STORAGETEK 3310: Network-attached storage device optimized for use with the blade server technology. Prices start at $35,995.

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Sun Says Java Will Support Key Web Services Standards

Delay in J2EE 1.4 shouldn't affect users adversely

BY CAROL SLIWA

DEVELOPERS who hoped that the Java 2 Platform, Enterprise Edition, would support guidelines that seek to ensure that Web services applications will interoperate got some good news last week.

Sun Microsystems Inc. announced that the new 1.4 version of Java 2 Enterprise Edition (J2EE) technologies will support the Web Services Interoperability Organization's (WS-I) Basic Profile 1.0, a set of rules specifying how to implement key Web services specifications.

Sun officials said support for the Basic Profile means that J2EE 1.4 will be delayed from the first quarter to the summer. But the delay is expected to impact only leading-edge corporate IT shops, since many companies have been slow to take up new J2EE features and build sophisticated Web services applications.

"Web services are becoming very important, but without standards support to ensure interoperability, they're worthless," said a developer at a large manufacturing company who asked not to be identified.

"Lately, the application server vendors have been delivering new versions faster than I would like, so the delay in the J2EE 1.4 spec is probably good news, from my perspective," he said.

A Step Forward

Tony Scott, chief technology officer at General Motors Corp., said J2EE 1.4's support for WS-I's guidelines is "a significant step in the right direction." He said GM is interested in Web services for a number of scenarios, including their potential to help the company reduce redundant business logic. GM is currently doing internal pilots and proofs of concept.

Scott said GM expects to use both Java and Microsoft Corp.'s .Net development environment for Web services, so interoperability will be important.

Willing to Wait

A development director at a large financial services firm that has been an early adopter of Web services called the J2EE 1.4 delay "unfortunate."

"But if this is the fastest way to get Web services support into the J2EE spec, then so be it," he said. "We will in the interim go with our own solution, but hopefully we won't end up with too much throwaway code."

The development director, who requested anonymity, said various vendors now support Web services, but because the technology isn't part of the J2EE specification, the vendors do their own extensions. "We would prefer to have it standardized so we won't be locked into a particular vendor's implementation," he said.

Ralph Galantine, a group marketing manager for Java Web services at Sun, said developers can now build Web services using the Java application programming interface for the XML-based remote procedure call, which has been made available with a number of application servers.

Mark Hapner, Sun's lead architect of J2EE, said it was a "big commitment" for vendors to pledge to build J2EE 1.4-compliant products that tightly conform to WS-I's Basic Profile 1.0.

Hapner, who is co-leader of the J2EE specification under the Java Community Process (JCP), said the expert group charged with evolving J2EE was unanimous in its support for the WS-I profile. Expert groups comprising representatives from various vendors are responsible for overseeing aspects of Java under the JCP, which Sun established in 1995 to develop and revise its Java technology.

Jason Bloomberg, an analyst at ZapThink LLC in Waltham, Mass., said the decision to support WS-I's basic profile shows that Sun is serious about its activity in the organization. While other major vendors signed up, Sun resisted joining WS-I for months, claiming that it deserved status as a founding member. Sun is now seeking a seat on the WS-I board of directors.

WS-I's membership includes major vendors such as Hewlett-Packard Co., IBM, Microsoft and Oracle Corp. and enterprise users such as Charles Schwab & Co. and Merrill Lynch & Co. ▶

SAP Users Welcome End of mySAP.com Era

Some say name change may help ease confusion

BY MARC L. SONGINI

The demise of SAP AG's mySAP.com brand name didn't provoke much mourning among users of the vendor's business applications last week. Several IT managers said the mySAP.com concept had remained somewhat mystifying, even after being in place for nearly four years.

"The whole mySAP.com positioning was very confusing, particularly to existing SAP customers like ourselves," said Tom Ackerman, senior director of business information systems at Symbol Technologies Inc., a maker of bar-code scanners and other handheld devices in Holtsville, N.Y.

Symbol, which uses SAP's R/3 enterprise resource planning (ERP) applications, is considering installing some of the vendor's newer products, such as its portal software. But IT staff members are still weighing the pros and cons of the software licensing scheme that was introduced as part of the mySAP.com strategy, and SAP hasn't done enough to make it clear how the pricing works, Ackerman said.

SAP late last month announced that it was changing the name of its software product line from mySAP.com to mySAP Business Suite. SAP America Inc. spokesman William Wohl said the reason was to better reflect the way corporate users buy software, which more and more frequently is done under a suite licensing arrangement.

Although Wohl said the mySAP.com launch in 1999 was a huge success, several users and analysts indicated that they found the concept to be either confusing or an example of marketing hype. From the beginning, many users weren't sure if mySAP.com was a new technology, a pricing program or just a new name.

"I always felt that mySAP.com was a marketing ploy to get everyone to think that SAP was Internet-friendly, and not a real plan that solved problems," said Eric Bloom, vice president of IT at Endo Pharmaceuticals Holdings Inc.

> **"I always felt that mySAP.com was a marketing ploy to get everyone to think that SAP was Internet-friendly."**
>
> ERIC BLOOM, VP OF IT, ENDO PHARMACEUTICALS

MySAP.com "became increasingly confusing and not easily identifiable," eventually turning it into a liability for SAP, Bloom added. Even so, he said Endo's R/3 installation gives the company good value for its price.

"MySAP.com had its initial challenges in what the name said about the product," Wohl said, noting that the business of enterprise software is "inherently complex." But he begged to differ with the continued complaints about mySAP.com, citing the extensive adoption of the suite by users.

SAP's position got support from David Pritchard, ERP and customer relationship management program manager at Creo Inc., a supplier of digital prepress equipment in Vancouver, British Columbia. Pritchard said the mySAP.com scheme was fairly simple and direct. "Right from the outset 18 months ago, we have had simple bundled pricing, which includes all the mySAP.com functionality," he said. ▶

f5

BRIEFS

Microsoft Pulls NT 4.0 Fix Off Site . . .

Microsoft Corp. pulled a software patch for Windows NT 4.0 from its Web site after users complained that the security fix was crashing the operating system. The company is updating the patch, which was released in December to plug a hole in the WM_TIMER function of Windows. There are no problems with similar patches for Windows 2000 and Windows XP, Microsoft said.

. . . and Posts New Patch For Browser

Microsoft also issued a new patch designed to fix a pair of flaws in the cross-domain security tools built into the Internet Explorer Web browser. The company gave the vulnerabilities a "critical" severity rating and said attackers could use them to run malicious code on vulnerable systems. In addition, it released a patch for a less-severe hole in a file access tool in Windows XP.

Comdex Owner Files for Chapter 11

Key3Media Group Inc., which runs Comdex and other IT conferences, filed for Chapter 11 bankruptcy protection as part of a deal designed to reduce its debt. The Los Angeles-based company said it hopes to emerge from Chapter 11 within 90 days. Thomas Weisel Capital Partners LP in San Francisco will provide new funding in return for 99% ownership of Key3Media.

Short Takes

WORLDCOM INC. said it plans to cut another 5,000 jobs, primarily corporate and administrative positions. . . . IBM and AMERICA ONLINE INC. said they're working to integrate their corporate instant messaging products so users can communicate without having to enter two passwords or maintain separate contact lists.

IBM Beta-Tests Virtual Database Technology

Users eye tools for integrating SQL databases, other content repositories

BY MARC L. SONGINI

IBM IS STARTING to beta-test two software tools designed to integrate distributed data repositories, and several users last week said the new technology could help them set up virtual databases that pull together a wide range of information.

The beta versions of IBM's DB2 Information Integrator and DB2 Information Integrator for Content software are the first tangible results of an integration initiative, code-named Xperanto, that the company detailed last month [QuickLink 35536].

IBM last week said the tools will let end users access various SQL databases and other content sources through a single query. For instance, DB2 Information Integrator could be used as part of a call center application to extract customer data stored in e-mail messages or text files. Commercial shipments are expected to start by year's end.

Expanded Data Sources

At Indiana University's campus in Indianapolis, the life sciences department is already installing DB2 Information Integrator, said Craig Stewart, director of research and academic computing.

The life sciences department currently uses IBM's DiscoveryLink software, a data cataloging tool for bioscience applications. But DB2 Information Integrator's native XML support will let the school's IT managers expand the types of data sources that can be queried, Stewart said.

Robert Catterall, director of strategic technology at CheckFree Corp.'s e-commerce division in Norcross, Ga., said he's open to exploring the integration software, although he has no specific plans at this point.

CheckFree currently stores e-mail messages and attachments directly in IBM's DB2 database. But Catterall said the electronic billing services provider hopes to eventually create a virtual database that spans various repositories.

The integration technology is being built on top of DB2, but Nelson Mattos, director of information integration at IBM, said users won't have to move information out of existing repositories or convert data to DB2 formats. The software will also be tightly coupled with IBM's WebSphere MQ and WebSphere Business Integration middleware tools, but it will work with rival products from Microsoft Corp. and other companies, Mattos said.

James Governor, an analyst at RedMonk, a consulting firm in Hollis, N.H., said installing the integration software could cause culture shock for some database administrators. "Anyone in charge of a database hates anyone else touching it unless permission is given," Governor said.

HOW IT WORKS

IBM said DB2 Information Integrator could be used in the following way:

1) A customer of a financial services firm **goes online to seek data** on the current value of his investment portfolio.

2) The IBM software **pulls stock ownership information** from customer account data stored in a relational database.

3) DB2 Information Integrator **gathers real-time stock quotes** via a Web services application.

4) The tool **calculates the worth of the customer's holdings** and presents the data as if it came from a single source.

Microsoft Gains Visual Studio .Net Momentum

BY CAROL SLIWA

Microsoft Corp. this week will mark the one-year anniversary of its Visual Studio .Net development environment with a flurry of announcements intended to show momentum around its latest tools.

Partners such as Borland Software Corp. will pitch in with new offerings designed to work with the .Net development platform. Borland's Optimizeit for .Net can help developers spot memory leaks and other potential problems that can hinder application performance, said George Paolini, a general manager at Borland.

The Scotts Valley, Calif.-based tools vendor acquired the Optimizeit technology last year from San Jose-based Redline Software Inc., better known as VMGear.

Smaller vendors introducing new products at this week's VSLive conference in San Francisco include Sanctum Inc. in Santa Clara, Calif., which plans to announce AppScan Developer Edition. That product will integrate into Visual Studio .Net 2003, which is due for general release in April. AppScan, which will sell for $995, tests for security defects in code and provides descriptions of the problems and suggested fixes.

The level of interest in .Net-focused tools remains to be seen, since many Microsoft developers are just starting to switch to the new development environment.

Brian Siler, a lead programmer analyst at Hilton Hotels Corp. in Memphis, said his development group is about to enter the coding phase for its first .Net project. "The initial skepticism toward [Visual Basic] .Net is fading as we start to see how some of the new language features will make our tasks easier," he said.

But a major concern is how to get the .Net Framework out to the company 's geographically dispersed end users. Since they're running Windows 2000 or XP with nonadministrative access, they can't install the framework on their own, Siler explained.

In other developer news, Borland this week will announce its Enterprise Studio 5 for Java, featuring integrated modeling technologies acquired from TogetherSoft Corp. Studio 5, which will sell for $6,999, also includes Borland's JBuilder tool, enterprise server and lightweight data store.

Last week, BEA Systems Inc. released two entry-level versions of its WebLogic application server. The Express version can be used for building and running Web applications that rely on Java Server Pages and Java servlets. The Workgroup Edition is for departments with up to 20 users on projects that require full Java 2 Enterprise Edition capabilities.

A development director at a large financial services firm who requested anonymity said lightweight application servers and open-source tools, such as the JBoss application server, appeal to his company. "Application servers are nearly a commodity item," he said, "and we expect the prices to be falling rapidly in the next year or so."

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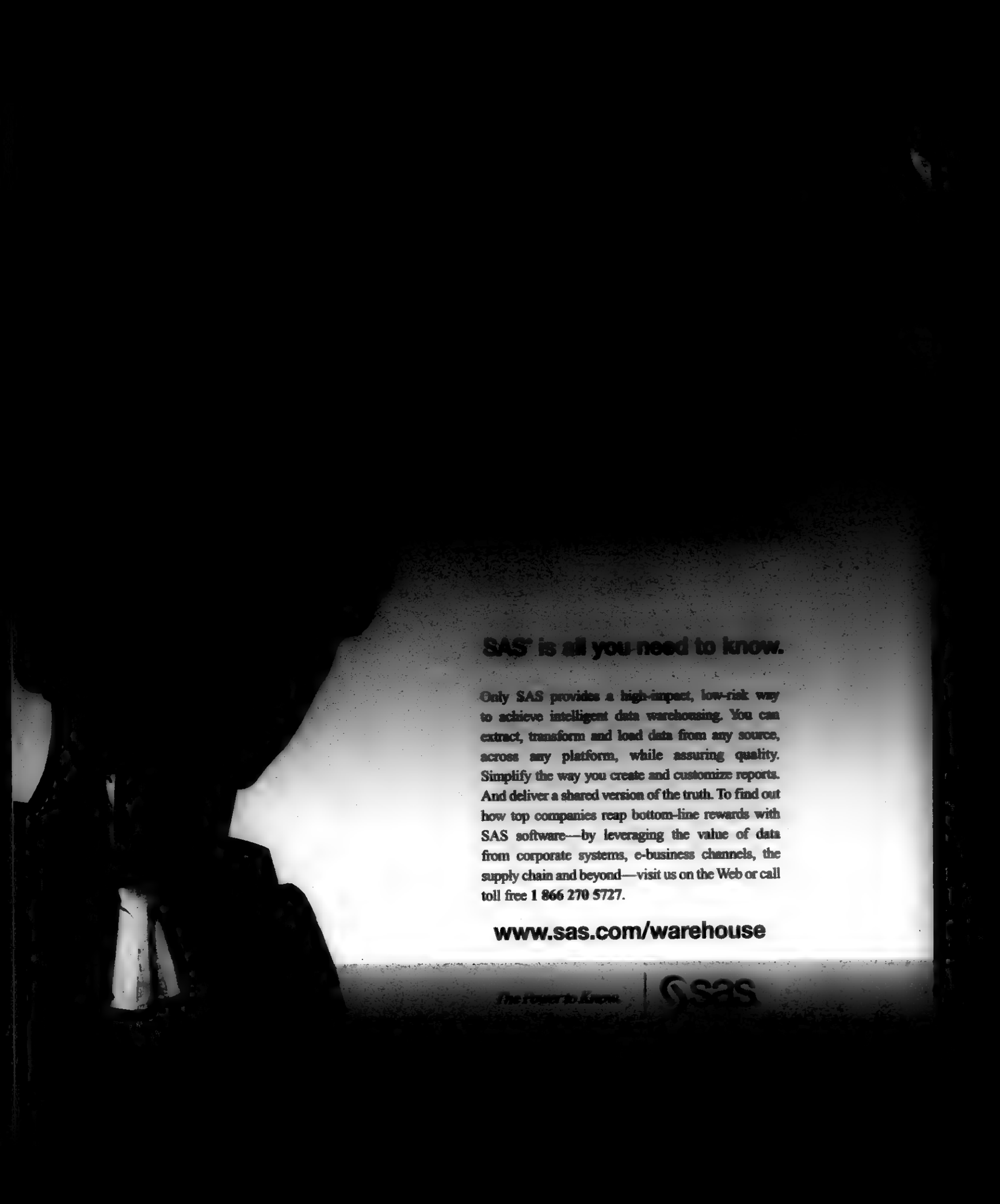
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Directory Links, New User Interface Due for NetWare

Novell plans to release upgrade of network operating system by midyear

BY MATT HAMBLEN

NOVELL INC. this week will announce plans for the next upgrade of NetWare, which will include a browser-based user portal, directory integration tools and an application server that supports Web services.

NetWare 6.5, code-named Nakoma, has been in closed beta-testing trials for months but is due to start a public beta period in April and begin shipping by midyear, said Novell product manager Rob Seely.

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Correction

Last week's cover story on mainframe Linux misidentified the employer of John Kogel. The company is Candle Corp. in El Segundo, Calif.

EMC's New Arrays Get Mixed Reviews

BY LUCAS MEARIAN

EMC Corp.'s new high-end Symmetrix disk array line was lauded by analysts last week as a technological advance that puts the struggling storage vendor back in the speeds-and-feeds lead. But some IT managers were more skeptical about the value of the arrays.

As expected, EMC unveiled its Symmetrix DMX800, DMX1000 and DMX2000 arrays and touted their internal architecture as being the fastest on the market by far [QuickLink 36043]. The Direct Matrix Architecture technology provides bandwidth of up to 64GB/sec., EMC confirmed.

With list prices ranging from $409,000 to $2.5 million, the DMX arrays are 15% to 50% less expensive than earlier Symmetrix models, EMC said. Those prices translate into costs of 4 to 8 cents per megabyte, according to Ken Steinhardt, the company's director of technology analysis. "Our objective is to be competitive," Steinhardt said.

But the price/performance improvements didn't wow Joe Gottron, CIO at Huntington Bancshares Inc. in Columbus, Ohio. Gottron has more than 20TB of capacity on a Symmetrix array he bought last year. He said he's not interested in the new line because he doesn't see a solid business case for buying the technology.

Paul Seay, a storage specialist at a large government contractor on the East Coast, said he views the DMX line merely as stopgap technology aimed at stemming user defections to rivals such as IBM and Hitachi Data Systems Corp.

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"I thought EMC was going to be a software company, but they're so late to the game that I don't think they'll be able to break in at this point," he said.

Seay and Gottron also said they're disappointed that the DMX models don't include built-in support for IBM's Ficon mainframe connectivity technology, which is supported on older Symmetrix arrays.

Steinhardt said IBM is upgrading Ficon from 1G bit/sec. throughput to 2G bit/sec., so EMC saw no reason to link to the technology right away. Ficon support is due to be added in the third quarter, he said.

Jim Shaw, CIO at Management Science Associates Inc. (MSA) in Pittsburgh, was more positive about the DMX line. MSA has 30TB of capacity on four Symmetrix arrays and is testing the DMX800. Shaw said he likes the array's modularity because it will let him grow his storage capacity.

Shaw said he also appreciates the internal bandwidth boost. "We're getting noticeably better performance out of the [DMX] system," he said.

Price Comparison

List prices for EMC's new Symmetrix DMX arrays vs. the cost of older models

DMX800 modular array with 2TB capacity	$439,000
Model 8530 single-bay array with the same capacity	$534,000
Difference in price	18%
DMX2000 dual-bay array with 18.5TB capacity	$1,465,000
Model 8830 single-bay array with the same capacity	$2,017,000
Difference in price	27%

Directory Links, New User Interface Due for NetWare

Novell plans to release upgrade of network operating system by midyear

BY MATT HAMBLEN

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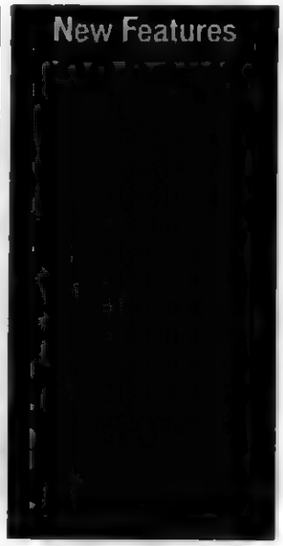

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Dell PowerConnect 3248 Outperforms the Cisco Catalyst 2950 and 3COM SuperStack 3 Switch 4400 by up to 47% in Layer 2 Throughput Tests.[v]
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– September 2002

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2003

Preparing for the New Computing Landscape

IDC

COMPUTERWORLD PC WORLD

Sybase Seeks to Secure Mobile Data

BY MATT HAMBLEN

Sybase Inc.'s mobile software subsidiary last week announced a security tool that's designed to let network managers zap data from lost or stolen laptop computers and Pocket PC handheld devices.

The Zap It feature is one of several enhancements that Dublin, Calif.-based iAnywhere Solutions Inc. is adding to its Manage Anywhere Studio software as part of an upgrade. IT managers can configure the security feature to erase sensitive data when systems are turned on without the proper passwords, according to iAnywhere officials.

Other new features include tools for remotely installing operating system updates, providing Web-based help desk support and tracking inventories of mobile devices and software packages, iAnywhere said. The Manage Anywhere Studio 5 upgrade is due to ship Feb. 28.

'Zap' Protection

"We've chained laptops to desks, but somebody will come along and use a bolt cutter to take one," said Ben Baker, IT manager at PDS Research Inc., a Louisville, Colo., company that coordinates pulmonary clinical testing for pharmaceutical companies. PDS plans to install iAnywhere's upgraded software on each new laptop it rolls out.

A lost laptop that contains testing data about a new drug being developed by a PDS client could be worth millions of dollars to rival pharmaceutical makers, Baker said. IT staffers will set the Zap It feature to delete PDS's custom software and all the data connected to it if a user doesn't connect to the company's network within a prescribed period of time.

Features similar to Zap It have been added to a variety of products sold by iAnywhere's competitors during the past six months or so, said Stephen Drake, an analyst at IDC in Framingham, Mass.

For example, Research In Motion Ltd. offers a data-deletion capability for use with its BlackBerry handhelds, according to Drake. XcelleNet Inc. and Synchrologic Inc. also sell mobile device management tools with "poison pill" functionality, he said.

"There's a real need to manage and administer mobile devices, especially the small devices that are much easier to lose," Drake noted. Despite a dip in the sale of handhelds in recent months [QuickLink 36045], IDC projects continued growth for software that can manage mobile devices, track hardware inventories and automate the distribution of software to end users.

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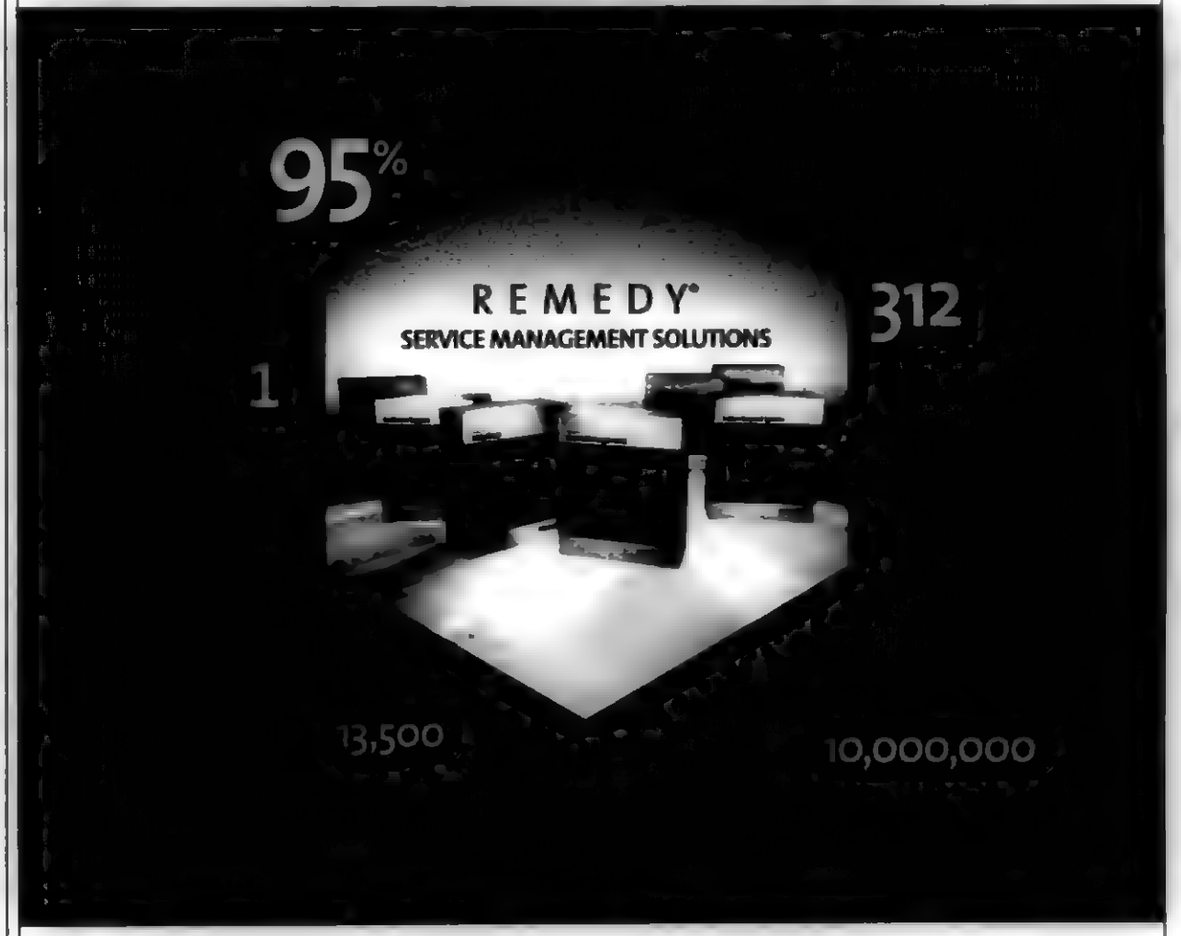

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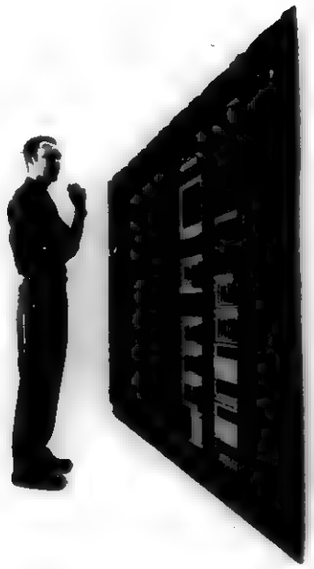

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PATRICIA KEEFE

Securing Credibility

THE SLAMMER WORM was aptly named. The critical fallout from the latest in a string of debilitating viruses slammed vendors and users alike, and rightly so. Users took a hit for not heeding endless warnings about the need to keep abreast of security patches, and vendors got smacked for shipping crappy software in the first place. The industry's credibility is on the line, and little wonder.

Slammer, if you've been hibernating, is a self-propagating worm that attacked a known and readily fixable vulnerability in Microsoft SQL 2000 Web servers on Jan. 25, spreading some 250 times faster than Code Red, according to a study released last week by a coalition of security experts.

Ever more advanced malicious programs, and the malcontents and showoffs who construct them, are going to continue to proliferate. That's a given, especially since the number of software vulnerabilities found in 2002 (2,524) rose 82% over 2001, according to security vendor Symantec's biannual "Incident Security Threat Report," which was released last week. Worse is the accelerating pace of new, smarter viruses — 7,000 in the past year [QuickLink 35428].

It should be clear that companies on both sides of the fence need to stop dithering and engage in some constructive action. And it should be obvious by now that IT users must employ preemptive measures and have disaster-response policies in place, ready to go at the first whiff of another viral onslaught.

You'd think that by now the long, sad history of vendor security missteps would be over. But it's become even more apparent that you can't rely on your software vendors. Despite Microsoft's bravado of a year ago, when it claimed that it was going to "lead the industry to a whole new level of trustworthiness in computing," it hasn't gotten very far. In fact, the company kicked off the year with several security alerts. It's alerts like these, and the ensuing parade of patches, that are driving users nuts.

Last week's Page One story "Unprepared Firms Slammed" [QuickLink 36044] showed that it's difficult for strapped IT departments to keep up, due to a lack of time, money or staff. And it doesn't help when the patches come packing their own peck of trouble. Last week, Microsoft had to pull a security patch for Windows NT 4.0 because it was crashing the operating system it was supposed to be helping. But don't think that Microsoft is alone in bedeviling IT in this manner. It isn't.

It seems everyone has something to prove on the security front. We're hearing rumblings of an IT credibility gap, usually pegged to Y2k expenditures, dot-com blunders and unrealized ROI from huge projects like ERP. You could argue that the security issue casts a longer shadow over IT's effectiveness. It's certainly more immediate, and its impact is felt from the boardroom to the desktop.

Yet no one group can stand alone when it comes to combating cybercrime and boosting its credibility. IT needs better products, fewer fixes and easier-to-use patches from vendors. Vendors need IT to use the tools that are already available and to close the door behind known vulnerabilities. The government needs IT to report attacks, formulate and enact security policies, and join the effort to demand certification standards for security products.

Companies absolutely need Internet access and reliable systems. All parties must act in synchronicity. Unless we all work together, we may find ourselves caught up in a viral spiral, hardly able to work at all.

PIMM FOX

PlaceWare Deal Still Leaves Gap

MICROSOFT'S purchase of PlaceWare Inc. is an effort to supplement the company's meager offerings in collaboration technology. But it doesn't answer the question about how Microsoft will satisfy the on-premise, enterprisewide collaboration needs of Windows users. PlaceWare is a hosted service for which users pay a fee.

For those seeking an on-premise option, IBM has already spread out its road map to move customers from Domino to WebSphere, DB2 and Tivoli.

Providing on-premise technology makes sense for some users because it can push the cost down to pennies per minute. Most collaboration technology decisions are made at the departmental level. But by having a single, in-house standard, businesses can more effectively use their corporate purchasing power.

Sure, some companies are better off renting collaboration tools on an ad hoc basis from WebEx, PlaceWare, Raindance and others because of relatively low usage levels or because those services don't need to integrate with corporate applications. For them, there's little value in an enterprise-level collaboration system.

But for those that are plotting an overall collaboration strategy (for example, to integrate in-house applications), bolting that software to a hosted collaboration service such as PlaceWare isn't the most elegant solution. Building links from a CRM or ERP application or a database to a collaboration technology is going to be a headache without, for example, controlling upgrades.

That's why Microsoft's purchase falls short of articulating a complete collaboration strategy. It also doesn't address Microsoft's desire to embed collaboration tools using XML (and probably SOAP, UDDI and WSDL) into .Net, which would include capa-

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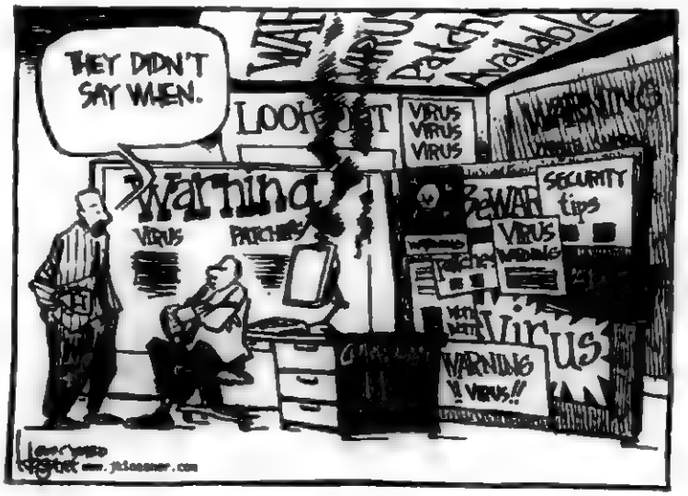

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- **Regis McKenna** Keynote, Technology Advisor, Venture Capitalist and Author
- **Ulrich Seif** SVP & CIO, National Semiconductor
- **Steve Bennahon** Chief Architect, The Hartford

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See and Hear Regis McKenna

Regis McKenna
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Ulrich Seif
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ULRICH SEIF
CIO
National Semiconductor

STEVE ROMANOW
Chief Architect
The Hartford

GARY PILAFAS
Senior Storage and Systems Architect
United Loyalty Services (United Airlines)

MARTY CHUCK
VP & CIO
Agilent Technologies

BILL WESTON
Risk Manager
Fidelity Investments

DARYL BLACK
Storage Architect
Telus Communications

YOGESH GUPTA
CTO
Computer Associates

JOHN MCARTHUR
Group Vice President
IDC Storage Research

FRED VAN DEN BOSCH
EVP & CTO
VERITAS Software

STEVE DUPLESSIE
Founder and Senior Analyst
Enterprise Storage Group

Agenda Snapshot*

For details, updates, and to register visit **www.snwusa.com/expo.**

*subject to change

Monday, April 14
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Primer
12:00pm-5:00pm	Golf Outing
1:00pm-2:00pm	SNIA Tutorial Sessions - choose from five different sessions
2:00pm-2:15pm	Break
2:15pm-3:15pm	SNIA Tutorial Sessions - choose from five different sessions
3:15pm-3:30pm	Break
3:30pm-4:30pm	SNIA Tutorial Sessions - choose from five different sessions
4:30pm-4:45pm	Break
4:45pm-5:45pm	SNIA Tutorial Sessions - choose from five different sessions
7:00pm-8:00pm	Pre Conference Networking Reception

Tuesday, April 15
(General Conference - Day One)

7:30am-8:30am	Continental Breakfast
8:30am-9:15am	Opening Keynote: Regis McKenna
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Networking Luncheon
1:45pm-5:00pm	General Sessions
4:00pm-5:00pm	Technical, Technical/Business and Business Tracks
5:00pm-8:00pm	Expo, Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 16
(General Conference - Day Two)

7:30am-8:30am	Continental Breakfast
8:30am-9:15am	Opening Keynote
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Expo, Buffet Luncheon, Interoperability and Solutions Demo
1:45pm-3:15pm	General Sessions
3:15pm-3:30pm	Break
3:30pm-5:00pm	Technical, Technical/Business and Business Tracks
5:00pm-7:15pm	Expo, Interoperability and Solutions Demo
7:30pm-9:00pm	Gala Evening

Thursday, April 17
(Tutorial and Workshop Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business and Business Tracks
11:45am	Conference Concludes

Registration

Options for IT End-Users*	Earlybird Registration (through March 1st)	Pre-Registration (through April 11th)	On-Site Registration (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	$895	$1,095	$1,245
Total 4-day Package (Apr. 14, 15, 16, 17): (Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses; Expo, Meals and Receptions)	$1,290	$1,490	$1,690
Options for IT Vendors**			
Total 4-day Package (Apr. 14, 15, 16, 17): (Available to Sponsoring Vendors and their Resellers/Integrators, Industry Consultants, and Storage Solutions Implementors)	$1,290	$1,490	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000	$5,000

* See IT End-Users description on the Registration Application on the reverse. ** See Non-Sponsoring Vendor description on the Registration Application on the reverse.

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To reserve your accommodations: visit www.stcentral.com OR call 1-888-340-2282 (or 1-508-820-8150)

Pre-Conference Golf Outing

Complimentary Golf Outing for Registered IT Users

The Pre-Conference Golf Outing at The Palmer Course at Wildfire, located at the JW Marriott Desert Ridge Resort, is complimentary ($365 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Leger at 1-888-820-8177

STORAGE NETWORKING WORLD

April 14-17, 2003
JW Marriott Desert Ridge Resort
Phoenix, Arizona
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Application for Conference Registration

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- You will receive a confirmation via email

QUESTIONS?
- Call: our Customer Service Line at 800-883-9090
- Email: snwreg@computerworld.com

CODE: EXPO

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* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, April 14th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (External) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CFO/Controller/Treasurer
- ❑ VP/GM/Director
- ❑ Sales/Marketing/Product Staff
- ❑ CIO/CTO/Other IS/IT Manager
- ❑ Engineering Staff
- ❑ Press

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❑ Check Enclosed (checks must be received by 4/4/03)
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Account Number: _____

Expiration Date: _____

Card Holder Name: _____

Signature of Card Holder: _____

Cancellation Policy *(All of the below options require written notification.)*
In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Fall 2003 Storage Networking World* conference, if written notice is received by March 31, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by March 31, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events (subject to change)

Monday, April 14, 2003
- Pre-Conference Golf Outing
- Pre-Conference Networking Reception
- Tutorial Sessions

Tuesday, April 15, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition

Wednesday, April 16, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition
- Gala Evening

Thursday, April 17, 2003
- Tutorial Sessions

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Gotta hopes Microsoft will spell out how on-premise conferencing and collaboration within Windows and with real Web services components will take place.

Until then, enterprise customers will be kept waiting. Or go to IBM. ◗

DAVID FOOTE

IT Job Trends Yield Surprises

IN HIS FIRST State of the Union speech, President Bush challenged Americans to consider some form of government service during their lifetimes. I don't necessarily think he had public-sector IT jobs in mind, but private-sector IT workers are more aggressively seeking jobs in federal and state government, according to my firm's latest quarterly research, which is compiled from continual tracking of nearly 32,000 IT professionals, 36% of whom work in organizations with $500 million or more in revenue or $3 billion-plus in total assets.

Can you blame disaffected, stressed-out workers with worthless stock options for suddenly wanting the more relaxed work environment, better job security, fully paid family-friendly benefits and shorter hours of the public sector? Especially those who risk losing their jobs permanently to offshore technicians, contractors and part-time workers who can work more cheaply and provide IT executives greater flexibility in responding to shifting business needs.

So-called permanent layoffs are a serious employment trend, appearing not just in our research but also in a report issued in August by the Bureau of Labor Statistics that confirmed the beginnings of structural downsizing more than a decade ago. If that's not ample reason for IT workers to be concerned, consider the thousands of manufacturing and aerospace jobs that vanished to foreign lands in the last century.

As for IT compensation, 2002 was a tough year, but it had its bright spots. Overall, base salaries for 85 IT positions surveyed in our research declined by an average of 2.8%, and cash bonuses paid out fell by 32%.

Bucking the downward trend, salaries for corporate security positions increased by an average of 5.5% in 2002, with total compensation up 3.3% as bonuses declined by a less dramatic 9.1%. Moreover, premium pay for security certification bonuses has risen 11.3% in value in 2002 and an even more impressive 31% over the past two years, thanks to several technical niche certifications from the SANS Institute and renewed interest in the management-oriented Certified Information Systems Security Professional and Certified Information Systems Auditor certifications: All registered between 11% and 38% growth last year.

Certifications are more popular, partly for validating training expenses and pay adjustments with today's cost-conscious executives. Median premium pay for 54 technical certifications has grown a surprising 0.5% over the past two dreadful years (even with a modest 3.3% decline in 2002), led not just by security but also by solid performances last year by certifications in project management, Linux (up 17%), and networking (most notably Novell's Certified Novell Engineer and Master Certified Novell Engineer).

Also hot: Voice over IP, Wireless Markup Language (WML), DB2, VoiceXML and SAP's Advanced Business Application Programming language skills all grew in value in 2002. Highest paying? Rapid application development/extreme programming, XML, SQL Server, WML and Oracle database skills.

Hot job segments for 2003, according to our research, are security, network management, enterprise infrastructure and architecture, database, SAP-related development, project management, and project-based work implementing customer-facing systems and processes.

Want to know what accounts most for IT workers' current predicaments? Career choices they made long before the recession. Those choosing technology specializations got lucky if they picked the right vendor or niche technology. While missing out on the many benefits specialists enjoyed in the boom times, those who took the generalist path have generally adapted better to today's conditions and have the most employment opportunities. ◗

WANT OUR OPINION?

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READERS' LETTERS

Offshore Threats

THE OFFSHORE outsourcing industry for programming and development continues to grow [QuickLinks 35886 and 36001], and the latest phase is the most dangerous of all. People in IT management today got their start as programmers, database analysts or perhaps even at the lowly help desk, but now those jobs are being sent overseas. While this may appear sound in the short term, the long-term repercussions of this brain drain will manifest themselves in an evaporation of our competitive advantages.

I am all for the H-1B program, which brings skilled, educated people to our shores. But I fear we are giving away too much of our future by sending skilled jobs overseas.

Terry Shea
Director of IS, The Sporting News, St. Louis, tshea@sportingnews.com

DAVID FOOTE'S prediction fails to take into account the new emphasis on IT and software security due to concerns regarding terrorism and cyber-based attacks. Using companies external to the U.S. limits your ability to screen who will work on code. Any application on a network has the potential for trapdoors, Trojan horses or remote software agents. If you keep your developers in-house, then you have control of who works on what.

Thom Campbell
Senior developer, St. Petersburg, Fla.

Defects, Not Bugs

I READ ONCE that saying software has bugs is a way for the software developer to distance himself from responsibility ["Biting Back," QuickLink 35204]. The word *bug* implies that it crawled into the program somehow; it almost sounds cute. Use the term *defect* and see how much harder it is to trivialize it. It implies much more strongly that something needs to be fixed.

Lars Sundstrom
Development manager, Melbourne, Australia

Remote and Secure

THE ARTICLE "10 Tips for Beating Virus Threats" [QuickLink 35603] was quick and to the point for professionals who may need to verify what the rank and file are doing to keep their company secure. One area not touched upon was remote access. If you allow employees to extend their home into your network, you need a strong security policy that makes employees share some of the responsibility and accountability. For example, this policy should state that employees who have been granted remote access shouldn't turn off automatic virus updates.

Ravila Helen White
CISSP, Seattle

.Net Beats Java

THE INTERVIEW titled "Sun Exec: Ruling Will Boost Java" [QuickLink 35404] was quite interesting, but Richard Green was way off the mark. He states, "The killer feature to date that .Net has over Java is not the technology. It's not marketing; it's not tools. It's distribution."

Sun and the rest of the major J2EE 1.3 players (such as BEA Systems, IBM, Oracle and Sybase) must be cognizant of the fact that Microsoft Visual Studio .Net is currently the most advanced and user-friendly development suite in the industry.

Case in point: The key J2EE 1.3 vendors don't currently possess a product offering as good as Microsoft Visual Studio .Net in the development tool space, hence the attraction to the Microsoft .Net platform. Therefore, the key J2EE 1.3 players should heavily invest and promote new development technologies such as Eclipse to close the gap with Microsoft.

Russell Ruggiero
IT research analyst, West Windsor, N.J.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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Development manager, Melbourne, Australia

Remote and Secure

THE ARTICLE "10 Tips for Beating Virus Threats" [QuickLink 35603] was quick and to the point for professionals who may need ■ verify what the rank and file are doing to keep their company secure. One area not touched upon was remote access. If you allow employees to extend their home into your network, you need a strong security policy that makes employees share some of the responsibility and accountability. For example, this policy should state that employees who have been granted remote access shouldn't turn off automatic virus updates.

Ravila Helen White
CISSP, Seattle

.Net Beats Java

THE INTERVIEW titled "Sun Exec: Ruling Will Boost Java" [QuickLink 35404] was quite interesting, but Richard Green was way off the mark. He states, "The killer feature to date that .Net has over Java is not the technology. It's not marketing; it's not tools. It's distribution."

Sun and the rest of the major J2EE 1.3 players (such as BEA Systems, IBM, Oracle and Sybase) must be cognizant of the fact that Microsoft Visual Studio .Net is currently the most advanced and user-friendly development suite in the industry.

Case in point: The key J2EE 1.3 vendors don't currently possess a product offering as good as Microsoft Visual Studio .Net in the development tool space, hence the attraction to the Microsoft .Net platform. Therefore, the key J2EE 1.3 players should heavily invest and promote new development technologies such as Eclipse to close the gap with Microsoft.

Russell Ruggiero
IT research analyst, West Windsor, N.J.

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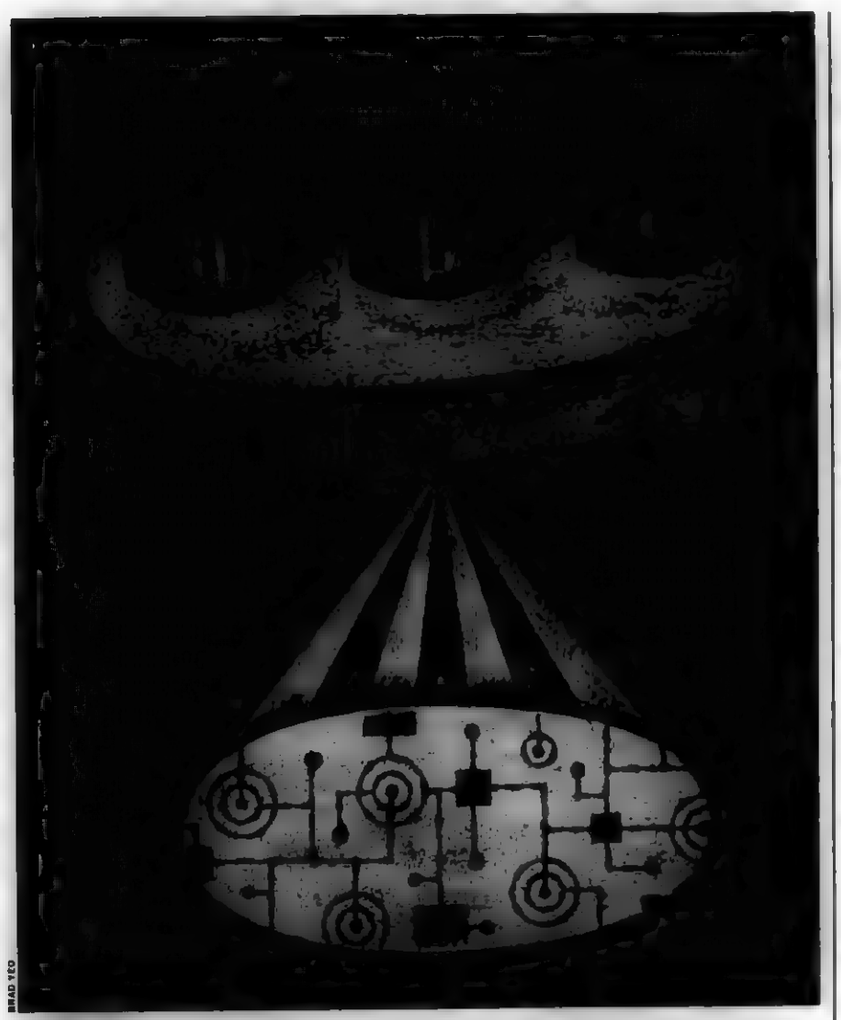
Q&A
IT for the Autobahn
Claus Hohmann, CTO at Volkswagen's Autostadt, an automotive theme park where customers can pick up vehicles they custom-ordered online, talks about the Autostadt's IT infrastructure and the challenges of keeping the complex running. **Page 29**

SECURITY MANAGER'S JOURNAL
FTP Server Offers Key to the Store
Incidents involving compromised servers at Mathias Thurman's company show why it's important to have security guidelines for both external- and internal-facing servers. **Page 34**

OPINION
Getting Out the Crystal Ball
The future of IT includes a revival of interest in the network computer and Java, says columnist Nicholas Petreley. **Page 38**



BRAD YEO

Balancing The IT Portfolio

IT portfolio management tools apply metrics that help analyze and prioritize IT projects, but the products are still evolving. **By Thomas Hoffman**

AS IT MANAGERS struggle to do more with less, the notion of managing an organization's IT assets like a financial portfolio — using a Buy, Hold and Sell approach — has caught fire over the past 18 months. "We want to look at our IT expenditures more from a strategic business-value basis than from a technical cost basis," says Carl Ascenzo, senior vice president and CIO at Blue Cross and Blue Shield of Massachusetts Inc. in Boston.

Many new IT portfolio management tools have emerged. Although a handful of these packages are sophisticated enough for IT managers to analyze all of the IT investment opportunities within an organization, many lack maturity and features, acting as little more than project management packages on steroids.

"Some tools just aren't very broad or very deep," says Marnie Ross, a Meta Group Inc. analyst in Vancouver, British Columbia.

Ross and other analysts typically break the IT portfolio management tools market into three categories: project management tools, which provide rudimentary portfolio analysis capabilities; complex tools that are adept at calculating what-if scenarios for IT investments; and enterprise software tools from vendors such as PeopleSoft Inc. and Oracle Corp. that are starting to make a foray into the market.

Project management portfolio packages, such as the one from ProSight Inc. in Portland, Ore., primarily focus on managing individual projects or a panoply of projects from start to finish. Although most of these packages integrate well with Microsoft Project, they typically provide limited portfolio management and analysis capabilities. "There is a tendency [among vendors] to either bundle or provide supplemental services with these packages," says Ascenzo.

More sophisticated analytical tools are offered by vendors such as New York-based United Management Technologies Corp. (UMT) and Ann Arbor, Mich.-based Program Planning Professionals Inc., also known as Pcubed. UMT and Pcubed each combine services and software aimed at "figuring out what your processes are and managing your portfolio" by providing actionable measurements of variables such as cost, risk and resources to help IT organizations maximize their IT investments, says Margo Visitacion, a Giga Information Group Inc. analyst based in Norwalk, Conn.

While the niche vendors focus on project management and IT portfolio management capabilities, enterprise software vendors such as PeopleSoft, Oracle and

Analyzing the Tools

Robin Bloor, analyst at Hurwitz Group, offers the following assessment of IT portfolio management tools:

Computer Associates International Inc. Islandia, N.Y. www.cai.com	Pacific Edge Software Inc. Bellevue, Wash. www.pacificedge.com	ProSight Inc. Portland, Ore. www.prosight.com	Business Engine Corp. San Francisco www.businessengine.com	United Management Technologies Corp. New York www.umt.com
PRODUCT PortfolioCenter	The Edge for IT	ProSight Portfolios	Business Engine Network	StatFramework Software Suite
PROS Strong integration with Microsoft Project client. Excellent user interface. Good time tracking and reporting and graph-generation capabilities.	Strong in cost estimating, portfolio analysis, scenario planning and resource allocation. Good reporting capabilities with Microsoft Project. Includes its own project and resource management tools.	Interoperates with other products such as Business Engine and its professional services automation capabilities.	Strongest in professional services automation. Relies heavily on Microsoft Project for project management functions. Offers good support for the IT budgeting process across multiple currencies.	Strong in IT portfolio analysis and program management areas. UMT is moving into portfolio management. StatFrames can identify internal processes.
CONS The standard product doesn't support calculation fields, making it tough to estimate overall resource requirements, such as the people, time and money needed for a project. An optional module adds this function.	Weak in terms of mapping internal workflow processes with the software. But the product allows an organization to modify its work processes as they mature with its internal IT portfolio management methodologies.	ProSight is more of a portfolio analysis tool than a portfolio management tool. "There's no magic to that," says Ross.	Could do a better job with opportunity management, particularly in the area of time and resource management.	Lacks asset management capabilities.

Computer Associates International Inc. are beginning to make inroads in the IT portfolio management space.

PeopleSoft introduced Project Portfolio management capabilities under its Enterprise Services Automation package in December. It lets customers evaluate the performance of a project against corporate objectives, says Chris Leone, a vice president of product strategy at the Pleasanton, Calif.-based company. PeopleSoft's IT portfolio management system is more advanced than those of Oracle and CA. And Visitacion expects future releases of PeopleSoft's offering to be more sophisticated than Pacific Edge Software Inc.'s package but not quite as robust as UMT's tools in terms of features.

"The challenge with these tools is drawing a line between project management and portfolio management," says Ian Campbell, president of Nucleus Research Inc. in Wellesley, Mass. At the very least, some of the less sophisticated tools bring structure to the IT portfolio management process, says Campbell. But they're "just a step above project management tools and lack the ability to do what-if scenarios," he says.

Most IT portfolio management tools are priced on a per-seat basis, with a typical license starting at $50,000 and running to several hundred thousand dollars, depending on the number of users, the configuration and the amount of customization required. UMT prices its software based on the number of business departments being supported, typically starting at $75,000, says President Mike Gruia. PeopleSoft offers a "value-based" pricing model that's based in part on the customer company's revenue level, says Leone.

Getting Started

For companies just beginning to build an IT portfolio management program and create a methodology for tracking and analyzing their technology investments, vendors such as Pacific Edge in Bellevue, Wash., and Business Engine Corp. in San Francisco are good starting points in terms of portfolio analysis and professional services automation capabilities, say analysts.

Pacific Edge's product — The Edge for IT — consolidates projects that are tracked using Microsoft Project, "and that's where the strength is," says Scott Marean, assistant vice president of program management services at First Penn-Pacific Life Insurance Co. in Schaumburg, Ill.

UMT's software uses a set of algorithms that help IT managers optimize their resources. So if an IT organization has $300 million worth of potential projects to pursue and only $50 million to work with, the user can input the organization's business objectives into the software, which helps prioritize them by applying algorithms to determine which investments will yield the greatest returns.

The software also finds mismatches in IT staffing resources — such as having too many legacy system programmers — to help optimize supply and demand between staff and projects, says Mike Gruia, president of UMT.

Like UMT, ProSight also makes use of algorithms to run scoring models based on financial calculations such as economic value added and net present value, says John Cimral, the company's CEO. ProSight's scoring models factor in, among other things, the number of users, the performance characteristics of a system and the hardware and software standardization issues, he adds.

Limitations and Advances

One of the shortcomings of most IT portfolio management tools is their inability to "focus on the life cycle of an asset," determine the financial value of a software package or piece of hardware and indicate whether or when it makes sense to retire that technology, according to Meta Group's Ross. At least one vendor, PeopleSoft, is discussing the kinds of asset management capabilities sought by its customers for a future release, says Leone.

Some IT portfolio management vendors are also working on creating "executive dashboard" modules that let CEOs, chief financial officers and other senior managers view the results of their IT spending decisions in real time and evaluate their IT investment options. UMT expects to have a fully integrated dashboard available to customers by midyear, says Gruia.

Pcubed currently offers a portfolio dashboard that uses decision-tree structures and business intelligence to provide business analytics around an organization's portfolio information, says CEO Adrian Balfour.

Vendors still need to fill gaps in their IT portfolio management products. For example, many systems lack the ability to assess risks — a critical component in evaluating IT investments. "I don't think any of the tools do a great job of leading users to evaluate and measure risk," says Ross.

THE OUTSOURCING OPTION

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QuickLink 35735
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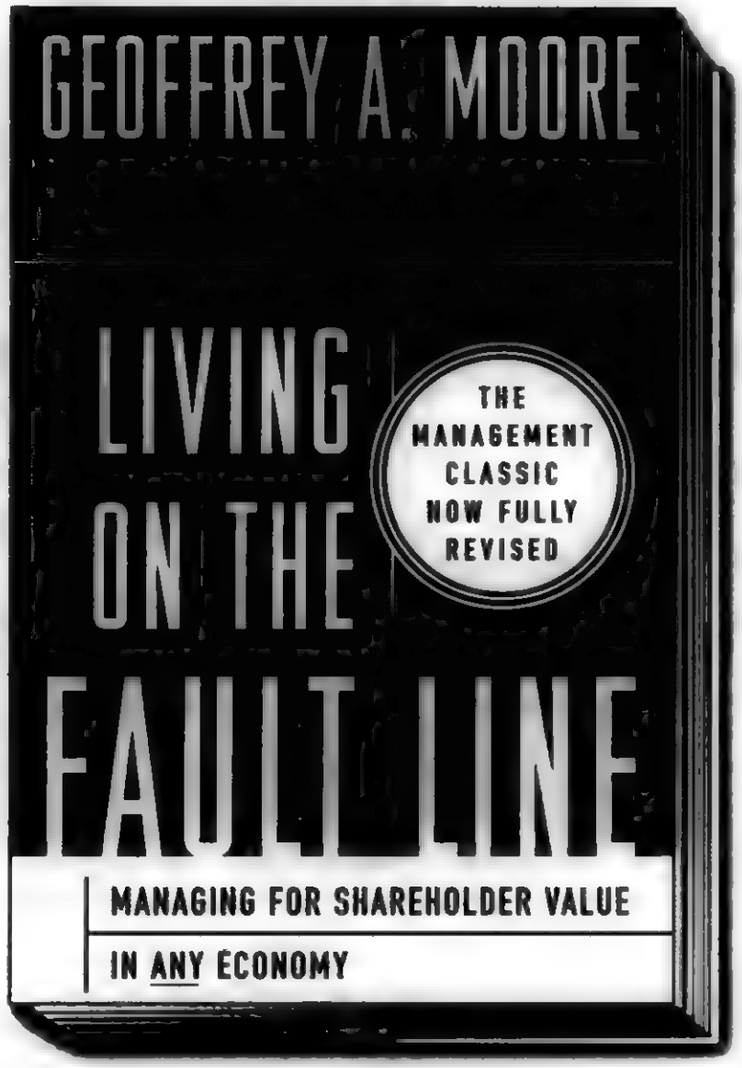

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IT for the Autobahn

Autostadt GmbH is Volkswagen AG's information and entertainment park in Wolfsburg, Germany, which opened in 2000. It includes an automotive museum, an entertainment complex and a place for customers to pick up automobiles custom-ordered online. As chief technology officer, **CLAUS HOHMANN** *is responsible for the research and development of new technologies. Hohmann spoke with* Computerworld's *Linda Rosencrance about the Autostadt's IT infrastructure and the unique challenges of running the facility.*

What IT challenges did you face in bringing Autostadt online? The IS/IT department was established 11 months before Autostadt opened. We came on board on this project as the last team, [but] we finished a complete IT infrastructure and all the basic systems for car delivery.

Because we are unique, we have to develop our own systems. That means we combine legacy systems of the Volkswagen Group worldwide because we are delivering here Volkswagen products that are produced all over the world.

The main challenge was to provide for a system which integrated both worlds: The VW systems, which are used to move up to 5 million cars per year, communicate with the Autostadt so that the entire delivery process functions with 99.99% reliability. The Autostadt is open 364 days per year, and the systems must be available for a minimum of 12 hours per day.

What core systems did you choose? The Sales and Disposition of New Cars and the New Car Transport systems are based on IBM System/390, DB2 database and . . . Cobol. The online interfaces use the IBM transaction monitor MQSeries and BEA transaction monitor Tuxedo.

Due to the location and system complexity, maintenance can only be carried out during night hours. Furthermore, there is also the need to guarantee 100% data transaction reliability and accessibility. This level of guarantee is provided through the Tuxedo system.

What other unique business needs do you have to meet? Our IT infrastructure allows us to deliver daily, seven days a week, 600 cars a day to our customers. Every delivery is an event-oriented activity, and we run special events throughout the Autostadt. These attractions are all digitized.

What do you mean by "digitized"? The exhibits and attractions in the Autostadt have a show control and run fully automated. Our major project in this field was the development of a totally new . . . online monitoring system, using Crestron [Electronics Inc.] technology, where it is possible for us to check the status of each exhibit every second . . . right down to what film is running and which light bulb is on, off or defective.

"Our IT infrastructure allows us to deliver daily, seven days a week, 600 cars a day to our customers.

CLAUS HOHMANN, CTO, VOLKSWAGEN AUTOSTADT

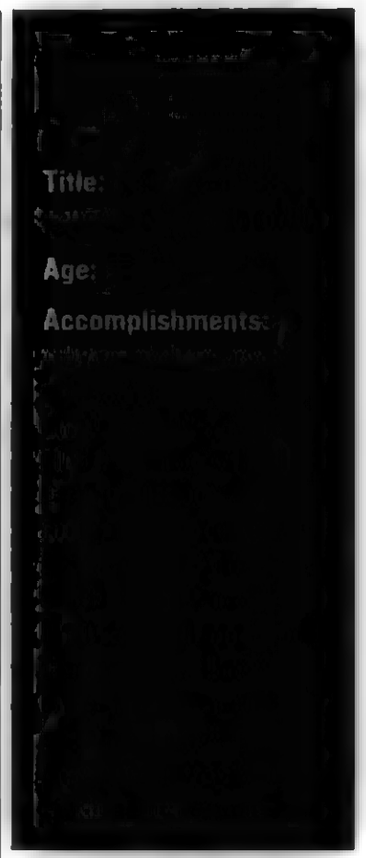
What innovative IT projects are in the works? We are running via wireless LAN all our outdoor areas and . . . our delivery center. Our staff outdoors in the theme park, as well as in the car delivery process and in the guest processes, use handhelds with wireless LANs. And we are implementing a Bluetooth system for our tour guides . . . to support them with little handheld devices that will give them the data and other facts they have to build into their stories.

This project with Pocket PCs and Bluetooth is the start of providing our employees with information about the exhibits and displays while mobile and on the job. Integrated into the system is a basic localization process [via infrared] so that it is possible to both go straight to the information based on the exhibit that they are standing next to and navigate to the information for other exhibits. Vignette has been used as a basis to provide the front end and database connectivity for the system.

What other infrastructure projects are planned? We want to utilize the full scheme of voice over IP in our customer care center with 40 [workstations]. VOIP integrates all communication mediums within the Autostadt — voice, e-mail, fax and voice recorder, [which is] located on the PC. In the HiPath Contact Center from Siemens, [which allows] classic PBX connections and voice over IP, all of these inputs are brought together to improve the performance of the call center agents.

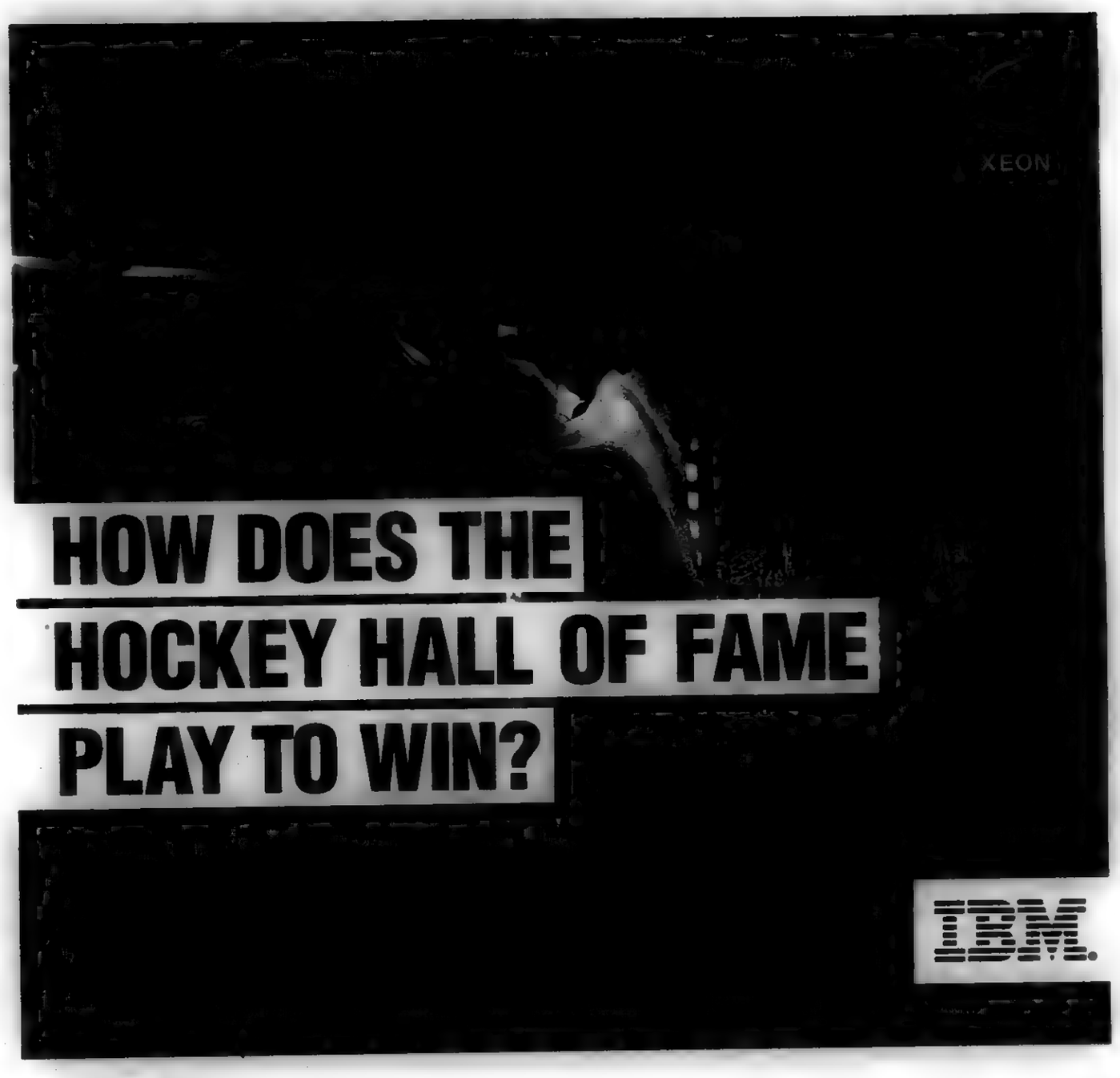
[We are also working on] a new Autostadt Internet approach, based on a content management system [from] Vignette. We use Vignette not only for the pure HTML pages, but also for flash pages and WAP [Wireless Application Protocol]. The WAP presentation of Autostadt will be changed to a UMTS [Universal Mobile Telecommunications System] presentation in the coming months.

Our content team writes the articles, inclusive of pictures, film content, etc., directly in the editorial system, which is also Vignette-based. After release by the chief editor, the articles are launched automatically to our Internet presence. The Autostadt provides an InfoSite, where current standards of HTML are supported, and a Autosphere site, where leading-edge and future possibilities of the Autostadt presence shall be shown. This future virtual world is also based on Vignette.



You haven't mentioned that device sitting next to you [see photo]. Where does that fit? The POIs [point of information terminals] are a live interface between visitors and the Autostadt. Here, visitors gain access to various topics of information, both written and visual in nature. The challenge was to design a GUI that was understandable by many different nationalities. The POI needed therefore to be an interactive multimedia terminal. The computer is an industrial PC with a touch screen running on Linux with a special Web browser from Munich-based Jentro AG. We use Vignette for generating the POI Internet site. The special presentation for the POI is sent from the same servers as the normal Internet presentation.

The special feature of the POI is its kinetics. The display body rotates horizontally and moves vertically if no user stands next to the POI. This is a form of self-marketing. If the user comes, the display body is adjusted horizontally and vertically by an ultrasound sensor. We have 30 indoor and nine outdoor POIs. The glass POI was developed to show the visitor just how complex this system is.



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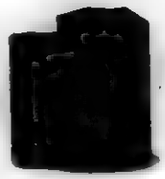

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Data Scrubbing

MELINDA BECK

> DEFINITION
>
> **Data scrubbing** is the process of fixing or eliminating individual pieces of data that are incorrect, incomplete or duplicated before the data is passed to a data warehouse or another application.

BY TOMMY PETERSON

THE NEED TO SCRUB DATA is made pretty clear by simple questions like this one: Are Jerry L. Jonson of 16 Clarke St., Altuna, PA, and Gerry L. Johnson of 16 Clark Street, Altoona, Penn., the same person? You would probably say that most likely they are. But a computer, without help from specialized software, would deal with the information as though it were about two different guys.

The human eye and mind recognize that the differences between the two sets of data records are probably the result of mistakes or inconsistencies in data entry. Weeding out and fixing or discarding inconsistent, incorrect or incomplete data is what's called data scrubbing or cleansing.

"Dirty data" has been a problem for as long as there have been computers — or maybe for as long as people have attempted to gather and analyze information. It's a large part of the "garbage in" that can result in the worthless "garbage out" of a computing process.

The issue of data hygiene has become increasingly important as more and more corporations implement complex customer relationship management (CRM) systems and build data warehouses that merge information from many different sources.

Without data cleansing, the IT staffs of those companies face the unappetizing prospect of merging corrupt or incomplete bits of data from multiple databases. A single piece of dirty data might seem like a trivial problem, but if you multiply that "trivial" problem by thousands or millions of pieces of erroneous, duplicated or inconsistent data, it becomes a prescription for chaos.

Sources of Dirty Data

In its 2001 report about organizations implementing data warehouses for the purpose of business intelligence, Cutter Consortium identified the following causes of dirty data:

- Poor data entry, which includes misspellings, typos and transpositions, and variations in spelling or naming.
- Data missing from database fields.
- Lack of companywide or industrywide data coding standards (a big problem in health care, for example).
- Multiple databases scattered throughout different departments or organizations, with the data in each structured according to the idiosyncratic rules of that particular database.
- Older systems that contain poorly documented or obsolete data.

As the list suggests, data scrubbing is aimed at more than eliminating errors and redundancy. The goal is also to bring consistency to various data sets that may have been created with different, incompatible business rules. Without data scrubbing, those sets of data aren't very useful when they're merged into a warehouse that's supposed to feed business intelligence across an organization.

In the early days of computing, most data scrubbing was done by hand. And when performed by bleary-eyed humans, the laborious task of finding and then fixing or eliminating incorrect, incomplete or duplicated records was costly — and it often led to the introduction of new errors.

Now, specialized software tools use sophisticated algorithms to parse, standardize, correct, match and consolidate data. Their functions range from simple cleansing and enhancement of single sets of data to matching, correcting and consolidating database entries from different databases and file systems.

Most of these tools are able to reference comprehensive data sets and use them to correct and enhance data. For example, customer data for a CRM application could be referenced and matched to additional customer information, such as household income and other demographic information.

Many Options

Companies that want to use specialized data cleansing tools can get them from several sources. Building the tools in-house was the most common choice among companies studied by Arlington, Mass.-based Cutter Consortium; of the surveyed companies that said they were using such tools, 31% said they were building them in-house (see box).

But companies that choose to buy data cleansing software have plenty of options. Oracle Corp., Ascential Software Corp. in Westboro, Mass., and Group 1 Software Inc. in Lanham, Md., led other vendors in the Cutter survey, with 8% of the market each. Other vendors, including PeopleSoft Inc. in Pleasanton, Calif., SAS Institute Inc. in Cary, N.C., and Informatica Corp. in Redwood City, Calif., were bunched a few percentage points behind. The major data warehouse and business-intelligence vendors also include data scrubbing functionality in their products.

Vendors such as Acxiom Corp. in Little Rock, Ark., and Sagent Technology Inc. in Mountain View, Calif., offer online data cleansing and enhancement services. These services provide data cleansing as well as supplemental information on a record-by-record basis in near real time over the Internet.

Although data hygiene is essential to getting useful results from any application, it shouldn't be confused with data quality, according to business-intelligence analysts. But data quality doesn't really refer to whether data is clean or dirty — it's a matter of whether the data is good (valid) or bad (invalid). Validity is a measure of relevance of the data to the process or analysis at hand. The measure of that validity changes with the context in which the data is used.

Ideally, data that has been scrubbed is error-free and consistent, and some data cleaning software even checks for the usefulness of the data it's processing. Data scrubbing is an essential chore for any IT operation, but it's only a starting point.

BY THE NUMBERS

Data Cleansing

- Data cleansing accounts for up to 70% of the cost and effort of implementing most data warehouse projects, according to analysts.
- In 2001, The Data Warehousing Institute estimated that dirty data costs U.S. businesses $600 billion per year.
- Data cleanliness and quality were the No. 2 problem – right behind budget cuts – cited in a 2002 IDC survey of 1,648 companies implementing business analytics software enterprisewide.
- Just 22% of 180 companies surveyed by Cutter Consortium on their data warehousing and business-intelligence practices use specialized data cleansing tools.
- Of those companies in the Cutter Consortium study using specialized data scrubbing software, 31% are using tools that were built in-house.

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Intel Looks to Software

Parallel-processing prognostications. By Gary H. Anthes

COMPUTER HARDWARE GIANT Intel Corp. is also one of the largest software developers in the world, employing more than 6,000 software professionals. In December, the company formed a new position — that of Intel senior fellow — at the top of its research hierarchy and appointed four people to the role, including **Justin R. Rattner**, director of microprocessor research, and **Richard Wirt**, general manager of software and solutions.

Recently, Rattner and Wirt told *Computerworld* what's coming in the software realm.

What's new in compilers?

WIRT: We see activity in traditional compilers that adapt programming languages better for multithreading and hyperthreading. OpenMP, an initiative to adapt programming languages to handle threading, is a good example. [See glossary at right.]

RATTNER: Today's instruction sets were really designed for static compilers, so the trade-offs they make are in favor of static compilers. When we move to dynamic compilers [like Java and .Net], we can continue to optimize even while the program is executing. The optimizing compiler is querying the hardware on a periodic basis and saying, "How's the program running?"

But such performance monitors aren't now.

RATTNER: Today, performance monitors are really designed for debugging, and they are inaccessible to the compiler. What we are definitely looking at in the future is program-visible instrumentation so the compiler has access to [runtime conditions]. This is on the fly; this is the compiler in the loop. This is where our heads are at.

Will we see more parallel processing of various types?

WIRT: We went through getting computers to parallelize the instructions on a single [processor]. Intel pushed that to get about as much as we can get, so now we are beginning to go threaded on single [processors]. Then you'll see us take multiple [threaded processors] and put them on a motherboard.

FUTURE WATCH

As we add more transistors, then, instead of multiple [processors] on the motherboard, we'll put them on the die, on the chip itself. We refer to that as dual-core. Then you want to string these things together in big clusters. Each node gets more powerful as driven by Moore's Law, but we will string more and more of these together to form a supercomputer.

How will you get more parallelism out of existing applications?

RATTNER: We've discovered you can create "helper threads" when certain situations arise. A set of helper threads created by the compiler can run ahead of the main thread in order to bring normally missing data into the cache ahead of the time the main thread will need it.

We now have an experimental version of our production compiler that will automatically generate helper threads.

How much help will the helper threads be?

RATTNER: We are finding all kinds of clever ways to use them. We've seen two- to four-times improvements on some applications. On average, we'd expect to see 1.3 to 1.6, and some programs will do amazingly well.

Over the years, many of the promises of parallel processing have been dashed because the software is so difficult to develop.

WIRT: The problem was, people expected the compiler to do it for them, and there was a lot of research there. Then they came to the conclusion that you still needed programmers' help, and that's why they invented OpenMP with those "pragmas," or hints that the programmer puts in the application so the compiler could parallelize [the code].

So as you go across nodes, with MPI [the Message Passing Interface protocol], you break the code into functional blocks, one function on one node. The programmer does that. But now it's at a higher level of abstraction that the programmer can understand.

That's geared for scientific computing. How about commercial applications?

WIRT: The same thing's going on — breaking up the application into functions and having them talk to each other. Web services is a good example. Think of SOAP doing for the business world what MPI does for the technical world — having objects talk to each other in order to give you scalability across a cluster or distributed network.

Where is this headed, and what's needed to get there?

WIRT: Typically, there are tens of objects working together in a business app, but in the technical world, people are building clusters with 10,000 nodes. What's needed are debugging and performance-tuning tools, and tools that allow you to look at all those nodes that are cooperating. ●

Parallel-Processing Parlance

1. **OpenMP (multiprocessing).** A specification for a set of compiler directives and library routines that can be used to specify shared-memory parallelism in Fortran and C/C++ programs.

2. **Message Passing Interface (MPI).** A standard that facilitates the development of parallel applications. It defines the syntax and semantics for library routines for portable message-passing programs in Fortran or C/C++.

3. **Hyperthreading.** Intel's way to make a single physical processor appear to the operating system or multithreaded user program as two logical processors.

4. **Pragma.** A way for the programmer to tell the compiler to do something "pragmatic" at the point in the program where the pragma appears. It might say to use a certain library or generate a certain kind of code for parallel processing.

5. **Helper threads.** Small strings of instructions that help the main application thread perform better. Generated by the compiler, they run ahead of the main thread and can, for example, bring data into the cache in advance so it's available when needed.

FTP Server Offers Key to the Store

Sloppy practices leave critical user IDs and passwords available for public download.

By Mathias Thurman

THIS WEEK I was sidetracked from my projects yet again by the need to investigate two security incidents. Both involved deleted files on servers that apparently had been compromised.

The first incident was more of a server configuration issue than a traditional security incident, but it still warranted my attention. It started when a customer sent a message addressed to our abuse e-mail alias saying that he noticed several suspicious files on our public file transfer protocol (FTP) server. So I logged into the server as an anonymous user, and sure enough, several directories had been created and populated with 4GB of unauthorized MP3 music files.

SECURITY MANAGER'S JOURNAL

Even more alarming, I found a file named Commands that contained account names and associated passwords for support Web sites we use and for accessing internal servers in my company.

The special accounts that give us access to technical support Web sites require user IDs and passwords for access. We pay tens of thousands of dollars per year for some of those accounts. It turns out that our product support group put the file there as a repository for what it considered shared, nonsensitive information. Later, it apparently became a repository for all sorts of information.

Unfortunately, we can't just make the anonymous FTP server go away. It's a valuable customer service, and our technical support team uses it extensively to offer patches and other support programs to our users. Our customers also use it to upload event logs and dump files for review by our technical support team. There are other methods for offering this type of service, but the anonymous FTP server has been the most effective and has been accepted by our staff and customers. So it's here to stay. But if it isn't configured properly, an anonymous FTP server can be easily abused and become a catalyst for legal, performance and security issues.

The MP3 files are one such legal issue, since they probably violate copyright laws and an investigation could embarrass our company. Performance would also suffer if the FTP server was saturated with such files, or if too many users accessed the system simultaneously to try to download the files. And we don't want third parties logging into our servers or support services.

Our FTP server had been configured to let anonymous users create their own directories, with no limits on the size of uploaded files. Simple upload quotas and directory permissions would have prevented this incident from happening. I'm going to add guidelines for configuring the anonymous FTP server to our already published secure baseline procedures.

> **I found a file named Commands that contained account names and associated passwords for support Web sites we use and for accessing internal servers.**

Certifiably Hackable

The second incident involved malicious activity against a server in our certification lab. A systems engineer noticed that one of his source-code repository servers wasn't responding when he tried to access it using the Secure Shell program. To gain administrative access to the server, he had to use the server console. Then he noticed that several key directories had been deleted, which accounted for his initial inability to access the server. He then started poking around at the log files.

I'm sure that this engineer wanted to determine the extent of damage and identify the individual responsible. But there are problems in doing what he did. First, the incident occurred about a month ago, and the engineer is just now reporting it. Second, by accessing files and writing to various log files on the system, he made it difficult to distinguish between legitimate activity and hacker activity. In this case, it wouldn't have mattered, though, because the hacker deleted almost every log file on the system.

As a result of this incident, we will now use a secure baseline to ensure that all of our systems, even in labs, are configured securely. We will also temporarily configure an intrusion-detection system sensor to watch the traffic on the lab network segment. Perhaps the hacker will try to gain access again. I will also suggest that all logs be redirected to a central, secure server.

The problem with security incidents in a large, worldwide enterprise is that individuals don't know how to respond when they encounter hacker-like activity. They need to understand that certain actions must be taken immediately in the event of a suspected security breach that involves unauthorized server access. In some cases, for instance, the administrator should create a mirror image of the victimized system right away. That way, the evidence is preserved before the administrator makes the changes required to bring the system back online.

For example, the shell history file, which contains a record of keystrokes issued by the user, typically contains incriminating evidence of hacker activity. If the administrator has changed the system since the incident, it's difficult for the investigator to tell which activity can be attributed to the intruder.

To address this problem, I've decided to put together an incident reporting program. The first part of the project will involve creating documents to assist both Unix and Windows NT administrators in evaluating their systems when they suspect that there has been a compromise. I will also provide awareness-training documents focused on incident response.

Finally, I will ask the database team to create a database and an associated Web-based front end to facilitate the submission of incident reports. The results can then be e-mailed to my team, and we can take appropriate action.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum:

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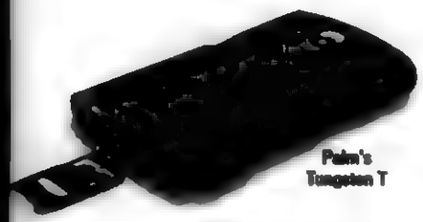
Palm's Tungsten T

Palm Slashes Pricing to Match the Competition

Palm Inc.'s Solutions Group cut prices on three of its most popular handheld computers last week.

Palm slashed prices on its flagship Tungsten T handheld by 20% to $399. The company also dropped the suggested selling price of its Palm m130 handheld to $199 and cut the price of the m515 by 14% to $299.

Sam Bhavnani, an analyst at ARS Inc. in La Jolla, Calif., said the price cuts are "normal and cyclical" adjustments as Milpitas, Calif.-based Palm readies the introduction of new models, which he anticipates will occur within a week.

The new pricing also brings Palm's products more in line with low-priced hardware running the Pocket PC operating system from Microsoft Corp., Bhavnani said.

Hewlett-Packard Co. has slashed prices on its Pocket PCs, which sold for more than $700 a year ago. HP now offers an entry-level model priced at $299. Dell Computer Corp. sells a Pocket PC device for $249 — up from its introductory price in November of $199, after a $50 rebate.

But according to Bhavnani, there is no comparison between the Pocket PC Tungsten T and the Dell Pocket PC. The Tungsten T, he noted, is a sleek, lightweight system with built-in Bluetooth wireless capabilities, whereas the Dell Pocket PC is bulkier with no built-in wireless functionality.

— Bob Brewin

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BMC Upgrades Server Management Software

BMC Software Inc. in Houston today is announcing new server management capabilities for Windows and Unix servers. The Patrol for Windows Servers 3.0 release and Patrol for Unix 9.0 each will sell for $815 per license and are generally available now. The upgraded products feature event notification to administrators through paging and e-mail. Other new features include improved workflow and preconfigured settings for quicker installation, said BMC.

Proxim Announces New WLAN Architecture

Proxim Corp. in Sunnyvale, Calif., recently announced a wireless LAN architecture that's intended to simplify corporate WLAN deployments and centralize the intelligence of the network. Maestro, which will be available later this year, will allow large and midsize businesses to integrate, configure and centrally manage their WLAN infrastructures simultaneously while supporting mobile voice, video and data applications. Maestro will provide policy-based wireless network administration and support the company's Orinoco line of access points. Pricing information isn't yet available.

IBM, AOL to Integrate Instant Messaging Clients

IBM and America Online Inc. announced last week that they plan to integrate their respective Lotus Sametime and AIM Enterprise Gateway instant messaging clients. The gateway device, which FaceTime Communications Inc. in Foster City, Calif., is building, won't allow external AOL users to detect or communicate with Sametime users, but it will allow Sametime users to access the public AOL network via a single log-in. Both companies said they plan to continue testing the interfaces during the next few months.

NetSupport Updates Desktop Management App

NetSupport Inc. has released Version 8.0 of its NetSupport Manager (NSM) remote-control desktop management software, which is designed to let IT employees troubleshoot and fix users' PCs from remote locations. NSM 8.0 includes the new Internet Gateway feature, which allows for seamless HTTP connections between PCs even if they're behind different firewalls, according to Alpharetta, Ga.-based NetSupport. Per-license pricing starts at $89 for one user and decreases as the number of licenses ordered increases.

App to Convert OS/400 Output to Other Formats

Help/Systems Inc. recently announced the release of its Robot/Transform product, which is intended to convert OS/400 output with embedded graphics into commonly used formats such as Portable Document Format (PDF). The product will allow the conversion of ASCII-based spool files containing Printer Control Language and Advanced Function Presentation attributes into PDF files natively on IBM iSeries servers, according to the Minnetonka, Minn.-based company. Robot/Transform will be available in mid-April; pricing is available upon request.

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BRIEFS

Survey Cites Data Warehouse Failures

Forty-one percent of the respondents to a recent survey said their organizations have experienced data warehouse project failures, and only 15% said they believe their data warehousing efforts have been successful. Of the 142 companies worldwide surveyed by Cutter Consortium in Arlington, Mass., only 27% expressed confidence in data warehouse technologies, and 21% said they're using data mining technologies they developed in-house.

CA Introduces Unicenter Upgrades

Computer Associates International Inc. is shipping new versions of its Unicenter Database Management software for IBM's DB2 database products on the z/OS and OS/390 mainframe systems. The new versions include increased integration and proactive management capabilities, CA said. Pricing starts at $5,000.

Hahn Releases v7.1 Of Commerce Suite

Hahn Commerce Inc. in Raleigh, N.C., has shipped Version 7.1 of its Commerce Suite. The new release has demand chain management options for manufacturers of chemicals, consumer products and industrial hard goods such as plumbing products. Prices range from $75,000 to $250,000.

Ipswitch Enters Enterprise IM Fray

Ipswitch Inc. is joining the instant messaging (IM) wars with its Ipswitch Instant Messenger. Designed for corporate use, the new product will cost $695 for an unlimited number of users and will offer secure managed IM capabilities with full message logging and encryption. Lexington, Mass.-based Ipswitch said the system will include personal contact lists and other familiar IM features.

NICHOLAS PETRELEY

Getting Out the Crystal Ball

EVERY YEAR after the dust of the holidays settles, I like to wipe off the old crystal ball and take a peek into the future of IT. Before I get started with this set of predictions, allow me to boast a moment about my record. My predictions may not pan out as quickly as I expect, but they usually come to pass.

I began talking about Linux in 1995. In 1996, I was one of the few to predict that it would become a mainstream server operating system. In 1997, I predicted that it would supplant Windows NT as the future server platform of choice when others were still saying it had a snowball's chance in hell. When Oracle gave a thumbs up to Linux in mid-1998, IBM still insisted that it had no intention of supporting the platform. Nearly five years later, IBM adores Linux, now the fastest-growing server platform. Score a big one for the Petreleymeister.

Network Computing Inevitable

This year's first prediction isn't a new one, but an extension of a previous prognostication that hasn't yet been fulfilled. As unlikely as I'm sure it seems, I predict that the era of network computing is still inevitable.

Granted, it seems very unlikely. I'd love to say that the death of the network computer has been greatly exaggerated, but it hasn't. It's difficult to find anyone discussing the concept of a network computer, let alone locate someone actually using one. Strictly speaking, every X Terminal qualifies as a network computer, but you won't find many of the cheap, Java-based desktops that Oracle, IBM and Sun had hoped would flourish.

Nevertheless, I predict that the Java-based network computer will rise again — and perhaps fall again. But it will eventually be a smashing success.

Java on the Client

My next prediction is a prerequisite of the last one and one of the reasons I still feel bullish on the network computer: The next two years will see a huge revival of interest in Java on the client. This will catch many people by surprise, especially after client-side Java was soundly trashed by embarrassing failures like Java-based WordPerfect Office.

One indication that Java will enjoy success on the client is that the platform neutrality of Java has improved dramatically over the past few years.

Java's performance has improved, too, but not so much that feature-laden Java programs run as fast as equivalent applications written in C. That performance penalty isn't bad news, though, at least for companies desperate to find a good reason to convince you of the need to upgrade your overpowered desktop PC.

But the most compelling sign that Java is headed for the client is that there are now a handful of extremely powerful open-source development environments written for Java and written in Java. There's NetBeans, Sun ONE Studio (based on NetBeans), Eclipse, jEdit and more. The only reason open-source development tools exist for any language is to scratch an itch. The fact that so many excellent tools now exist for Java and are written in it should tell you that there are a lot of itchy Java developers out there with loads of talent for writing client applications.

Sun is probably the only factor that could thwart this prophecy. Often, the company is as much of an impediment to Java's progress as it is responsible for that progress. The success of Linux was easy to predict because the momentum of Linux and open source doesn't depend upon any single provider. That's why the rate at which government agencies, power utilities, retail chains and high-profile companies are migrating to Linux continues to increase, even as Linux distributors drop like flies. But if Sun folded tomorrow, confidence in Java would suffer. The result would probably be fatal unless a company like IBM snatched up Java immediately.

Microsoft Targets Home Media

My last prediction is that Microsoft will temporarily give up on winning the server market and refocus its attention on undermining and destroying competition for the home media center. Along the way, Microsoft will change product names and technology terms at least twice. "Windows .Net Server" is already history, as is "Palladium." It's a long shot, but thanks to Slammer, we might even see a new name for SQL Server.

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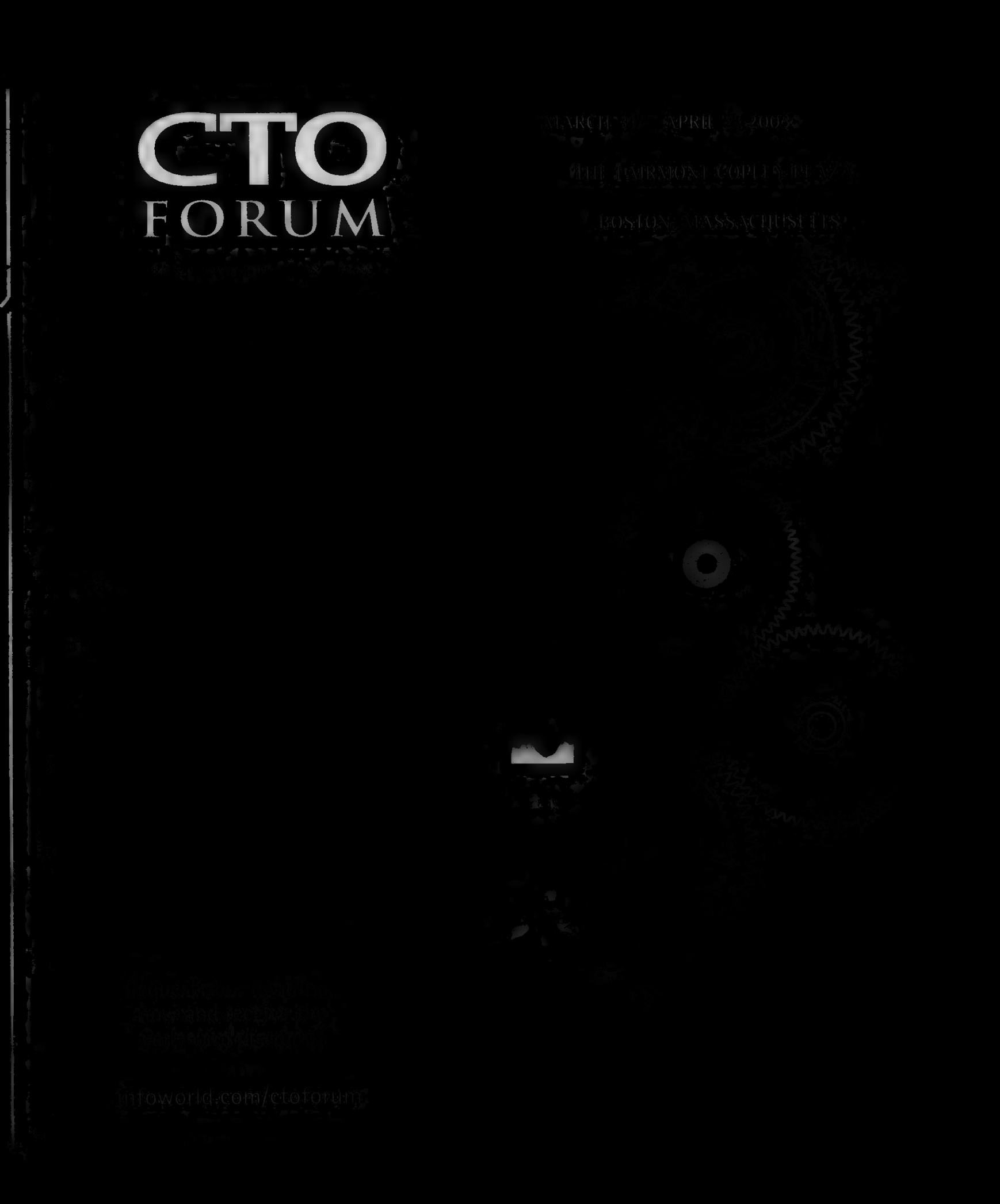

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What CIOs Need From IT Suppliers: A Baker's Dozen
Deciding which suppliers to retain is a complex decision. Columnist Bart Perkins offers CIOs a checklist they can use to help them decide which suppliers should be on their A-lists. **Page 48**

QuickScan: Training
United Stationers CIO Ergin Uskup relies on employee feedback to evaluate training options. Here's a look at some of the hottest IT certifications for this year. **Page 47**

QUOTE OF THE WEEK

"I'm a fan of leverage, and I think partnerships with world-class providers at the infrastructure level, at the application level and at the services layer all make a ton of sense. They'll certainly be the blades in my Swiss Army Knife going forward."
– John McKinley, CTO at Merrill Lynch. Page 48

Play SQUEEZE

CIOs scratch for yet more ways to hold down IT spending. By Thomas Hoffman

Having spent the past two years paring back staff, consolidating servers and storage equipment, renegotiating vendor contracts and conducting selective outsourcing, CIOs are struggling to find new ways to reduce costs without cutting into the muscle of their IT operations.

"We've done all those things, and yet management still wants us to cut costs further," says a CIO at a Midwestern bank who requested anonymity. "I just don't know where else to cut."

In their quest to come up with even more ways to keep a lid on costs, dauntless IT leaders are exploring everything from barter agreements with vendors to reselling services and joining purchasing consortiums for volume price discounts on equipment.

Take Wyndham International Inc.'s chief technology officer, Mark Hedley. Like many IT executives, Hedley has taken advantage of the cutthroat competition that the economy has stirred up in the telecommunications sector and has reworked the hospitality firm's private branch exchange, data and voice networking agreements, thus paring $850,000 from the Dallas-based company's annual telecom budget.

Now Hedley is considering shifting Wyndham's private frame relay to the public Internet as a way to further reduce data communications costs by as much as 50% annually. But he must weigh the potential money-saving benefits of doing so against the security, stability and reliability issues involved with moving to a public network infrastructure.

He and his team are also evaluating a number of even more novel ways to cut IT costs. Among them is the possibility of offering hardware vendors hotel rooms in return for computer equipment.

"Trading the value of a guest room for the value of equipment is very doable for us," says Hedley. Last summer, Hedley and his team began evaluating which IT projects might be a good fit for these types of barter arrangements, but he declined to discuss them further. And while he also declined to name

Continued on page 42

Play SQUEEZE

Continued from page 41

the vendors he has discussed this option with, Hedley says the potential for establishing such deals is "very real."

Shared Savings

Many organizations have centralized their IT operations to help rein in costs over the past few years. But some global firms, such as Madison, N.J.-based Wyeth, a $14.6 billion pharmaceutical company, have taken centralization a step further and shifted to a shared-services model in regions where they've determined that it's efficient and cost-effective.

As a holding company with various businesses, "IT was decentralized, and there was no need to standardize or have a shared-services function," says CIO Bruce Fadem.

Since 1998, Wyeth has been migrating to a shared-services model under which its various businesses and geographic divisions share IT applications and infrastructure and their costs across the organization. Having completed the transition in North America and Latin America, Wyeth is hoping to consolidate the 80% of its European business that hasn't already been folded into the shared-services model. This includes outlying units that still have their own dedicated IT units.

"In 2003, we're doing the tough work, taking those relatively small businesses and working through the political battles" to migrate them into shared services to further reduce costs, says Fadem.

Still, there are limits to applying the shared-services model to all of Wyeth's international entities. In Asia, for instance, the company's divisions are much smaller and more widely distributed than those in other parts of the world, says Fadem. So instead of providing those units with shared services from regional IT centers, Wyeth for now will allow them to operate independently. The company will see how those businesses grow and determine at year's end whether it makes sense to revisit the shared-services model with them, Fadem says.

The cost savings generated so far under Wyeth's shared-services model vary greatly by the level of IT investment in each region and by other geographical differences. Fadem estimates that the approach has led to 10% to 15% cost savings in most regions. Once the European piece of the puzzle has been completed, "we'll be able to implement services like [regional] enterprise systems that we couldn't have done otherwise," he adds.

Cleaning the Attic

Some CIOs see the increased cost pressures they're under as an opportunity to clean house and get rid of some unneeded or rarely used applications. That's precisely what Tennessee Valley Authority (TVA) has done in conjunction with its migration from Windows 95 to Windows XP, which began in October 2001.

Since then, the Knoxville-based public power company has eliminated 2,300 of 4,700 desktop applications, databases and other software, which in some instances included multiple versions of the same application, says Diane Bunch, senior vice president of information services at TVA. The ability to avoid future PC capacity upgrades is one area of cost savings resulting from the move, since fewer applications mean reduced CPU and storage needs, says Bunch.

The house-cleaning exercise also gave TVA an opportunity to renegotiate site licenses for software that it will continue to use. For example, a reworked contract for a project scheduling package should save the company $40,000 per year, says Bunch. "We're working on several other licensing agreements, and $10,000 here and $5,000 there in cost savings can add up to significant cost avoidance," she says.

Pennies on the Dollar

A growing number of companies are taking advantage of used equipment that's still flooding the market from failed dot-coms and other businesses. Through online auctions, Corning Inc.'s Life Sciences division in Acton, Mass., bought what CIO Howard Piggee describes as some "cheap" servers. The servers cost 50 cents on the dollar and replaced most of the ones that were running the company's PeopleSoft Inc. enterprise resource planning system.

As a result, Corning cut its annual hardware licensing and support costs by $100,000 because the newer servers it bought online are less expensive to run than the older models they replaced.

Power in Numbers

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TOP 10 COST-CUTTING TECHNOLOGIES

	TECHNOLOGY	BUDGET IMPACT
1		Business unit
2		Business unit
3		Business unit
4		IT department
5		IT department
6		IT department
7		IT department
8		IT department
9		IT department
10		Business unit

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS., 2002

"We have an aging workforce, and a lot of those people are considering retirement. So as we automate processes, we look for the opportunity not to refill some of those positions."

Diane Bunch, senior vice president of information services, Tennessee Valley Authority, Knoxville, Tenn.

"If you spend twice as many dollars, you don't get twice as much storage or bandwidth. There's a great multiplying effect in the tech business. It ramps up exponentially, not linearly."

John Bielec, vice president of information resources and technology, Drexel University, Philadelphia

Top 10 Ways to Do More With Less

1 Accelerate time to market of technology-based business initiatives.
EXAMPLE: Lower total initiative costs by restructuring projects to accelerate time to market.

2 Focus on short-term, high-return business initiatives.
EXAMPLE: Take on short-term projects up to two months long that lower business-unit costs and transfer savings to the IT budget.

3 Transfer IT budget money from renewal and enhancement projects to business transformation.
EXAMPLE: Double or triple new-initiative funding by reducing renewal and enhancement project dollars.

4 Selective process outsourcing.
EXAMPLE: Outsource desktop management, PC support and printers.

5 Increase in-house IT staff.
EXAMPLE: Transfer projects that use outside services to internal IT staff.

6 Renegotiate telecommunications contracts.
EXAMPLE: Toll-free numbers, T1s, long distance and virtual private networks.

7 Rationalize and simplify your infrastructure.
EXAMPLE: Simplify server complex to improve use and reduce maintenance and support costs, and to reduce the number of data centers.

8 Improve procurement practices for IT products and services.
EXAMPLE: Restructure procurement to achieve a higher level of discounts.

9 Outsource development and support to offshore providers.
EXAMPLE: Establish targeted levels of outsourcing to lower-cost countries, such as China, India, Croatia and Canada.

10 Review maintenance invoices, agreements and asset lists.
EXAMPLE: Compare maintenance invoices to asset inventory for decommissioned assets.

Play SQUEEZE

Continued from page 41

the vendors he has discussed this option with. Hedley says the potential for establishing such deals is "very real."

Shared Savings

Many organizations have centralized their IT operations to help rein in costs over the past few years. But some global firms, such as Madison, N.J.-based Wyeth, a $14.6 billion pharmaceutical company, have taken centralization a step further and shifted to a shared-services model in regions where they've determined that it's efficient and cost-effective.

As a holding company with various businesses, "IT was decentralized, and there was no need to standardize or have a shared-services function," says CIO Bruce Fadem.

Since 1998, Wyeth has been migrating to a shared-services model under which its various businesses and geographic divisions share IT applications and infrastructure and their costs across the organization. Having completed the transition in North America and Latin America, Wyeth is hoping to consolidate the 80% of its European business that hasn't already been folded into the shared-services model. This includes outlying units that still have their own dedicated IT units.

"In 2003, we're doing the tough work, taking those relatively small businesses and working through the political battles" to migrate them into shared services to further reduce costs, says Fadem.

Still, there are limits to applying the shared-services model to all of Wyeth's international entities. In Asia, for instance, the company's divisions are much smaller and more widely distributed than those in other parts of the world, says Fadem. So instead of providing those units with shared services from regional IT centers, Wyeth for now will allow them to operate independently. The company will see how those businesses grow and determine at year's end whether it makes sense to revisit the shared-services model with them, Fadem says.

The cost savings generated so far under Wyeth's shared-services model vary greatly by the level of IT investment in each region and by other geographical differences. Fadem estimates that the approach has led to 10% to 15% cost savings in most regions. Once the European piece of the puzzle has been completed, "we'll be able to implement services like [regional] enterprise systems that we couldn't have done otherwise," he adds.

Cleaning the Attic

Some CIOs see the increased cost pressures they're under as an opportunity to clean house and get rid of some unneeded or rarely used applications. That's precisely what Tennessee Valley Authority (TVA) has done in conjunction with its migration from Windows 95 to Windows XP, which began in October 2001.

Since then, the Knoxville-based public power company has eliminated 2,300 of 4,700 desktop applications, databases and other software, which in some instances included multiple versions of the same application, says Diane Bunch, senior vice president of information services at TVA. The ability to avoid future PC capacity upgrades is one area of cost savings resulting from the move, since fewer applications mean reduced CPU and storage needs, says Bunch.

The house-cleaning exercise also gave TVA an opportunity to renegotiate site licenses for software that it will continue to use. For example, a reworked contract for a project scheduling package should save the company $40,000 per year, says Bunch. "We're working on several other licensing agreements, and $10,000 here and $5,000 there in cost savings can add up to significant cost avoidance," she says.

Pennies on the Dollar

A growing number of companies are taking advantage of used equipment that's still flooding the market from failed dot-coms and other businesses. Through online auctions, Corning Inc.'s Life Sciences division in Acton, Mass., bought what CIO Howard Piggee describes as some "cheap" servers. The servers cost 50 cents on the dollar and replaced most of the ones that were running the company's PeopleSoft Inc. enterprise resource planning system.

As a result, Corning cut its annual hardware licensing and support costs by $100,000 because the newer servers it bought online are less expensive to run than the older models they replaced.

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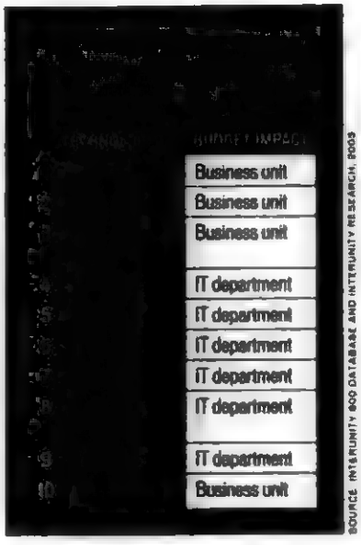

SOURCE: INTERUNITY 800 DATABASE AND INTERUNITY RESEARCH, 2003

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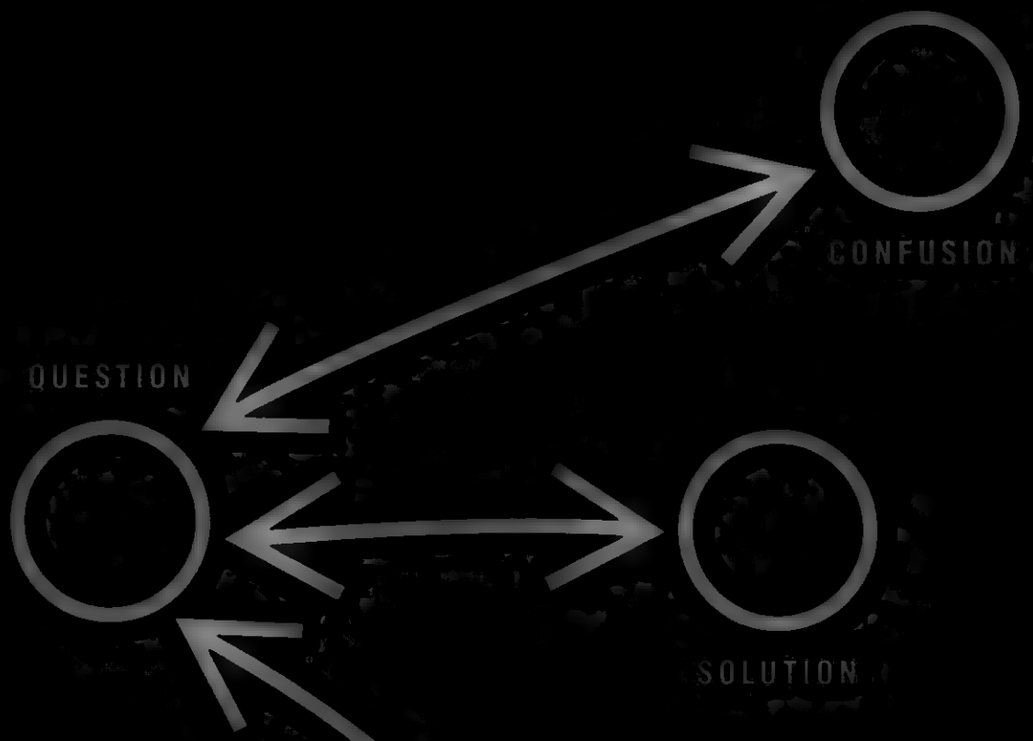

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2] WIN WITH LOTUS: As the leader in business instant messaging, Lotus Sametime® helps you locate and communicate with the people you need, instantly and securely. Lotus. Part of our software portfolio including DB2,® Tivoli® and WebSphere.®

3] MAKE THE PLAY: Visit **ibm.com**/lotus/team for a Webcast on instant messaging and its effects on speed of collaboration.

e business is the game. Play to win.™

Blind Faith

Why is it so hard to kill certain doomed projects? By Kathleen Melymuka

Everyone has seen it: the IT project that takes on such a life of its own that it becomes virtually impossible to stop, even though all signs point to its ultimate failure. How do projects create this kind of momentum, and why is it so difficult to pull the plug on a clear loser? In this month's Harvard Business Review, **Isabelle Royer,** *an assistant professor at the University of Paris, Dauphine, blames an irrational optimism that blinds everyone involved to the reality of the project. Royer recently spoke with* Computerworld *to explain the origins of this "collective belief" and suggest ways that IT project teams can avoid it.*

You tell some amazing stories about doomed projects that sucked up tremendous amounts of time and resources before anyone pulled the plug. Why do companies often find it so hard to kill bad projects? One could think of managerial incompetence or bureaucratic inertia. What I found is rather that companies cannot envision that the project is going to fail. This happens because there is a collective belief among managers in the eventual success of the project.

What is collective belief, and how does it adversely affect an organization? What I call a collective belief is a strong conviction based on feeling rather than evidence that the project will eventually succeed. This conviction is shared by most of the decision-makers. This collective belief blinds them to negative feedback. Moreover, even when they are able to spot problems, this leads them to increase their commitment and pursue the project more ardently. They are too enthusiastic and emotionally attached to the project to envision a failure.

How does the project champion contribute to this problem? The project champion plays a key role in building and sustaining the collective belief. He or she is usually the original true believer who will spread the belief to others using his or her credibility and charisma. When problems are identified, the project champion participates to sustain the belief by his or her enthusiasm, or even with false reports.

You note that individuals often have their own agendas that strengthen this belief in success. Yes, each individual has personal expectations in a company. The CEO might see the project as a way to sustain activity in a division, the project manager as a road to promotion to a higher position. The belief is adopted more easily and is stronger when it fulfills individual expectations.

What happens to dissenters when you have collective belief? Believers just don't pay attention. When dissenters insist, believers don't address their concern but rather try to discredit them. Typically, they accuse dissenters of a lack of competence. So after a while, dissenters stop voicing their opinion. This gives the impression of unanimity.

I see the danger, but how can you rally a project team unless it truly believes in the project? At the beginning of a project, there is lots of uncertainty, especially when the project is highly innovative. Belief is needed to start a project, since evidence is lacking. But as the project unfolds, data amass that allow checking whether this belief becomes reality or not. When the collective belief is too strong, team members don't interpret negative feedback as a sign of failure.

Know Your Champions

The types of individuals who gravitate toward the project champion and exit champion roles are similar, says Isabelle Royer, but there are key differences in the way their roles play out:

[redacted]	[redacted]
Operates in an uncertain, ambiguous environment.	Removes ambiguity with hard evidence.
Violates or overrides procedures to remove obstacles to a project.	Restores procedures to ascertain project viability.
Risks reputation if project fails.	Risks reputation by challenging popular project.
[redacted]	
Willing to take the initiative to assume critical roles that aren't assigned.	
Are energetic and determined enough to overcome obstacles, skepticism.	

Most IT projects have to pass periodic gateway reviews before they can proceed. Doesn't that solve these problems? This is only a first step. Periodic gateway reviews are set up to evaluate the project and decide whether to continue, stop or modify it. When a collective belief dominates, the review process is not followed rigorously. For instance, rather than checking that a problem has been solved, saying that the solution is at hand would be enough to go ahead.

You talk about some early staffing decisions that can short-circuit the development of collective belief. Tell me about those. Oftentimes, managers staff project teams based on enthusiasm to participate and good personal relationships. In doing so, they create a cohesive group of believers that will have a tendency to escalate. To avoid that, it's important to involve people who are more skeptical and able to point out potential problems. It is also important to replace some of the decision-makers during the course of action, because newcomers will look at the project with fresh eyes.

PROJECTS IN THE BLACK

To learn more about how to keep IT projects on track and in the black, go to:
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But smoothly running, cohesive project teams are the Holy Grail in IT. Wouldn't this approach jeopardize that goal? This is a matter of balance. Personal rivalry or dissent in a group would jeopardize the goal, but so would too much cohesion. When the cohesion is too strong, there is no debate whatsoever inside the group about the project. Skeptics in a group ask for more explanations and evidence than others [before they will agree to move ahead]. This might lead to a conflict, but a positive one, leading to better evaluations and decisions.

Above all, you stress the need for an "exit champion." Who is that, and what does he or she do? Well, when most of the people involved are blinded by their belief, and when the procedure is lenient, failing projects are unlikely to be stopped without an exit champion. Exit champions take the initiative to defend exit, which will usually lead to conflict with believers. To convince others that exit is a better course than continuation, they have to bring evidence, which usually means introducing or restoring a rigorous evaluation procedure. This role requires many qualities similar to those of champions, such as credibility and risk taking.

What's the difference between an exit champion and the kind of naysayer that can sap the life out of a project team? Naysayers are known to always have a negative opinion, which undermines their credibility. On the contrary, the exit champion is not always negative. Many of them have also been project champions in the past. Further, naysayers usually merely voice their negative opinion, whereas exit champions take action to defend exit.

Exit champion seems like a thankless role. How do you get it to be valued in the company so people will step up to this role – and be listened to when they do? Top managers may point out they value this role by telling stories of courageous exit champions who saved their organization millions of dollars. They should at least make it clear that challenges to a popular project are welcome. At the same time, they need to demand strong evidence regarding the need to end a project. Failing to do so would systematically favor exit, which would discourage new projects. Here again, there is a balance to be found.

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@earthlink.net.*

This is the latest in a series of monthly discussions with authors of articles in the Harvard Business Review on topics of interest to IT managers.

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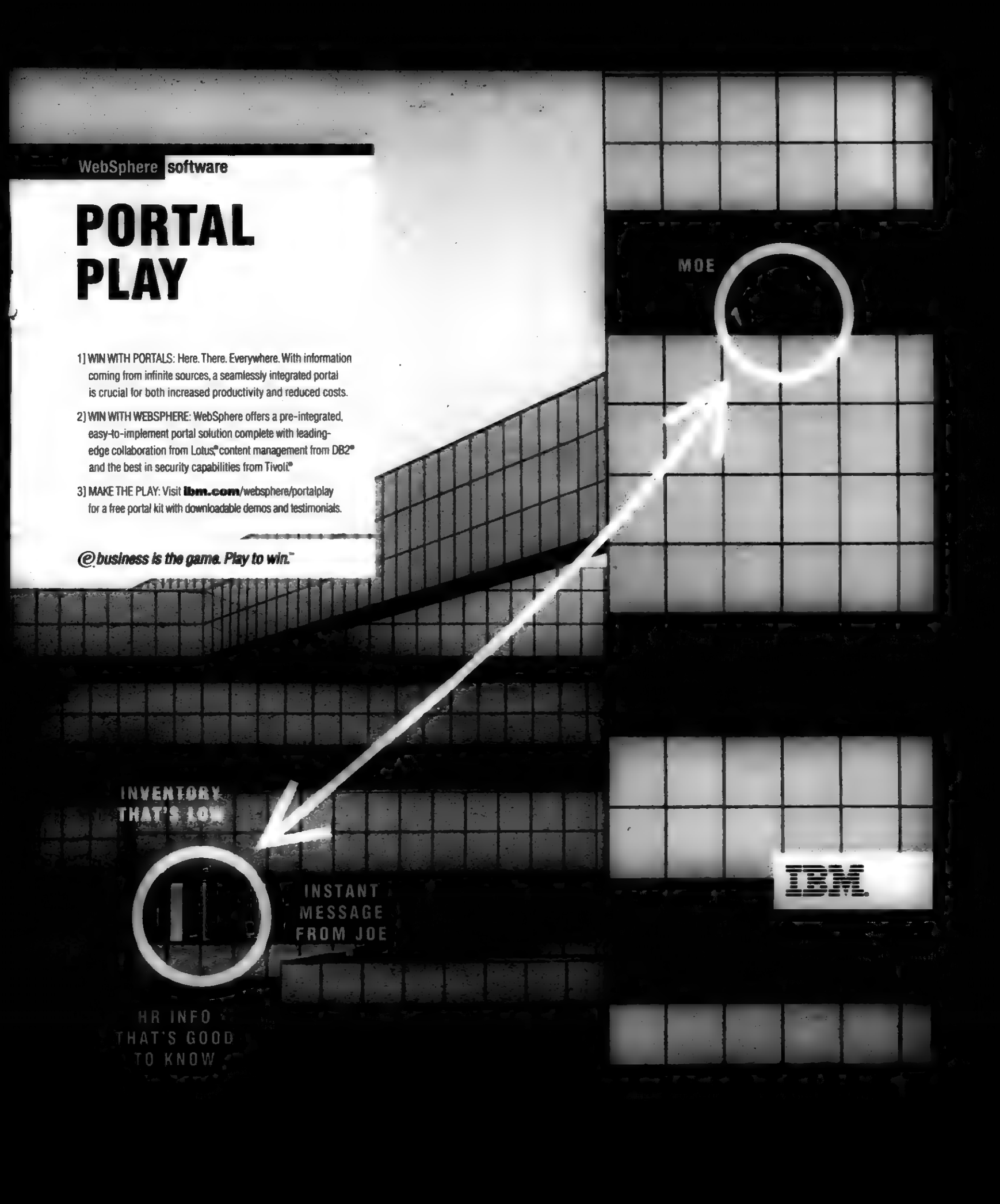
WebSphere software
PORTAL PLAY
1] WIN WITH PORTALS: Here. There. Everywhere. With information coming from infinite sources, a seamlessly integrated portal is crucial for both increased productivity and reduced costs.
2] WIN WITH WEBSPHERE: WebSphere offers a pre-integrated, easy-to-implement portal solution complete with leading-edge collaboration from Lotus,® content management from DB2® and the best in security capabilities from Tivoli.®
3] MAKE THE PLAY: Visit ibm.com/websphere/portalplay for a free portal kit with downloadable demos and testimonials.
e business is the game. Play to win.™
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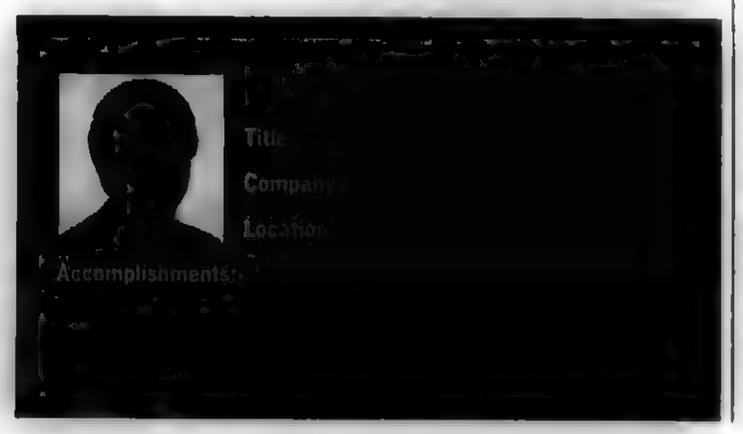
A CIO's First Year on the Job

Sony exec talks about cutting costs and taking the mystery out of IT. By Jean Consilvio

Despite what has been one of the worst years for the economy, especially in the IT sector, **Jim Milde** *says he has accomplished just about everything he said he would when he took over as CIO at Sony Electronics Inc. last January. For starters, he helped develop solid business cases for Sony's IT projects by working with different functional departments to prioritize investments and quantify their returns. Another key goal he set and met is moving toward common processes to increase the overall efficiency of IT.*

As CIO, Milde is responsible for all IT within Sony's electronics division, which comprises about 20,000 users, eight major manufacturing operations and 100 other facilities in the U.S. Milde says Sony views the CIO role as much more strategic than other companies he has been with in the past did. He spoke with Computerworld about how he has worked to drive business change while making sure that Sony gets the biggest bang out of its IT buck in his inaugural year on the job.



What has been your biggest challenge in the past year? The biggest challenge would be repositioning IT with the business. The way we went about doing that was really just by building the level of credibility and taking the mystery out of IS — from a cost perspective, from a service perspective, from new investments and how we improve and fund projects. And most important, a lot more rigor on the ROIs of those investments. What we found was that there wasn't a good understanding of what the investments were being spent on. And [we] started putting up screens for [justifying IT project investments].

How did you accomplish all that? We did set up fairly active business-governance groups. Those groups have decision-making within their areas, and then broader questions go across the various constituencies for prioritizing of projects. But it's not easy, because everyone wants what they want, and no one wants to hear about someone else's project being screened against their project. We've been very successful at just building that relationship, the process for governing and taking the mystery out of the IT spend. And quite frankly, partnering — I hate to use that word — but truly having a seat at the table on these major structural things we're looking at that have major IS investments behind them.

How do you go about determining the ROI for these projects? We try to think about every investment dollar we spend, whether it's on routers or whether it's on applications. So [the] first thing is categorizing all of our investment dollars that we spend. The second thing we've done is taken all the "shadow IT spend" out of the business and put that all on the table so we have a true look at our total IS investment spend. Then we go through, and for every single project [we determine if it's] for legal reasons, R&D compliance reasons, or is there real hard-dollar ROI that's either going to drive efficiency or top-line sales growth. Then we start to screen those projects against what applications we are building them on to ensure that we eventually have a more simplified application portfolio. And we've got tools in place now so that every project goes through a request and we can sort the projects by these different types of categories.

Lastly, on the [projects] that are approved with the ROIs, we are working with our corporate planning group to go into the business areas and really identify where those hard dollars are going to be saved out of the business departmental budgets. A lot of companies say there's an ROI, but you never capture the savings in the business area.

How do you get business to buy in? My first few months just talking to people I always asked: "Well, tell me what success would look like from a business perspective for what IS needs to do," and it was remarkable that a lot of people couldn't answer what were the three things they would want to see different. So we put out a very formal questionnaire to the top 500 executives across Sony Electronics, conducted by Gartner Inc. It essentially gave specific questions and things that we wanted opinions on. And quite frankly, it wasn't that positive of a scorecard. But my point is, we're trying to lead by saying, "Tell me the things that success would be predicated on, from the voice of our customer." We're taking a Six Sigma approach toward this, and people are starting to see that we do want to make sure that we're hearing the voice of our customers.

And now we've got actionable measures against areas that we have opportunities to improve on and communicate that back to the business. It's always risky doing that, because people can just kick the IT dog if they want to. But the only way I know to improve is to hear what people want improved. And when people can't articulate what they want improved, I know there's educating that we have to do to take the mystique out of IS. . . . It's building the credibility and the trust.

PROJECT UPDATE

To learn more about changes Jim Milde has made within Sony's IT organization and updates on specific projects, go to:

QuickLink 36187
www.computerworld.com

[QUICKSCAN: Training]

The 10 Hottest IT Certifications For 2003

The following ranking is based not on the most popular certifications, but rather on the fastest-growing certifications in the industry, according to Becky Nagel, editor of CertCities.com. The online magazine for IT professionals surveyed its readers to come up with the following list of hot IT certifications for this year. For each certification considered, CertCities compared the number of respondents who said they hold a particular certification with the number who said they would be getting the certification within the next 12 months.

1. Cisco Certified Internetwork Expert (CCIE)
2. [redacted]
3. Red Hat Certified Engineer (RHCE)
4. [redacted]
5. Certified Information Systems Security Professional (CISSP)
6. [redacted]
7. Linux+
8. [redacted]
9. Sun Certified System Administrator for Solaris Operating Environment
10. [redacted]

For more information, go to www.certcities.com.

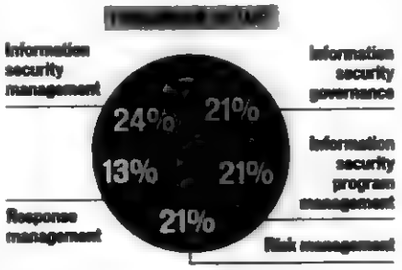
The Top 10 'Most Promising' Technologies

1. Wireless: 3G, 802.11, LAN/WAN, cell phones, radio frequency identification (RFID)
2. [redacted]
3. XML
4. [redacted]
5. Vertical industry-specific technologies
6. [redacted]
7. E-commerce: Electronic data interchange (EDI), transaction processing
8. [redacted]
9. Customer relationship management (CRM)
10. [redacted]

SOURCE: COMPUTERWORLD'S 2003 PREMIER 100 IT LEADERS SURVEY

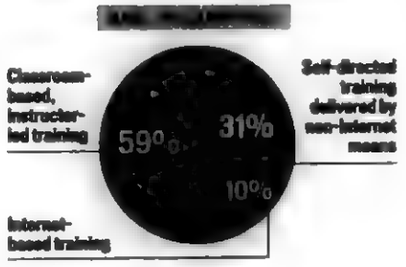
New Security Certification Tests Begin in June

The Information Systems Audit and Control Association in Rolling Meadows, Ill., will begin offering the examination for its new Certified Information Security Manager (CISM) designation in June. The exam will cover the following areas:



For more information, go to www.isaca.org.

How Companies Deliver IT Training



SOURCE: DATAQUEST INC., SAN JOSE, OCTOBER 2002

Evaluating the Cost-Effectiveness Of Training

Getting feedback through surveys or informal post-training interviews is a good way to measure the effectiveness of your IT training, managers say. At United Stationers Inc. in Des Plaines, Ill., IT employees fill out a questionnaire following an IT training session, says Ergin Uskup, CIO and senior vice president of MIS. The company's training manager then has one-on-one follow-up conversations with employees to see whether the experience met their needs and whether they would recommend the class to colleagues.

Three months later, the training manager checks in again with employees and their managers to see if the training helped the employees improve their skills. Managers then act on the information gleaned from these conversations. United Stationers, which allocates about $450,000 per year to train about 250 IT employees, enters into partnerships with training companies that receive a high rating and drops those that perform poorly, says Uskup.

Put new IT skills to work immediately

ANDY GOODWIN

Train Workers 'Just in Time'

Another way to maximize training dollars, say managers, is to put the trainee's new knowledge to work right away. At United Stationers, employees get to work on projects related to their training immediately after classes about 75% of the time, says Uskup. In addition, the company gives priority to skills training that employees will need in the short term.

"We always try to match training with a task," says David Molchany, CIO of the Fairfax County government in Fairfax, Va., which annually spends $600,000 on IT training. Managers work with employees to create a plan for trainees to use their know-how soon after a class. For instance, if staffers attend training on installing Microsoft Corp. products, they might use what they learned when they return to work by performing a software implementation. Molchany calls this "just-in-time training."

— Julia King

Where Certifications and Paychecks Meet

The following lists show the median premium pay as a percentage of the base for each of the highest- and lowest-paying certifications:

Highest Paying

Lowest Paying

SOURCE: FOOTE PARTNERS LLC, NEW CANAAN, CONN., FOURTH QUARTER 2002

BART PERKINS

What CIOs Need From IT Suppliers: A Baker's Dozen

MANY CIOS ARE reducing the number of IT suppliers they use in order to consolidate purchasing and cut costs. Deciding which suppliers to retain is a complex decision. Here's a checklist you can use to decide which suppliers should be on your A-list. CIOs need suppliers to do the following:

1. Deliver quality products that solve problems. Suppliers must provide solutions that address the needs of the IT organization and not merely push their latest products. This requires careful listening and adaptability on the supplier's part. A supplier worth retaining won't deliver just a standard set of PowerPoint slides.

2. Present a business case. Suppliers should provide a customized business case that clearly describes scope and objectives and calculates return on investment. Returns should be measured using the same metrics that your IT organization uses to evaluate other investments (such as ROI or net present value).

3. Sell through the IT organization. Many suppliers jeopardize IT continuity and antagonize the CIO by attempting an end run, selling directly to business units or other non-IT executives. Suppliers that take this approach may make the sale, but they often fail to understand the company's overall, long-term IT plans.

4. Leash their sales forces. Historically, many IT suppliers have overpromised and underdelivered. If you have suppliers that have oversold you, the last thing you want is to re-up for a repeat disappointment.

5. Offer enterprise agreements. In many organizations, multiple business units have separate contracts with the same supplier. You will want to reward suppliers that offer enterprisewide deals without being asked.

6. Find creative ways to meet customer objectives. For example, a software supplier could offer annual rental contracts, rather than perpetual licenses, to flatten customers' spending. Similarly, if a product is easy to install, the supplier could offer potential customers a free trial.

7. Adopt a long-term perspective. CIOs who contract with IT suppliers usually take a multiyear perspective due to the impact on the infrastructure and the high cost of switching suppliers midstream. Similarly, CIOs need suppliers to broaden their perspectives beyond end-of-quarter concerns and focus on building effective long-term relationships.

8. Communicate effectively. The CIO needs concise reports on key messages. Status changes, especially bad news, should be communicated immediately to give the customer time to make necessary adjustments. No one can afford to be blindsided by bad news — especially a CIO, whose success is greatly impacted by the performance of critical IT suppliers.

9. Deliver on their commitments. Look for suppliers willing to earn your trust by doing what they promise, when they promise, at the agreed-upon price. Standout suppliers do more than the contract requires.

10. Provide a consistent account team. Every new person the supplier adds to the account team must be educated about your needs and culture. Staff continuity saves time, effort and frustration for both the IT organization and the vendor.

11. Be visible and available. Beware of suppliers that disappear as soon as the product is delivered. The quality of the supplier's aftermarket support is critical and can largely determine the climate for the next contracting effort. In one case, a vendor signed a strategic agreement with a very large customer. Then, for the next 18 months, the sales representative failed to call on the CIO, reasoning that the CIO "did not want to be bothered." When the CIO tracked the sales rep down, the CIO told him that the contract wouldn't be renewed.

12. Use a customer-centric incentive program. Many suppliers' incentive programs reward sales efforts — at the expense of customer satisfaction and retention. Look for suppliers with sales and satisfied customers. Both goals should be reflected in an effective incentive plan. Look for sales plans that delay part of the commission until the product operates successfully.

13. Provide an executive-level feedback channel. A key supplier executive should monitor service and relationship quality. Suppliers that wait to talk to the customer until contract renewal time may find that it's too late to appease an unhappy customer.

Addressing these needs will significantly increase a supplier's value to your IT organization. Consistent delivery, effective communication and integrity form the foundation for a long-term, mutually beneficial relationship. Suppliers that demonstrate these characteristics are the ones to whom you should offer future business and select as trusted advisers. ◗

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NEWSMAKER

Later this month, Chief Technology Officer JOHN McKINLEY JR., who heads Merrill Lynch & Co.'s global technology and services unit, will leave the New York brokerage after more than four years on the job. McKinley was instrumental in crafting many key outsourcing partnerships, rolling out Linux in the data center and helping the firm recover quickly after the Sept. 11 terrorist attacks.

In the coming weeks, McKinley says he'll be searching for a position in the technology sector, where he got his start. He also hasn't ruled out starting his own company. He spoke with *Computerworld*'s Lucas Mearian about his experience at Merrill Lynch, team building and the future of Linux.

Why are you leaving Merrill Lynch? It's been a great run being at Merrill, almost four and a half years. I've been a CTO for about eight years, first with GE Capital and then with Merrill. I think it was a great experience, but I cut my teeth in the systems integration business, growing up at Ernst & Young. I really do want to get back to a frontline position, potentially an operating role in a technology company. The dialogues I'm having now are along those lines.

Why would you want to re-enter the technology sector now, when it's having such a hard time? I really believe we're only into the second chapter of the technology story in terms of its impact on business. I really believe if you wait for a market space to be validated, the value-creation opportunity is gone. This is a sector that's not for the faint of heart, but there are still so many rich veins to mine in terms of opportunity that it's just too compelling to me.

Any fields you're looking at? There are a number of ones I'm looking at now across the gamut in the software space, the wireless space.

What was the most difficult thing you did while at Merrill Lynch? The most difficult thing the entire team

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What was the most difficult thing you did while at Merrill Lynch? The most difficult thing the entire team

did was rebuilding the firm after 9/11, establishing three new trading floors in six days [and] rebuilding wholesale portions of our global network. It required incredible creativity, but also heroism and commitment.

What do you consider your next big challenge? Ultimately, every experience you do has to be a growth experience. We're in a profession where 50% of skills are obsolete in three years. So if you're not constantly challenging yourself to grow and expand, you're doing yourself a huge disservice.

The biggest litmus test for me is, Do I have a passion about the space that company is in? Do they have something that represents sustained competitive advantage? And is there a cultural fit?

Considering your philosophy at Merrill Lynch of outsourcing anything and everything that can't be done by your in-house team, do you think they'll continue on that way? Your biggest sustaining contribution to an organization is the talent base you developed over your tenure. We've got the best technology team on Wall Street. I think that mastering being a virtual organization is something we've worked hard at over the past few years, and it's something that will continue going forward. It just makes too much sense.

It's all around looking at [business process outsourcing] opportunities, partnerships at the infrastructure level and next-generation ASP opportunities. For us, an example of our philosophy is the deal we brokered with Thomson Financial to put in all new broker technology. I think you'll see more plays of a similar nature going forward.

Will you also try to start virtual Web partnerships with other providers wherever you go? I'm a fan of leverage, and I think partnerships with world-class providers at the infrastructure level, at the application level and at the services layer all make a ton of sense. They'll certainly be the blades in my Swiss Army Knife going forward.

If there's something you could share with others, what would you say you have learned as a CTO? A lot of the best practices in managing a technology function can be stolen from the business playbook. Great organizations are value-based. People who share a common set of values, understand [how to] reward behaviors and understand what dials to turn in terms of progressing their own careers. Doing a few things well is a winning playbook.

> **"Your biggest sustaining contribution to an organization is the talent base you developed over your tenure."**
>
> JOHN MCKINLEY, CTO, MERRILL LYNCH & CO.

If we look back at the period of '97 to 2000 – that technology exuberance era – I think in our profession we were probably not very good portfolio managers. We wound up working on the A-list but also were working on the B-list and half the C-list. I think that leads to lackluster benefits. You spread your talent base [and] your resources too thinly.

I think the third thing is that it's all around focus on measurement and making sure you have the right infrastructure in place for everything, from service quality to fully understanding your unit cost of service delivery.

Ultimately, if you can't measure it, you can't improve it. Investing in your processes and your infrastructure supporting IT as a business is critical.

How big a role do you see Linux playing in companies like Merrill Lynch? It's a vendor-agnostic technology which provides a lot of opportunity for tapping into innovation from multiple suppliers, but it's also about managing your cost base more effectively. I think that Linux is powerful because it scales up and scales down. You can get a scaled-down Linux kernel in a 400k footprint. At the same time, you can run 136,000 transactions on a Linux cluster.

Do you see Windows really losing out to Linux in the future? To me, it's all around maintaining choice. The one thing I can guarantee is Linux will be an important tool at Merrill over the next 10 years.

Ultimately, I like to have choice with Linux, and I think our vendors perform better when there's a better competitive dynamic. And I think Linux helps foster a sense of competitive dynamic among all my vendors.

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Advertising Supplement

IT Careers in Cyber Security

SQL Slammer, the worm that infected the Internet on Jan. 27, proved a grim reminder of how cyber terrorism can affect us. ATMs wouldn't dispense money, healthcare facilities lost file search capabilities, and messaging worldwide slowed to a crawl.

"(The Slammer) showed how dependent we've become on the Internet but how fraught with problems its security is," says Federal CIO Council member Ira Hobbs, deputy CIO for the U.S. Department of Agriculture. Hobbs, who works on the council's human capital committee, says the group has identified cyber security, solution architecture and project management as the most critical IT occupations to our nation's future. "We believe the future is in dealing with domestic or international cyber terrorism, and cyber security professionals will be the troops," he adds.

Barry Thornton, co-founder and chief technology officer at ClearCube Technology in Austin, TX, is among those who agree. "Ours is a simple solution: deny the bad guy physical access to the hardware and the network," says Thornton of ClearCube's products. Encryption solutions will be the work of mathematicians, he claims, which leaves companies such as ClearCube to develop solutions that prevent outsiders from penetrating a network.

The issue is finding IT experts in cyber security. The Naval Post Graduate School now offers a master's degree program, and the Home Cyber Corps is a federally funded program, through the National Science Foundation, that is building teaching and accreditation capacity at colleges and universities throughout the country. Until this training capacity builds, Thornton and Hobbs have a list of skills for IT professionals interested in cyber security.

"They need a background in hardware and software, project management skills, good analytical skills and intrusion detection skills," says Hobbs. It's the intangible competencies that set cyber security professionals apart – what Hobbs calls the investigative bent and Thornton calls simple imagination. "When I interview an engineer, my main interests are in his or her passion for the art," adds Thornton. "There is little or no 'prior art' for the engineer to draw upon, so imagination must take over. Anything controlled by software can eventually be hacked so this is an intellectual game where the guy with the best imagination, at that time, wins."

The luster on cyber security careers continues to build. Hobbs says every federal agency has new IT security reporting requirements. His agency, the USDA, currently employs 6,000 IT professionals. "Right now, for me, this (building people capabilities in cyber security) has been my world," he adds. "Three to five years from now we'll be dealing with cyber issues we can't imagine now."

IT Careers

For further information, please contact:
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Loronix Inc., a company headquartered in Durango, CO that uses digital signal processing (DSP) to provide video security solutions to retail, transportation, corporate, gaming and entertainment, and correctional and government facilities, seeks: Firmware Engineer to work in Durango to analyze, design, program and modify software using high-level languages and assembly for desktop processors and DSPs. Requires bachelor's degree in Electrical Engineering or Computer Science; one year as a Software Engineer using Digital Signal Processing (DSP) and video compression; working knowledge of JPEG, MPEG-2, MPEG-4, Wavelet Video Compression, Computer Vision and code optimization techniques in C++ and Assembly languages. Respond by resume to Barbara Arndt, Loronix Inc 1120 W. 122nd Ave., Suite 200, Denver, CO 80234 and refer to job #42557KA.

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PROGRAMMER/ANALYST sought by LIC, NY-based mattress/sleep prods - wholesale/retail estb. to analyze, dsgn & dvlp client/server database info. systems & customized appl. using Oracle, Clipper and FoxBase. Formulate test plans through dvlpmt cycle & integrate diff. dvlpmt platforms. Must have Bach Deg in Comp Sci or equiv & 2 yrs exp. in job offrd. Must be exp'd in Oracle R11.0, PL/SQL, dBase III & FoxBase & must have exp. customizing Oracle d/base & forms for retail estb. Send resumes to: VP Quality & HR, Diet-A-Mattress Operating Corp., 31-10 48th Ave., L.I.C., NY 11101.

FundQuest, Inc. is looking for a Database Administrator to administer and architect financial investment management databases on SQL 2000 Enterprise Server clustered on Windows 2000 advanced server. Please send all resumes to FundQuest, Inc., 21 Custom House Street, Boston, MA 02110, attention Human Resource Department.

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DATA MANAGEMENT ASSOCIATE (DATABASE DEVELOPER) sought by pharmaceutical research and development company in Wallingford, CT. Candidate must have a minimum of a Bachelor of Science degree in Applied Mathematics, Statistics or Computer Science (with coursework in applied mathematics or statistics). Knowledge of data management and process data collection and evaluation a plus. Strong leadership and communication skills required. Send resumes to: Strategic Staffing Specialist, Job Code TN-664, Bristol Myers Squibb Co., P.O. Box 4000 Mail Stop E14-12, Princeton, NJ 08540.

VP, Senior Systems Engineer sought by NY based Dealer Broker and Financial Investment Company. Must possess Bachelor's Degree or equivalent in Computer Science or directly related field and 5 years experience in network management design and analysis within a UNIX (Solaris), Windows NT and Cisco operating system. Working knowledge of TCP/IP, LAN/WAN, C/C++, Java or Perl. Respond to: Human Resources Department: Commerzbank Securities, 1251 Avenue of the Americas, New York, NY 10020-1104.

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Software Engineers wanted w/BS & 2 yrs. Exp. in New Jersey. Send resume to: HR Dept., Scicom Americas, Inc., 1500 S. Dairy Ashford, Ste 241, Houston, TX 77077.

Systems Analyst sought by s/ware co. w/expertise in Acctg, Financials & Order Processing to dsgn, dvlp & implmt systems; exp reqd in AS/400, RPG/400, CL/400, DB2/400 & Oracle; VB & Scripting exp a+. Reqd BS in CS/Engg/related area + 3 yrs exp in job offrd. Competitive salary & benefits. Reply to HR, Cosmonet Solutions Pvt. Ltd, 406 Farmington Ave, Farmington, CT 06032.

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Software Consulting firm seeks Programmer Analysts: Analyze reqmts, create dsgn documents & translate to prgmg, coding & testing s/ware applics. Must have exp working w/OPUS System (CMA/Cntrl). EDI, WebMethods, J2EE, WebLogic, Oracle 8i, PowerBuilder (4.0-8.0), Java, Erwin, Win NT. Competitive salary plus benefits. Req BS/equiv in CS/related area w/3 yr exp, 2 of which shld be w/in last 3 yrs. Send resumes to HR at Global Technologies Group, Inc., 74 Main Street, Framingham, MA 01702.

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Database Administrator. 8a-5p, 40 hrs/wk. Analyze data & d/base structure; configure, test, implmt, monitor, do performance tuning, backup & recovery using Enterprise Oracle, Oracle 9iAS, VAX/VMS, Kron shell, Perl & UNIX. Educ: BS or equiv in Comp Sci or Engg, Info Systms Mgmt, Electrical/Electronics Engg or related field. Exp: 2 yrs exp in job offrd or as S/ware Engr or Systems/Prgmr Analyst using above computer skills. Resume: Software Decisions Group, Inc., 235 Donamere Way, Alpharetta, GA 30022.

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System analysts, Client Server Database Administrator wanted. Qualified applicants must have BS plus experience using Oracle database, Unix Sun Solaris, must be authorized to work in US. Apply at St. John Hospital, 22101 Moross Road, Detroit, MI 48236. EOE.

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System Specialist (Boston, MA) responsible for design, development, maintenance, and documentation of business systems. Will engage in analysis, system design, and system architecture; utilize Java, JavaScript, C/C++, and Oracle; demonstrate thorough knowledge of systems, interfaces, dependencies, service level requirements, operational functions, business products and services supported; provide consulting services for technical business opportunities; and train business units. Minimum requirements: Master's in Computer Science, Engineering, or a related field. No experience necessary. Will also accept Bachelor's +5 years of progressive experience in field. Must have unrestricted authorization to work in U.S. M-F, 9am-5pm, 40+ hrs/wk. Salary range: $75,000 - $90,000/yr. An EOE. Send 2 copies of resume to Case No. 200115535, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

SOFTWARE ENGINEER to design, develop and implement web-based application software and user interfaces using Visual Basic, VS.NET, ASP.NET, C#, VB.NET, ADO.NET, XSD, Active X, COM, DLE-DB, OOBC, COM+, ADO, ASP, VBScript, JavaScript, VBA, XML, XSLT, HTML, DHTML, TOAD, PL/SQL, Visual InterDev, IIS, MTS and Visual Source Safe on Windows platforms; Design and develop various web-based reports using Crystal Reports, Oracle and SQL Server. Require: Master's degree in Computer Science/Engineering, Mathematics, or a closely related field with two years of experience in the job offered or in the related occupation of Programmer/Systems Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Leena Bhalota, Alpha Computing Solutions, LLC, 5865 Jimmy Carter Blvd., Suite 125, Norcross, GA 30071; Attn: Job KB.

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SOFTWARE ENGINEER to design, develop and deploy multi-tier application software using EJB, JSP, HTML, XML, XSL, Java Servlets and Oracle on SUN Solaris and Windows platforms; Install, configure, set up, tune and maintain applications and web servers on SUN Solaris platforms using BEA Web Logic Server, Java, UML, OOAS, XML, Kani Shell, iPlanet Web Server and C++. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Analyst or Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, Principal, ASAP Staffing LLC, 3865 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job SM.

SENIOR PROGRAMMER/ANALYST (2 positions) to lead a team in the analysis, design, development, testing, implementation and support of cross-platform architecture bridging operating systems, including UNIX and Windows NT, for distributed application development and cross browser environments using UML, Java, C, C++, lex, yacc, bison, Perl, UNIX Shell, XML, Servlet, EJB, J2EE, CORBA, DHTML, JavaScript, Orbix and Oracle; Mentor junior programmers. Require Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Systems Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, Principal, ASAP Staffing LLC, 3865 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job PS.

System Specialist (Boston, MA) responsible for design, development, maintenance, and documentation of business systems. Will engage in analysis, system design, and system architecture; utilize Java, JavaScript, C/C++, and Oracle; demonstrate thorough knowledge of systems, interfaces, dependencies, service level requirements, operational functions, business products and services supported; provide consulting services for technical business opportunities; and train business units. Minimum requirements: Master's in Computer Science, Engineering, or a related field. No experience necessary. Will also accept Bachelor's +5 years of progressive experience in field. Must have unrestricted authorization to work in U.S. M-F, 9am-5pm, 40+ hrs/wk. Salary range: $70,000 - 90,000/yr. An EOE. Send 2 copies of resume to Case No. 200115536, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

Software Engineer. Duties: Resp. for testing & verifying code for telecom. PCS IT AD testing lab using automated software testing tools. Support testing activities for key develop efforts. Develop & maintain test guidelines, test cases & test scripts. Determine test requirements & coord. test scheduling. Perform systems integration tests & load testing using Segue Silk & Rational Test Studio. Requires: B.S. in Comp. Sci., Eng. or a related field & 2 yrs. exp. in the job offered or 2 yrs. exp. as a Tester, Analyst/Prog. or Prog. Will accept any comb. of educ. & exp. equiv. to a B.S. degree. Concurrent exp. must incl. 2 yrs. exp. testing & verifying code & 2 yrs. exp. performing systems integration testing. Send resume (no calls) to: Denette David, CTG, Inc., 13220 Metcalf Ave., Ste. 140, Overland Park, KS 66213.

Software Engineer - Dev & dsgn comp software relating to MS comp networks used in telecom. industry in S. & Latin America. BS in Electical Engineering, knowledge of MFC, MS.net Architecture, visual C++, and Biztalk Server reqd w/ 2 yrs exp. Apply to Personnel, Emide Managed Systems, LLC, 2200 S. Dixie Hwy, #803, Miami, FL 33133.

COMPUTERVIT Information Systems Specialist, (Memphis, TN). Req: a Bachelor's degree (or equiv foreign educ.) in Computer Science or Computer Information Systems and 2 yrs of exp in the job offered or 2 yrs of exp in programming and systems analysis for VAX computer systems, including development and implementation of programs using VAX DCL and FORTRAN on Virtual Memory System (VMS). [In lieu of Bachelor's degree, will accept 2 additional yrs. of the exp. and 2 years of university-level credit in any scientific or technical field.] Two yrs. of exp. must have involved programming and systems analysis in a manufacturing environment, and using DEC FORMS and embedded SQL. Engage in programming and systems analysis for VAX computer systems, including development and implementation of programs using VAX DCL and FORTRAN on VMS, in a manufacturing environment. 40 hrs./wk. 8:00 a.m. - 5:00 p.m. Send resume to: Melissa Russell, International Paper Company, 4570 Wilbur Lake Blvd., Memphis, TN 38116. EOE. Reference 60616 when applying.

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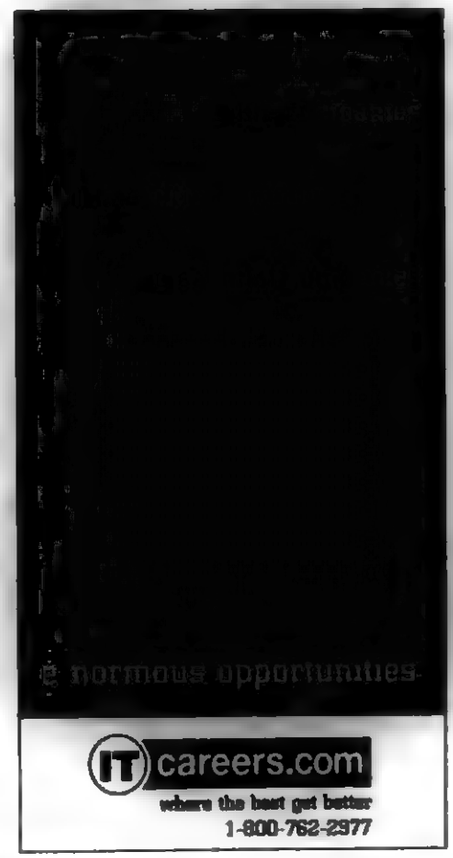

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Obstacles Hinder IT Portfolio Management

Investment-tracking approach draws interest, however

BY THOMAS HOFFMAN
SAN DIEGO

MANY IT managers are keen on the notion of setting up a portfolio management approach to help gauge the value of technology investments. But those who try to do so often run into start-up problems, such as trouble getting buy-in from business units, according to attendees at a Meta Group Inc. conference here last week.

Several attendees also said they fear that making information about the financial value of investments readily available could make them seem like IT police in the eyes of business managers who fund projects. In addition, they cited concerns that the data might not be fully accurate.

Like other IT executives interviewed at the Metamorphosis conference, Jim Larkin said he thinks his company's business-unit leaders "could benefit from seeing how technology is being used and the kinds of payback we're getting."

Larkin manages application development information systems at SRP, a Tempe, Ariz.-based utility that spends about $100 million a year on IT. "We'd like to put an IT portfolio management practice in place, but we're struggling with how to pitch this to senior management," he said.

A growing number of companies are adopting the portfolio management concept, in which IT projects and assets are evaluated in much the same way that financial portfolios are [QuickLink 31864].

At the conference, Meta released the results of an e-mail survey it conducted last month with 219 prospective attendees. A total of 56% said they have either launched an IT portfolio management program or plan to do so.

Some organizations "are doing IT 10-Qs and IT 10-Ks" that are equivalent to the monthly and quarterly financial updates that publicly held companies have to file, said Howard Rubin, executive vice president at Stamford, Conn.-based Meta. The reports present financial breakdowns of IT investments that are in the pipeline as well as existing systems, he added.

But such disclosures can pose a problem for IT managers. "Some find the visibility of the portfolio very threatening," said Mike Metcalf, vice president of marketing at Pacific Edge Software Inc., a vendor of IT portfolio management tools in Bellevue, Wash. "They feel the data they have isn't as accurate as it should be, and they're being asked to share this information at a very high level."

Dan Jones, senior director of customer-facing systems at ConAgra Foods Inc., said the Omaha-based food processing company is "doing some components of IT portfolio management, but we probably don't call it that." For example, ConAgra has implemented systems for use in tracking its IT assets, Jones said.

Sun Microsystems Inc. launched an IT portfolio management initiative about six months ago. "One of the challenges I'm facing is finding a [software] tool that meets our needs and runs on Solaris," said Halina Tabacek, manager of IT planning and practices at Sun. ●

Tips on launching an IT portfolio management program:

- **SHOW** business managers how the initiative could help reduce their technology costs.
- **DIVE INTO** the biggest slices of the IT pie first. Evaluate technology budgets by business unit and by project.
- **FOCUS ON** the right metrics and choose appropriate IT portfolio management tools.
- **BE SURE** to track IT workers and evaluate how they can best be allocated to projects.

Continued from page 1

Kaiser

its own automated record system. David O'Grady, a Kaiser spokesman, said the HMO started that project in the mid-1990s because comprehensive off-the-shelf software didn't exist then. Versions of the internally developed system have been rolled out in states such as Colorado and Hawaii.

But Epic has developed its software to the point that Kaiser officials believed it would be more cost-effective to switch, O'Grady said. He wouldn't disclose what Kaiser has spent on the initial project but said press reports in the 1990s pegged the expected cost at close to $1 billion.

IBM spokesman John Bukovinsky said his company has worked with Kaiser on a number of successful projects and expects to continue to be involved in IT work at the HMO, which uses IBM's systems and its DB2 database.

Andy Wiesenthal, associate executive director of the Permanente Federation, the national governing organization for Kaiser's medical groups, said it's expected to take three years to fully roll out the new system to the health plan's facilities, located in nine states and the District of Columbia.

When it's completed, the system will let Kaiser's health care workers electronically access the records of any patient, Wiesenthal said. In addition, health plan members will be able to use the system via the Internet to schedule appointments, seek referrals or request prescription refills.

Kaiser hasn't finalized the system's topology, said Wiesenthal. But, he added, the electronic medical records will be housed in Kaiser's Corona, Calif., data center and tied to servers in the facility that will handle processing for different regional operations. Kaiser officials should decide by the end of this month whether to use thin-client terminals or PCs and workstations to provide access to end users, Wiesenthal said.

Carl Dvorak, Epic's chief operating officer, said the company's software can store 45,000 data elements that cover all aspects of patient care. Dvorak added that Kaiser's system will manage all end-user interactions through Caché, a multidimensional database developed by InterSystems Corp. in Cambridge, Mass., for use in transaction-processing applications.

It's unusual for a large health care organization to rely so heavily on one vendor, said Ralph Reyes, senior vice president at Klas Enterprises LLC, an Orem, Utah-based company that measures the performance of health care IT systems. But, Reyes added, Epic has topped Klas' list of more than 200 IT vendors for the past three years, based on performance reports from 3,500-plus health care facilities.

Thomas Handler, an analyst at Gartner Inc. in Stamford, Conn., said the Kaiser deal poses a challenge for Epic, which has annual revenue of about $100 million and hasn't worked on such a large-scale project before. But if the rollout succeeds, it will put pressure on other health care providers to deploy paperless record systems, he added.

Francis J. Crosson, executive director of the Permanente Federation, said the Epic system will help Kaiser satisfy all the requirements of the federal Health Insurance Portability and Accountability Act, due to take effect in April. ●

Technology Details

Kaiser Permanente is automated medical record system will:

- Cost $1.8 billion to develop and include data about all of the company's health plan members, who currently number 8.8 million.
- Be based on software from Epic Systems that integrates a data repository and reporting tools with clinical, billing and scheduling applications.
- Store records electronically at a central data center and use InterSystems' Caché multidimensional database to manage transaction processing.

MORE THIS ISSUE

Be careful when choosing tools – many are little more than project management packages. Page 28

POWER USERS

Meta predicts that IT spending in the energy industry will drop this year, but some technologies are ripe for growth.

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FRANK HAYES ■ FRANKLY SPEAKING

Tough Stuff

INFORMATION TECHNOLOGY ISN'T EASY. It never has been. Sure, it looks easy when vendors trot out their product presentations. It sounds easy when pundits and analysts tout technologies they've never tried. It even seems easy when we confidently set our project schedules and lay out for business-side managers how quickly they'll get a return on an IT investment.

Rigged demos and dazzling dog-and-pony shows are easy.

Actually making IT work isn't. It's really, really hard.

It's hard because products don't work. And technologies are misapplied. And costs are hidden. And requirements are underestimated. And admitting failure is political suicide.

It's hard because half the time, we don't know what we're doing — we're trying to solve problems in new ways, with uncertainly implemented technologies, in the face of shifting or incoherent user requirements. And the rest of the time, we *know* the products we're using won't really do what we need, but we still must try to make them work.

And it's hard because, as people who believe in technology, we're optimists. We believe products will work the way they're supposed to, integrate with our systems as easily as we'd like and meet the needs of users without a hitch. With each new project, we're full of hope that this time everything will be right.

But out in the real world, it almost never is. And the newer our technology, the more ambitious our goals and the more important our projects, the harder IT gets.

Which we keep discovering when we spend years instead of months implementing enterprise software. And when we run up against endless obstacles getting a data warehouse or application integration or Web services working. And even when we fall far behind in installing critical security patches and bug fixes.

Nothing works the way it's supposed to. Nothing plays nicely with what we've got. Nothing is as simple as we were told it would be.

If all this sounds unremittingly grim, keep in mind that we actually *do* deliver lots of projects. We do get SAP working, eventually. We do build distributed applications, even though it takes buckets of sweat and shaves years off our lives. We do solve business problems and keep users increasingly productive, even though it always takes longer than it should.

But are our expectations unreasonably high? Sure they are — fueled today not just by vendor sales promises, but also by glossy TV commercials, breathless magazine articles and wishful management thinking. And there's not a lot we can do to reduce those expectations.

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We can do that by educating business-side executives and managers in just how easy IT isn't. That may help a little. It's not much, but at least it's something to compete against all the voices outside and inside your organization chanting that this new product or that cutting-edge technology is a sure thing, a silver bullet and, above all, easy.

We can also be smarter about how we approach the hardest, most complex projects. The further we can break them down into simpler, more doable chunks, the better our chances of success — and of reducing surprises for executives who expect something wonderful right away and end up with a long-overdue mess.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

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Or we'll even make it look easy. ◗

That Would Explain It

When a help desk pilot fish opens this e-mail, there's no subject line or message – just a From: and a To: address. Fish shrugs and deletes it, but 15 minutes later, he hears from the user asking why he hasn't responded to her request. There was no message, fish points out. "It was a request to fix my keyboard," says exasperated user. "I can select 'help desk' from the list with my mouse, but the keyboard isn't working."

That Stinks

SHARK TANK

"Do you have any extra printers?" store manager asks support pilot fish. Sure, is yours broken? fish asks. "No, but a week ago, a mouse got in it somewhere and died," manager says. "It was smelling, so we put some air fresheners on it. But now those aren't working either, and it's smelling up the store and making the customers sick."

Going Both Ways

User explains to sys-admin pilot fish that she needs to temporarily link two laptops to transfer some files. You can use a cable or the infrared ports, fish explains. "In her best pleading-for-help voice," fish reports, "she asks to borrow an infrared cable."

Both Sides? No

Callers on hold to this travel agency no longer hear music, so support pilot fish tracks down the trouble: After two years of continuous play, the CD player has died. The CTO replaces the machine herself, but there's still no music. Fish checks: She didn't push the Play button. Now it's set to play continuously, fish explains. "Hmm, I think that might get kind of boring for our clients," CTO says. "Do you think we should turn the disc over once in a while?"

A Network of One

Company orders 30,000 podiums for training classrooms, and they're very snazzy, says pilot fish who works there: Each includes a networked PC with touch screen, wireless mouse and projector. "Our business folks also bought the optional software that allows the instructor to browse the student machines to check their progress," fish says. "The catch is, the total number of PCs in each training room is one – the instructor's!"

Aha!

User at a remote site suddenly can't log onto her laptop – her NT account seems to be missing or corrupted. So support pilot fish arranges for her to drive to the nearest office with her PC, check in with security, borrow a docking station and connect to the network. "She finally gets logged on," fish says, "and we find the real problem: She's picked up someone else's laptop."

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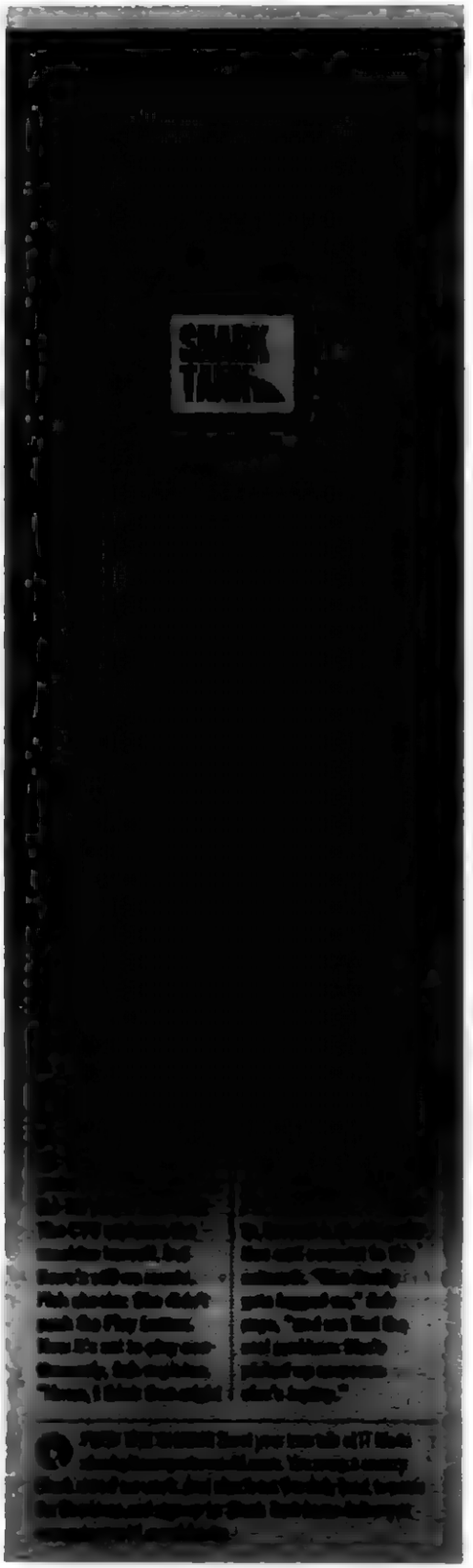

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KNOWLEDGE CENTER ROI

MARIA MINDON

Do the Math!

SPECIAL REPORT

Yes, it's possible to waste time on ROI. But calculating the return on investment for big IT projects can yield big dividends if done properly. We provide a CIO's guide to the strengths and weaknesses of 10 different ROI models.

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ONLINE EXCLUSIVE

Book excerpt: Measure the kind of ROI that the board of directors can understand:

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Stage Set for Easy, Cheap Rollouts of IP-based Storage

Approval of iSCSI standard paves way for product deliveries; users welcome alternative

BY LUCAS MEARIAN

After some fits and starts, an IP version of the low-cost SCSI storage interconnect is finally in position to attract wider attention from technology vendors and users.

The Internet Engineering Task Force's IP storage steering group last week formally ratified the iSCSI protocol as a standard. That paves the way for storage vendors to ramp up shipments of products based on iSCSI, which is designed to let network administrators take servers that have been locked into direct-attached storage systems and plug them into IP-based networks for data backup and management functions.

After the vote, the IETF released the iSCSI specification for public comments. David Black, a senior technologist at EMC Corp. and co-chairman of the IETF's IP storage group, said the comment period should last about a month.

But, he added, "at this point, nothing will change. We're done in terms of technical changes."

Because IP networks are commonplace, iSCSI can be used to transmit data over LANs, WANs and the Internet, potentially allowing users to access information via corporate intranets or Web-based portals. "Whatever you can do with an e-mail, you can do

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Microsoft Revamps Datacenter

Adds more support options to program, but impact unclear

BY CAROL SLIWA

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But while the changes represent a positive step, it's unclear how much they will affect the existing user base or whether they will spark an uptick in the sluggish adoption of Microsoft's challenger to high-end Unix systems. The new program aspires to the same lofty goals that its predecessor — the more plainly named Windows Datacenter Program — did when it was launched in September 2000.

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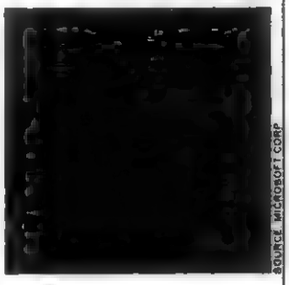

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Sun to Ship Technology Modules

Strategy aims to ease complexity, promote integration, cut costs

BY JAIKUMAR VIJAYAN

The flurry of products and services announced by Sun Microsystems Inc. last week is part of the company's strategy to offer technology bundles that are more integrated, more integratable and that the company will custom-configure for users as needed.

As part of that strategy, Sun is moving to a quarterly cycle of technology releases that combine hardware, software, middleware and services products, company officials said last week.

Sun will no longer roll out individual hardware or software products but will instead focus on delivering pretested and easily configurable technology modules that users can quickly plug into existing infrastructures.

New Under Sun

- Blade servers based on SPARC and Intel processors
- A 12-processor midrange server
- Blade server virtualization software
- High-end CPU upgrades
- N1 assessment services

The data center optimization technologies that Sun is rolling out as part of its N1 initiative will play a key role in

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UCITA proponents unfazed as ABA refuses to endorse licensing law.
An early adopter shows that Web services really can work.

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KNOWLEDGE CENTER ROI

MARIA RENDON

Do the Math!

SPECIAL REPORT

Yes, it's possible to waste time on ROI. But calculating the return on investment for big IT projects can yield big dividends if done properly. We provide a CIO's guide to the strengths and weaknesses of 10 different ROI models.

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ONLINE EXCLUSIVE

Book excerpt: Measure the kind of ROI that the board of directors can understand:

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Stage Set for Easy, Cheap Rollouts of IP-based Storage

Approval of iSCSI standard paves way for product deliveries; users welcome alternative

BY LUCAS MEARIAN

After some fits and starts, an IP version of the low-cost SCSI storage interconnect is finally in position to attract wider attention from technology vendors and users.

The Internet Engineering Task Force's IP storage steering group last week formally ratified the iSCSI protocol as a standard. That paves the way for storage vendors to ramp up shipments of products based on iSCSI, which is designed to let network administrators take servers that have been locked into direct-attached storage systems and plug them into IP-based networks for data backup and management functions.

After the vote, the IETF released the iSCSI specification for public comments. David Black, a senior technologist at EMC Corp. and co-chairman of the IETF's IP storage group, said the comment period should last about a month.

But, he added, "at this point, nothing will change. We're done in terms of technical changes."

Because IP networks are commonplace, iSCSI can be used to transmit data over LANs, WANs and the Internet, potentially allowing users to access information via corporate intranets or Web-based portals. "Whatever you can do with an e-mail, you can do

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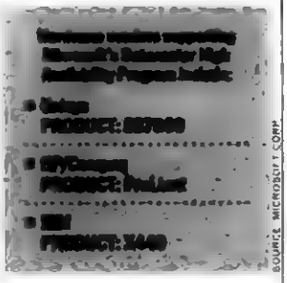

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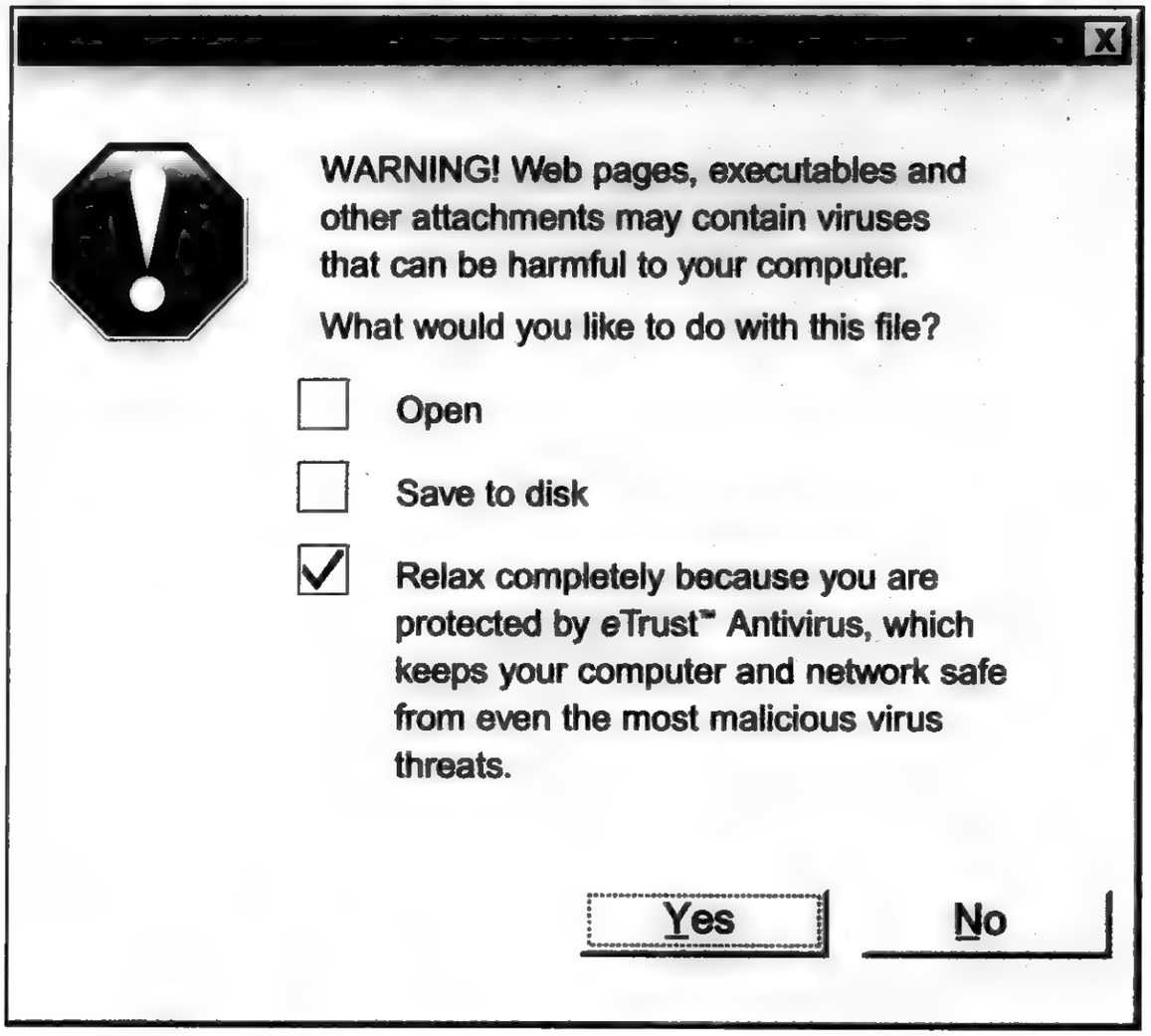

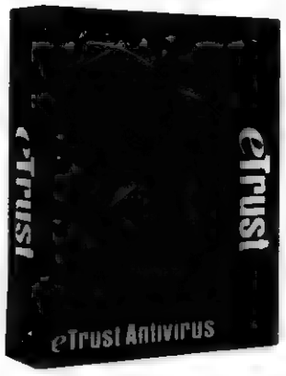

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Be Afraid!

This special report takes an in-depth look at the financial models for assessing the return on investment from IT projects. CIOs talk about the payoff from "doing the math," and we provide a guide to the strengths and weaknesses of the major metrics, such as net present value and internal rate of return. But we also hear from the dissidents, who say ROI calculations can be a waste of time.

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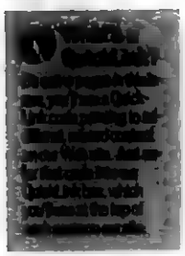

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KNOWLEDGE CENTER ROI

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The Story Still

There are no quite stand-alone IT projects, just business projects that involve people, processes and technology. And the ROI should be evaluated for all three, according to an excerpt from a forthcoming book by The Hackett Group's David Apgar. QuickLink 25020

Maximize ROI With a Project Office

IT projects will be more successful — and have a greater ROI — if there's a program management office keeping an eye on them, says one IT consultant. The savings produced will far exceed the cost of staffing. QuickLink 25022

Stop the ROI Closet

Q&A: Companies need a standard ROI process and lexicon, say the co-founders of management consultancy Mainstay Partners. Why? A hodgepodge of ROI metrics will make it hard to evaluate investments on an apples-to-apples basis. QuickLink 25011

AT DEADLINE

Ridge Releases Cyberdefense, Physical Strategies

Secretary of Homeland Security Tom Ridge on Friday released the final versions of the Bush administration's national strategies to defend critical infrastructures from cyber and physical attack.

As the nation remained at Code Orange – the second-highest level of alert – Ridge said the two strategy documents are critical to the future planning of the new U.S. Department of Homeland Security. The "National Strategy to Secure Cyberspace" and the "National Strategy for the Physical Protection of Critical Infrastructures and Key Assets" will help guide governments and businesses in their efforts to defend the country from terrorism, said Ridge.

One of the first priorities of the administration's cyberdefense strategy will be to establish a national cyberspace security response system that will enable the government to coordinate with the private sector on analysis, warning, incident management and recovery efforts stemming from a coordinated cyberattack against the U.S.

Howard Schmidt, acting chairman of the President's Critical Infrastructure Protection Board, said a major thrust of the cyberdefense strategy is to work with the private sector to reduce the nation's vulnerability to attack. In addition, the Homeland Security Department is considering a cybersecurity alert system that would work in conjunction with the overall Homeland Security Alert System.

Noticeably absent from the final version of the national cyberdefense strategy is any mention of regulating the private sector to force improvements in security. While Schmidt said the goal from the very beginning was to build a "partnership," Bob Stephan, special assistant to Secretary Ridge for information analysis, said regulation could be an option for some industries, such as chemical manufacturing, where the threat to public health and safety is particularly acute.

– Dan Verton

UCITA Backers Lose Political Ammunition

Bar association declines to give official blessing

BY PATRICK THIBODEAU

BACKERS of the controversial UCITA software licensing law intend to push ahead to win adoption by more states, despite a decision by the American Bar Association last week not to back the proposed law.

The ABA's governing body withdrew the Uniform Computer Information Transactions Act from consideration after it became clear that the measure didn't have enough support among members of the influential legal association.

The move, taken by the ABA at its midyear meeting in Seattle, has no direct impact on UCITA and the push for state-by-state adoption. But it gives the law's opponents ammunition to use against it in states where it's introduced.

UCITA's drafter, the National Conference of Commissioners on Uniform State Laws (NCCUSL), will seek adoption in states that have shown an interest in the act: Arizona, Colorado, Delaware, Oklahoma and Wisconsin, as well as the District of Columbia.

Despite the ABA decision, Carlyle "Connie" Ring Jr., chairman of the NCCUSL's UCITA drafting committee, said he was pleased with the outcome. He claimed that opponents "engaged in counterproductive activity that resulted in the ABA really wanting to leave [UCITA] to the states" to adopt uniform rules.

Ring said there was "a great deal of manipulation of the [procedural] rules" by opponents in order to achieve a negative outcome. But most ABA delegates wanted to take no position because there wasn't enough time to debate the act, nor was the meeting the appropriate forum for deciding its merits, he said.

Timeline

1999: UCITA is introduced.

2000: Virginia and Maryland adopt it.

2001: Opponents organize and stop further adoptions. The ABA forms a committee to review the law. UCITA drafters agree to drop "self-help" remote turn-off provisions.

2002: An ABA committee labels UCITA too confusing and complex and calls for a rewrite. No states adopt UCITA.

2003: The ABA's governing body declines to back UCITA. A push for state adoption resumes.

Not Seeing Eye to Eye

But some ABA members saw the situation differently.

"The thing was dead on arrival, and [supporters] are trying to make [believe] that the ABA didn't want to vote on it," said Hervey Levin, a delegate from the ABA's Tort Trial and Insurance Section and a Dallas-based attorney.

Vincent Polley, chairman of the Cyberspace Law Committee of the ABA's Business Law Section, said UCITA raised concerns among members in part because it's ahead of its time and seeks to put into law provisions that aren't in common commercial practice. He also said that UCITA is confusing and complex and that its controversiality means it's likely to be altered in the various states and therefore not such a uniform law. Polley is deputy general counsel at Schlumberger Ltd., an oil-field services firm in New York.

UCITA is designed to set uniform terms and conditions for software sales and electronic transactions. The measure is supported by vendors and trade groups, but opponents believe it gives vendors too much power in contracts.

UCITA's proponents say that ABA backing isn't critical. "ABA approval isn't something we point to when we are pushing an act," said Katie Robinson, an official at the Chicago-based NCCUSL.

But opponents say that without ABA support, UCITA is seriously wounded, if not dead. "Pushing it forward in anything close to its current form is like dragging a dead whale back to sea," said Bruce Barnes, an IT consultant in Dublin, Ohio.

DEAD OR ALIVE?

UCITA should be dead, but it remains alive because of the NCCUSL's foolish pride, says columnist Frank Hayes. **Page 50**

UCITA Background: To read *Computerworld*'s previous UCITA coverage, visit our Web site:

QuickLink a1990
www.computerworld.com

Cisco Expands Its Line of Intrusion-Detection Tools

BY MATT HAMBLEN

Cisco Systems Inc. this week plans to announce new intrusion-protection software and firewall enhancements, including functionality designed to lower IT staffing costs by drastically reducing false or irrelevant system-intrusion alarms.

Cisco officials said a major upgrade, Cisco Intrusion Detection System (IDS) 4.0, will accompany the rollout of new Cisco Threat Response technology that's aimed at reducing incidents of false intrusion alarms by 95%. The company will also announce upgraded management features for IDS 4.0, as well as an intrusion-detection sensor appliance and a second-generation version of the IDS software for its Catalyst 6500 switch.

In addition, Cisco will upgrade the software for its PIX Firewall appliances and unveil a virtual private network accelerator card that it said should provide performance improvements of up to 400% on networks that use the Data Encryption Standard and other specifications.

Cisco bought the Threat Response technology as part of its acquisition of Austin, Texas-based Psionic Software Inc. in October.

Vignette Corp., a developer of content management and portal software in Austin, has been testing Threat Response and hopes to deploy a working version soon, said Selim Nart, a network architect at Vignette. The software should help Vignette avoid having to hire more network management staffers to act on real alarms or to clear false ones, he said.

Nart estimated that 20 minutes' worth of intrusion alarms results in 20 hours of work for a network administrator. He said Vignette experiences a total of 90,000 intrusion alarms in its global network monthly. So far, Threat Response "has been very accurate," Nart said. "It helps us a lot on troubleshooting the real problems."

Threat Response, the improvements included in IDS 4.0 and the other features are examples of Cisco's continued efforts to improve its security capabilities, said Zeus Kerravala, an analyst at The Yankee Group in Boston. By acquiring Psionic and other vendors, Cisco has been able to put together a network security "ecosystem" that rivals such as Nortel Networks Ltd. and Alcatel can't match, he said.

MORE INFORMATION

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Data Analysis Vendors Add Supply Chain Tools

BY MARC L. SONGINI

SAS Institute Inc. is expanding its line of business-intelligence software in a bid to help users apply in-depth analytics to their supply chain processes — making it one of several data analysis vendors with initiatives of that kind.

Cary, N.C.-based SAS last week announced plans to ship two applications designed to exploit its analysis capabilities in the supply chain arena. The company also said it has set up a supply chain analytics consulting group to help companies install the applications.

Cognos Inc. in Ottawa and Hyperion Solutions Corp. in Sunnyvale, Calif., said they're also working to add supply chain analysis tools to their business-intelligence product lines. Scott Lawrence, director of analytic applications at Cognos, said the company's software will give users the ability to fully analyze their supply chain operations.

Dennis McCarron, senior manager of business planning strategy at SAS, said the applications his company is developing will complement existing supply chain management systems, such as the ones sold by SAP AG and i2 Technologies Inc. The goal is to help users cut costs while optimizing their quality-control efforts, he explained.

To that end, McCarron said, SAS will offer a demand-intelligence package that provides an integrated view of inventory, price optimization and product demand processes. Companies will be able to use the software to tailor their supply chains to better meet market needs and to adjust pricing and promotions. The application is initially being developed for the retail and consumer goods industries.

SAS said it's also working on a manufacturing process analysis application to help companies find ways to improve product quality and reduce time to market. That product will be initially targeted at semiconductor and other high-tech companies.

Both modules are available on a limited basis now and are due for general release by year's end.

The demand-intelligence capabilities sound interesting, said Gary Keathley, materials manager at Alcon Inc.'s manufacturing plant in Houston. But he added that the eye care products maker customized its SAS applications to handle demand-analysis functions more than 10 years ago.

Alcon's SAS installation can take sales data, crunch the numbers and project future production needs at the Houston plant based on factors such as seasonality and customer needs, Keathley said.

The manufacturing process application could also be useful, but SAS officials need to better "pinpoint what they are trying to go after" with that product, he said.

While SAS already sells some supply chain analysis components, it's now creating an end-to-end offering that covers both the supply and demand sides of supply chain processes, said Bob Moran, an analyst at Aberdeen Group Inc. in Boston. The new software will let users examine how events at one point in a supply chain could affect other segments, Moran said. That could be a key capability for companies that try to get by with the thinnest of profit margins, he added.

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Cognos to Ship Browser-based Analysis App

In addition to its development of supply chain analysis tools, Cognos is readying the first fully Web browser-based release of its flagship business-intelligence software.

The company plans to announce the Cognos Series 7 Version 2 upgrade this week and ship it next month. Because it requires no client software, the new release can reduce administrative costs and headaches for corporate users, according to Cognos officials. They said it can also handle larger amounts of data than before and provide predictive analysis capabilities to users.

The latter feature will let users run forward-looking trend analyses instead of just querying historical data, said Michael Brandeau, a product director at Cognos. For example, a company could use the tool to project how a sales deal might affect inventory levels, enabling it to plan ahead by ordering more stock.

The new release is being designed to address usability issues, but its Web-based user interface has the same capabilities that Cognos built into the current Windows version, said Philip Russom, an analyst at Giga Information Group Inc.

– Marc L. Songini

Microsoft Plans Reporting Engine for SQL Server

BY MARC L. SONGINI

Microsoft Corp. last week announced plans to embed an analytical reporting engine in the upcoming 64-bit version of its SQL Server database, adding another element to the decision-support capabilities it offers to corporate users.

Currently, Microsoft supports the ability to launch online analytical processing queries as part of SQL Server 2000. But the new Reporting Services technology planned for the 64-bit release, which is code-named Yukon, will also let users create business reports and distribute them across corporate networks, said Sheryl Tullis, product manager for SQL Server.

Although the reporting engine is being targeted primarily at developers within corporate IT departments and at software vendors, end users will be able set up their own report parameters, Tullis said. The software will include Web services hooks for developing reports using Microsoft's Visual Studio .Net tool kit and .Net Framework programming model, she added.

In addition, it will be able to interoperate with any data repository that has OLE DB or Open Database Connectivity (ODBC) interfaces and to publish reports to Web browsers or Microsoft's Office desktop applications. Reporting Services is scheduled for initial release in a beta-test version of Yukon due by midyear.

Microsoft acknowledged that there will be some overlap between Reporting Services and reporting tools sold by business partners such as Crystal Decisions Inc. in Palo Alto, Calif. But Microsoft said in a statement that it will continue to provide partnership opportunities for other reporting tool vendors.

The tight integration promised among Microsoft's SQL Server, Reporting Services and server management software makes the new technology especially appealing to ProClarity Corp., a Boise, Idaho-based developer of business analytics software.

Money-Saving Move

ProClarity, a Microsoft partner and SQL Server 2000 user, is testing an early version of the Reporting Services software, said Clay Young, the company's vice president of marketing. ProClarity plans to roll out the reporting tools internally when the beta release becomes available, he added.

Young said ProClarity hopes to use Reporting Services to create reports that don't require further analysis after distribution, such as ones that detail the number of hits on its Web site. The company currently uses Crystal Decisions' software, but Young said ProClarity plans to standardize on Microsoft's technology to save money, since Reporting Services will be bundled as part of SQL Server licenses.

Microsoft's move makes sense as reporting tools become more of a commodity that decision-support vendors can embed into their products, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif.

Microsoft should have no problem convincing users that it can develop reporting software that's technically sound, Greenbaum said. But it may be harder for the company to prove that it has reporting expertise in individual vertical markets, he added.

Data Analysis Vendors Add Supply Chain Tools

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More Details

Hyperion and Hyperion Solutions are beefing up their supply chain tools.

COGNOS plans to release a manufacturing-specific supply chain application with support for functions such as analyzing bills of material costs and optimizing demand planning.

HYPERION aims to release by early next year supply chain-ready templates that will let users of its analysis software do modeling and planning work without extensive customization.

Dennis McCarron, senior manager of business planning strategy at SAS, said the applications his company is developing will complement existing supply chain management systems, such as the ones sold by SAP AG and i2 Technologies Inc. The goal is to help users cut costs while optimizing their quality-control efforts, he explained.

To that end, McCarron said, SAS will offer a demand-intelligence package that provides an integrated view of inventory, price optimization and product demand processes. Companies will be able to use the software to tailor their supply chains to better meet market needs and to adjust pricing and promotions. The application is initially being developed for the retail and consumer goods industries.

SAS said it's also working on a manufacturing process analysis application to help companies find ways to improve product quality and reduce time to market. That product will be initially targeted at semiconductor and other high-tech companies.

Both modules are available on a limited basis now and are due for general release by year's end.

The demand-intelligence capabilities sound interesting, said Gary Keathley, materials manager at Alcon Inc.'s manufacturing plant in Houston. But he added that the eye care products maker customized its SAS applications to handle demand-analysis functions more than 10 years ago.

Alcon's SAS installation can take sales data, crunch the numbers and project future production needs at the Houston plant based on factors such as seasonality and customer needs, Keathley said.

The manufacturing process application could also be useful, but SAS officials need to better "pinpoint what they are trying to go after" with that product, he said.

While SAS already sells some supply chain analysis components, it's now creating an end-to-end offering that covers both the supply and demand sides of supply chain processes, said Bob Moran, an analyst at Aberdeen Group Inc. in Boston. The new software will let users examine how events at one point in a supply chain could affect other segments, Moran said. That could be a key capability for companies that try to get by with the thinnest of profit margins, he added.

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Cognos to Ship Browser-based Analysis App

In addition to its development of supply chain analysis tools, Cognos is readying the first fully Web browser-based release of its flagship business-intelligence software.

The company plans to announce the Cognos Series 7 Version 2 upgrade this week and ship it next month. Because it requires no client software, the new release can reduce administrative costs and headaches for corporate users, according to Cognos officials. They said it can also handle larger amounts of data than before and provide predictive analysis capabilities to users.

The latter feature will let users run forward-looking trend analyses instead of just querying historical data, said Michael Branchaud, a product director at Cognos. For example, a company could use the tool to project how a sales deal might affect inventory levels, enabling it to plan ahead by ordering more stock.

The new release is being designed to address usability issues, but its Web-based user interface has the same capabilities that Cognos built into the current Windows version, said Philip Russom, an analyst at Giga Information Group Inc.

– Marc L. Songini

Microsoft Plans Reporting Engine for SQL Server

BY MARC L. SONGINI

Microsoft Corp. last week announced plans to embed an analytical reporting engine in the upcoming 64-bit version of its SQL Server database, adding another element to the decision-support capabilities it offers to corporate users.

Currently, Microsoft supports the ability to launch online analytical processing queries as part of SQL Server 2000. But the new Reporting Services technology planned for the 64-bit release, which is code-named Yukon, will also let users create business reports and distribute them across corporate networks, said Sheryl Tullis, product manager for SQL Server.

Although the reporting engine is being targeted primarily at developers within corporate IT departments and at software vendors, end users will be able set up their own report parameters, Tullis said. The software will include Web services hooks for developing reports using Microsoft's Visual Studio .Net tool kit and .Net Framework programming model, she added.

In addition, it will be able to interoperate with any data repository that has OLE DB or Open Database Connectivity (ODBC) interfaces and to publish reports to Web browsers or Microsoft's Office desktop applications. Reporting Services is scheduled for initial release in a beta-test version of Yukon due by midyear.

Microsoft acknowledged that there will be some overlap between Reporting Services and reporting tools sold by business partners such as Crystal Decisions Inc. in Palo Alto, Calif. But Microsoft said in a statement that it will continue to provide partnership opportunities for other reporting tool vendors.

The tight integration promised among Microsoft's SQL Server, Reporting Services and server management software makes the new technology especially appealing to ProClarity Corp., a Boise, Idaho-based developer of business analytics software.

Money-Saving Move

ProClarity, a Microsoft partner and SQL Server 2000 user, is testing an early version of the Reporting Services software, said Clay Young, the company's vice president of marketing. ProClarity plans to roll out the reporting tools internally when the beta release becomes available, he added.

Young said ProClarity hopes to use Reporting Services to create reports that don't require further analysis after distribution, such as ones that detail the number of hits on its Web site. The company currently uses Crystal Decisions' software, but Young said ProClarity plans to standardize on Microsoft's technology to save money, since Reporting Services will be bundled as part of SQL Server licenses.

Microsoft's move makes sense as reporting tools become more of a commodity that decision-support vendors can embed into their products, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif.

Microsoft should have no problem convincing users that it can develop reporting software that's technically sound, Greenbaum said. But it may be harder for the company to prove that it has reporting expertise in individual vertical markets, he added.

Reporting Plan

The reporting tools that Microsoft is developing will:

- Be part of the 64-bit Yukon version of SQL Server.
- Let users create reports and distribute them throughout a company.
- Include Web services hooks plus ODBC and OLE DB interfaces.
- Support publishing of reports in Web browser or Office apps.

BRIEFS

Visteon, IBM Sign Outsourcing Deal

Visteon Corp., an automotive parts maker in Dearborn, Mich., announced a 10-year IT outsourcing deal with IBM valued at about $2 billion. IBM will take over Visteon's mainframes, data centers, networks and help desk operations, and some application development work. Visteon, which was spun off from Ford Motor Co. in 2000, will continue to manage applications that support product development.

Dell Loosens Ties To Pacts With IBM

Dell Computer Corp. said it has largely ended two multibillion-dollar deals signed with IBM in 1999. A component supply contract that called for Dell to buy disk drives and PC monitors from IBM has become defunct following IBM's sale of those operations. Dell also de-emphasized an IT services partnership and now calls IBM Global Services for assistance only upon user request.

IT Trade Group Files XP Complaint

The Computer & Communications Industry Association (CCIA), a trade group in Washington that sided with the U.S. government in the Microsoft Corp. antitrust case, filed a complaint related to Windows XP with the European Commission. The CCIA claimed that Microsoft's bundling of various applications in XP violates European antitrust laws. Microsoft declined to comment.

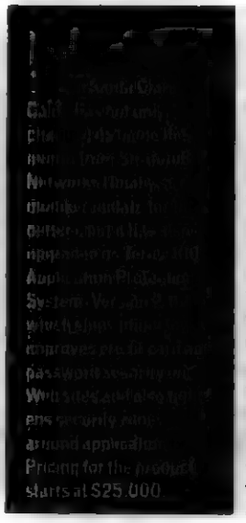
Top Sprint Execs To Stay, for Now

Sprint Corp. said outgoing CEO William Esrey and President Ronald LeMay will stay on while it tries to free CEO-designate Gary Forsee from his contract with BellSouth Corp. in Atlanta. Forsee is currently BellSouth's vice chairman.

MARK HALL ▪ ON THE MARK

Nokia Appliance Plugs E-mail Security Hole . . .

. . . and challenges competing devices, which, a company executive chides, "appeal to the lowest common denominator." Nokia Internet Communications, a U.S.-based business unit of Finland's Nokia Corp., will ship at the end of March its SC6600 e-mail security appliance to guard your network from any message laden with viruses, worms, spam, offensive language, sensitive data and just about any digital nasty you can concoct. A single SC6600 (the Nokia Message Protector, if you're a fan of marcom-speak) peers into files that have been zipped multiple times, decodes macros, analyzes executables, parses content and detects spam at a sizzling 120,000 electronic epistles per hour. Its performance is achieved, brags Dan MacDonald, vice president of product management and marketing, "because the [SC6600] is purpose-built to protect SMTP traffic flow." Competing boxes from say, McAfee, he says, are "just a **general-purpose computer that attempts to do too many things** at once," such as protect HTTP and VPNs as well as SMTP traffic. Worse, MacDonald claims, virus security firms have tried to force-fit their software approach into a hardware appliance, which he says needs to be designed from the silicon up, not the binaries down. As such, Nokia has partnered with Trend Micro Inc. for its virus software. The 1U (1.75 in. high) appliance will cost $16,000, plus the license for Trend Micro's virus protection. ▪ If you're satisfied that your e-mail is safe and sound, it's time to consider **the gaping hole instant messaging (IM) bores into your network.** Not yours, you say. Fat chance. IM permeates 84% of businesses today, according to market researcher Osterman Research Inc., which surveyed 189 organizations. If you still doubt it, visit the Web site of San Diego-based Akonix Systems Inc. and download its free tool, Akonix Rogue Aware, which will enlighten you on just how pervasive IM is in your company. If what you learn scares you, Akonix CEO Peter Shaw hopes you'll buy Version 2.0 of Akonix L7 Enterprise, which **protects your IM traffic from viruses while enforcing corporate policies** on who can send what IM traffic with which IM client and when they can send it. Each of the IM gateways can handle 20,000 users and can be clustered for redundancy. Based on Windows server technology, the L7 Enterprise ships tomorrow with a starting price of $2,250. Look for an adapter to manage peer-to-peer traffic and a Linux-based version before the end of the year. ▪ **Knock, knock. Who's there? Not content.** More than an unfunny joke, it's a sad situation when visitors arrive at your Web site and can't find what they're looking for. The search technology wizards at iPhrase Technologies Inc. have devised a "buried content reporting" tool that's now in the prototype stage for release sometime in the second quarter. What beta users are discovering is that the most coveted content has been deposited a minimum four or five clicks deep into their Web sites, which the MIT-schooled founders of iPhrase suggest makes for a compelling case for advanced search tools. **Duh.** ▪ IP-based phone systems get another boost on March 3 when AltiGen Communications Inc. ships its Multichannel Contact Center for sales, service and help desk operations. Each 4U rack-mounted device can handle 128 chatty agents and costs $525 to $900 per user, depending on the applications purchased. The system **can link to legacy private branch exchanges or connect directly to your outside lines.** ▪ Keith Raffle, chairman of UpShot Corp., still sounds a little bitter when he talks about Microsoft Corp.'s recent entry into the hosted CRM market. (**"I wonder what Microsoft is bringing to this party,"** he mutters.) After all, UpShot dutifully adopted a pure .Net Microsoft technology, then those Redmond rascals try to take his business after he gave them his. Well, he's not going to simply roll over. Today, UpShot introduces a Multiprocess Management feature to its UpShot XE CRM for enterprises. The update improves customization of data views and provides simple drag-and-drop configuration of screens, among other enhancements. **The online CRM party keeps getting louder.** ◗



HP Stays Itanium Course Ahead of Intel

BY JAIKUMAR VIJAYAN

Hewlett-Packard Co. this week will introduce an Itanium 2 chip set in a move that takes it another step closer to delivering its first high-end servers based on Intel Corp.'s 64-bit processor architecture.

The company will also detail plans to deliver the HP mx2 "daughter-card" technology that will allow it to combine two Itanium 2 processors and a large memory cache into a one-chip module.

The mx2 technology, code-named Hondo, will allow HP to double the number of processors it can pack into an Itanium server and will deliver better performance for applications that require CPU scalability, said Brian Cox, an HP product manager.

HP's new sx1000 chip set will allow the company to build systems much larger than current Intel chip-set technology permits, Cox said. With it, HP is on track to deliver the first Itanium 2-based 64-processor Superdome server in mid-2003, he added.

Because the sx1000 chip set is compatible with HP's PA-8800 RISC architecture, users will be able to upgrade from RISC to Itanium processors within the same unit. HP's Itanium Superdome systems will be able to run HP-UX, Windows and Linux in the same machine. Next year, the company will add support for the OpenVMS operating system on Itanium servers.

HP's mx2 daughter-card technology, meanwhile, will become available sometime early next year, well in advance of Intel's planned launch of a dual-core Itanium processor in 2005, Cox said.

HP is the only major systems vendor that's likely to ship high-end Itanium servers by year's end, analysts said. "But as co-developer of Itanium, that is only something to be expected from HP," said Terry Shannon, editor of the "Shannon Knows HPC" newsletter in Albuquerque, N.M. ◗

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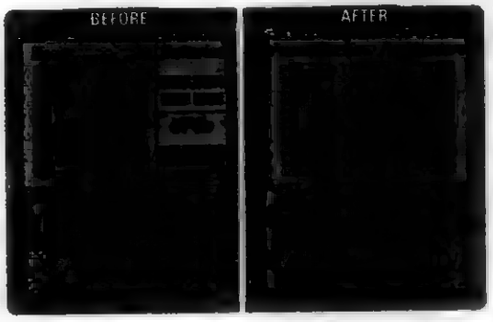

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Danish Bank Blazes Web Services Trail

Says performance overhead worth it

BY CAROL SLIWA

MARKING THE one-year anniversary of its Visual Studio .Net tools, Microsoft Corp. last week spotlighted Danske Bank A/S as a cutting-edge adopter of the Web services capabilities in its .Net Framework.

But the Copenhagen-based financial institution's Web services work extends well beyond its use of Microsoft technology. Danske Bank was plotting a services-oriented architecture to expose functionality from its mainframes, IBM WebSphere application servers and Microsoft servers long before Web services came into vogue.

Peter Schleidt, Danske Bank's executive vice president of group technology development, said the institution has already exposed about 200 services from those disparate systems and plans to launch another 500 services into production this year.

In the Top Echelon

Daryl Plummer, an analyst at Stamford, Conn.-based Gartner Inc., said that if they are indeed "true" services, they would place Danske Bank in the top 1% of IT departments doing Web services work. He defined a true service as one with a well-described interface to a system that can be called from an outside system.

"Most companies don't have that many services identified and exposed at this point," Plummer said.

The end result can be extremely useful. Schleidt cited a portal that customers and 7,000 financial and sales advisers use to access information drawn from the disparate back-end systems.

For instance, an employee can now access a unified customer-purchase record and correspondence history from the same interface, without having to call individual systems one at a time.

Schleidt said that three years ago, the bank recognized the need for an engine that would enable it to integrate functionality across its disparate systems.

Rather than tying functionality from one system to another one by one, the bank's developers write standards-based interfaces that expose functionality as services. They define and describe the services they have built and how those services can be called by other systems. That information is then stored in an internal registry that conforms to the Universal Description, Discovery and Integration standard, Schleidt said.

About 70% of the bank's developers work in Cobol, 20% with Microsoft's tools and 10% in Java, according to Schleidt. But a Java developer who wants to connect to a service exposed by a Cobol developer doesn't have to worry about the complexity of the other environments. "This is what Web services are all about — hiding complexity and exposing functionality," he said.

Two Approaches

When linking services from disparate systems, the bank takes a Web services approach and uses the Simple Object Access Protocol (SOAP) for message transport. But when connecting services between the same type of systems, such as mainframe to mainframe, it uses proprietary "bindings" for performance reasons, said Schleidt. He said the bank found that calling a mainframe function from the WebSphere environment takes 40 msec of CPU time using SOAP. Calling the same service from the mainframe, using proprietary protocols, takes 0.3 msec of CPU time. "It's a lot cheaper," Schleidt noted.

Mike Gilpin, an analyst at Cambridge, Mass.-based Giga Information Group Inc., said clients often report that it's five times slower to send data associated with a particular program call using SOAP vs. using a binary protocol.

Schleidt said Danske Bank decided a little performance overhead — but only 10%, he said — would be worth it because of the flexibility that Web services ultimately offer. But he added that he thinks the bank may eventually be able to eliminate the overhead by fine-tuning services that aren't working efficiently.

Danske Bank has yet to directly calculate return-on-investment figures for its Web services, but Schleidt said the boost in developer productivity will be more important because that will enable the company to deliver new, complex product packages more quickly.

Schleidt said it took three months to expose a stock-quote service, which was built with Microsoft's .Net tools, to Denmark's largest newspaper. But it took only three weeks to do the same for another partner, he said.

Those services represent the company's limited foray into external Web services. So far, the bulk of the bank's work has been with internal Web services — a recommendation Schleidt extends to his peers.

Bank Benefits

GM CTO Outlines Web Services Strategy

Tony Scott, chief technology officer of the information systems and services organization at General Motors Corp., spoke with Computerworld earlier this month about the automaker's plans for Web services technology. Excerpts from the interview follow:

Do you feel Web services have been too hyped? I would not write off any technology that the likes of Microsoft and Sun and other large companies like IBM have invested hundreds, if not a billion, dollars or so in R&D. The likelihood is pretty good that it's going to hang around and be something significant.

At GM, we're interested in it from a number of different perspectives. We've all lived through the embryonic stages of the Web and all the EAI [enterprise application integration] tools and the big application packages. So we don't see Web services as the panacea, the end-all, be-all that's going to replace everything else.

But it does appear to fit in the Web development space, where we can take certain kinds of activities that we're embedding in each and every application we build today and externalize them as a service and only do, for example, maintenance and repair on that service in one place vs. in hundreds of applications.

Can you cite an example? Obviously, every car has a vehicle identification number. And there are dozens, if not hundreds, of applications in GM that use vehicle identification numbers for something, as a part of our normal business process. There's a whole set of business rules around vehicle identification numbers – good ones, bad ones, when the vehicle was made, its repair history, all kinds of things. And today we have to embed lots of business logic and rules in every single application that uses vehicle identification numbers. One of the things we are working toward is creating a vehicle identification number Web service that in effect will encapsulate all of the logic and business rules and so on – let's call them the big rules around vehicle identification numbers – so that you don't have to support and maintain that in hundreds of applications.

> **"I'm more encouraged than I've been in a long time in terms of basic interoperability."**
>
> TONY SCOTT, CTO, GENERAL MOTORS CORP.

Do you feel encouraged by the potential for Web services to help you connect applications written using Java and Microsoft's .Net technologies? Yes. In our proofs-of-concept work, we've taken simple ideas, and we've done exactly that. We've married up what's shipping today among the various vendors, not totally without problems, but I'm more encouraged than I've been in a long time in terms of basic interoperability.

– Carol Sliwa

MORE ONLINE

To read an expanded version of this interview, visit our Web site:

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Says performance overhead worth it

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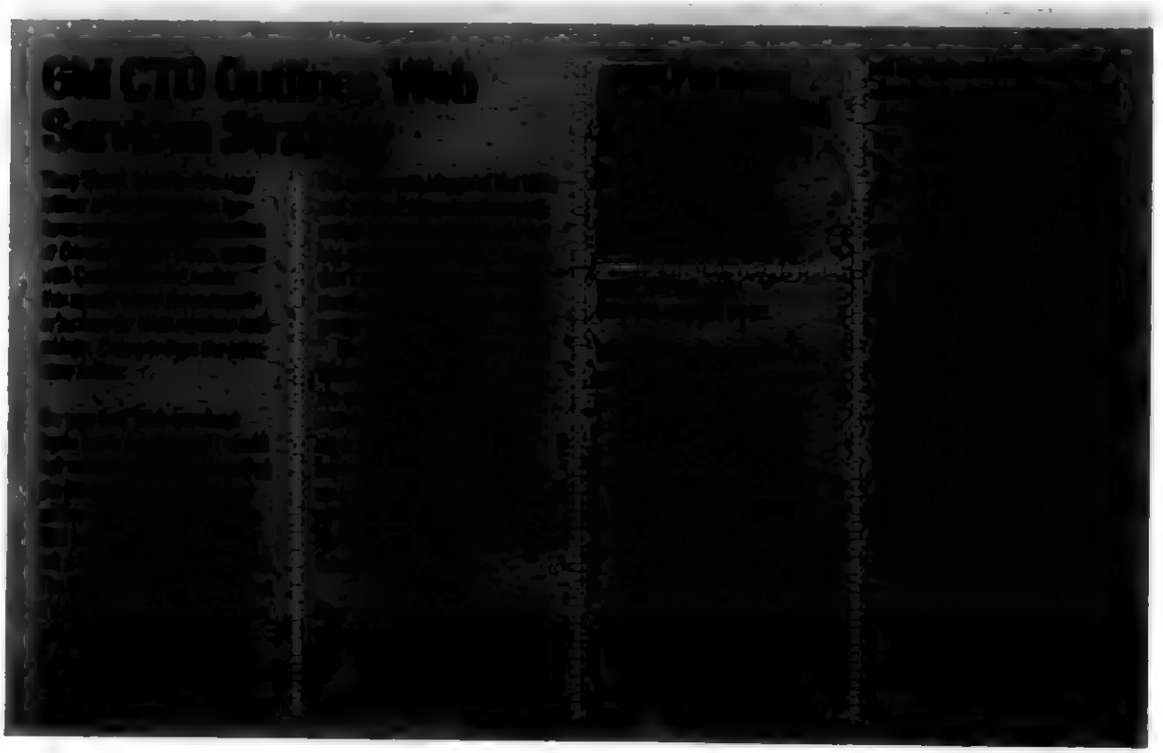

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Hospital CIOs Shy Away From Automating Medical Systems

Panel members cite high costs, IT risks of installing computerized applications

BY BOB BREWIN
SAN DIEGO

CIOS FROM hospitals large and small last week said they remain reluctant to deploy computerized physician order entry (CPOE) and automated medical records systems, despite a three-year push by 90 major U.S. employers for adoption of such systems to help eliminate medical errors.

Speaking on a CIO panel at the Healthcare Information and Management Systems Society's (HIMSS) annual conference here, Paula Anthony, who heads IT for the East Texas Medical Center (ETMC) Regional Healthcare System in Tyler, said she remains cautious about outside technology lobbying efforts such as the one for CPOE systems.

ETMC operates 13 acute care hospitals plus medical clinics in rural parts of East Texas. Anthony said the prospect of deploying CPOE technology for use by doctors, nurses and support personnel at the hospitals is "scary."

ETMC takes a conservative approach and "will not be in the forefront on technology," Anthony said.

The Leapfrog Group, a Washington-based health care consortium, last year estimated that systems for automating tasks such as prescribing medication and ordering medical procedures would eliminate a half-million medical errors annually — some of them fatal [QuickLink 29106]. The consortium was formed in 2000 by the Business Roundtable, a Washington-based organization made up of CEOs from Fortune 500 companies.

Kaiser Permanente Health Plan Inc., the largest nonprofit health maintenance organization in the U.S., this month said it plans to spend $1.8 billion during the next three years to roll out a paperless medical system that includes CPOE capabilities [QuickLink 36200].

Not a Simple Process

But Warren Chandler, CIO at St. Vincent's Health System in Jacksonville, Fla., said his 528-bed hospital is "a long way from going paperless." Developing and deploying a CPOE system may sound like a simple process, but it's not, Chandler said. "There are a lot of costs and risks," he noted.

Chandler said a good first step toward paperless operations is development of a clinical data repository, which could serve as a baseline system for CPOE and other automated medical applications.

Jeff Cooper, CIO at Henry Medical Center in Stockbridge, Ga., also said health care institutions should take a "building-block" approach to the development of CPOE systems. For example, IT managers could start by putting patient records in electronic form, he said.

Health care IT managers need to get involved with local business organizations to let them know what is realistic in terms of developing CPOE systems, said Pamela McNutt, CIO at Methodist Hospitals of Dallas, which operates a 478-bed hospital, a cancer clinic and four other facilities.

Despite their concerns about CPOE technology, the CIOs who took part in the panel discussion said they have made their systems compliant with the federal Health Insurance Portability and Accountability Act's (HIPAA) IT security and privacy mandates, which go into effect in April.

Meeting the HIPAA mandates was "very expensive, but we're ready for it," Anthony said. ETMC's biggest HIPAA-related expense was the cost of having lawyers review its privacy and security plans, not the cost of new technology, she added.

NASA Teams With Private Sector to Improve Software

Goal is to build fail-proof systems

BY PATRICK THIBODEAU
WASHINGTON

NASA's mission system software is considered to be among the best-engineered in the world. But in the aftermath of the 1999 Mars Polar Lander crash, which was caused by a software bug, NASA officials acknowledged that a long-term fix was needed in order to build systems that don't fail. And the agency's subsequent efforts may ultimately help all IT managers.

NASA played a leading role in the creation last year of the Sustainable Computing Consortium (SCC), which includes companies such as FedEx Corp., Pfizer Inc., Microsoft Corp. and Oracle Corp.

The goal of the SCC, which is based at Carnegie Mellon University in Pittsburgh, is the Holy Grail of software design: creating software that does what it's supposed to do, no matter what. It's called "high dependability" and refers to systems that tolerate hardware faults well, maintain a high level of security during attacks and are always available.

For an anlogy, think of the field of structural engineering, in which there are extensive building codes and precise measures for determining stress and loads. Right now, there no similar measures for quantifying the reliability of software, particularly in interconnected systems. "Imagine if there is no building code, where would you start? That's where we are with software," said SCC head William Guttman, a professor of economics and technology at Carnegie Mellon.

JUST THE FACTS

The SCC is a collaborative effort involving universities, companies and government agencies.

WHAT: Develop standards and measurements that allow engineers to accurately determine software reliability and security.

WHY: Major IT vendors emphasize dependability and security, but users currently have no way to ascertain software quality.

HOW: Conduct research to develop systematic approaches to assessing risk and value.

WHERE: *www.sustainablecomputing.org*

The Feb. 1 crash of the space shuttle *Columbia* brought renewed attention to the highly complex computer systems and software used by the space agency. While the cause of that disaster has yet to be determined, there's no doubt that a software bug caused the Mars Polar Lander to crash. For NASA, that crash was "an important watershed event" that prompted the agency to broaden outreach efforts to improve software design, said Henry McDonald, who headed NASA's Ames Research Center in Moffett Field, Calif., until last November.

Among systems that can't be allowed to fail are those that MasterCard International Inc. uses for its smart-card systems. Software code for those systems is inspected line by line and tested in a process that can take up half of the card development effort, particularly because of the need for high security, said Terry Stanley, the company's vice president of smart-card platform architecture.

But if vendors built better products, costs would be reduced, Stanley said. There are agreed-upon tests for chips, but that's not the case with software applications, he said. The IT industry is recognizing that application standards are needed "not only to cut down the cost of security testing, but to also reduce the time frame," he said.

MasterCard worked with SCC member Cigital Inc., a Dulles, Va.-based software engineering firm, to analyze and test its systems. One huge problem engineers face in checking systems, said Jeffery Payne, president and CEO of Cigital, is the ability to determine mathematically the reliability of an assembled system.

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WHY WE'RE IN

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MILITARY X-RAY NETWORK

At the HIMSS conference, U.S. Army officials detailed an IP-based network that routes X-rays for remote diagnosis.

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Companies Expected to Boost Offshore Outsourcing

Pressure to cut costs drives trend, analyst firms say

BY JAIKUMAR VIJAYAN

Demand for offshore outsourcing services will continue to grow substantially over the next several years, as companies try to squeeze more value out of every IT dollar they spend, according to recent reports from three major analyst firms.

In a report released last week, Meta Group Inc. in Stamford, Conn., predicted that offshore outsourcing will grow more than 20% annually, pushing it from a $7 billion market today to about $10 billion by 2005. Almost all application outsourcing services will include an offshore component, and the market will reach $15 billion by 2007, the Meta report added.

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"There is a growing sense that IT infrastructure management is something that can be packed up in a box and shipped off to someone who can do it more efficiently and at a lower cost," said Bruce Caldwell, an analyst at Gartner, which is also in Stamford.

"People are looking to offshore as a low-cost and immediately available alternative" to buying and deploying such technologies themselves, Caldwell said.

Overland Park, Kan.-based Meridian IQ LLC, a subsidiary of Yellow Corp. that provides transportation management services, expects its use of offshore services to increase, said CIO Dan Bentzinger.

Driving that trend are the same three factors that led Meridian to first outsource services to Infosys Technologies Ltd. in Bangalore, India, in 1998: speed to market, quality and cost of services.

Infosys has given Meridian the ability to quickly acquire reliable IT resources to deploy new services, while also giving it the flexibility to ramp down when they aren't needed, Bentzinger said. "Meridian is in an upswing right now, which means we are going to be growing our relationship," he predicted.

Even though IT budgets are shrinking or remaining flat in the face of the recession, the amount of money being allocated to offshore outsourcing is increasing as a percentage of overall IT spending, said Prasad Thrikutam, an Infosys regional manager in Dallas.

In fact, one offshore services company, Cognizant Technology Solutions Corp. in Teaneck, N.J., reported record growth in 2002, as annual revenues rose to $229 million from $178 million in 2001.

Increasingly, offshore companies are being viewed not just as a "tactical cost-saving option but as more of a strategic proposal," said Ram Mynampati, chief operating officer at Satyam Computer Services Inc. in Hyderabad, India. This is reflected in the higher-end jobs Satyam is being asked to do for its U.S. clients, Mynampati said.

But project management remains a major challenge for many companies that outsource to offshore vendors, according to a recent survey by Forrester Research Inc. in Cambridge, Mass., the results of which were also released earlier this month.

One-third of the respondents in the survey of 145 "decision-makers" at North American companies said they use offshore services and plan to spend more money on them in the future, Forrester said.

But "18% of respondents using offshore providers reported a major challenge in measuring performance, while 20% have serious issues specifying the work needed to be done," the Forrester report concluded.

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FORRESTER RESEARCH
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Nortel, C&W Push New Capabilities on IP Networks

VOIP, global videoconferencing among targets

BY MATT HAMBLEN

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Nortel's initiative should mean corporate IT managers will see lower costs for IP-based voice connections, said Christin Flynn, an analyst at The Yankee Group in Boston. Many carriers have been involved in IP voice trials and should be ready to invest in deployments of the technology this year, she said.

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Calling Carriers

[redacted]

ADDITIONAL INFO

To read more on this topic, head online to our Networking Knowledge Center.

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Hospital CIOs Shy Away From Automating Medical Systems

Panel members cite high costs, IT risks of installing computerized applications

BY BOB BREWIN
SAN DIEGO

CIOs FROM hospitals large and small last week said they remain reluctant to deploy computerized physician order entry (CPOE) and automated medical records systems, despite a three-year push by 90 major U.S. employers for adoption of such systems to help eliminate medical errors.

Speaking on a CIO panel at the Healthcare Information and Management Systems Society's (HIMSS) annual conference here, Paula Anthony, who heads IT for the East Texas Medical Center (ETMC) Regional Healthcare System in Tyler, said she remains cautious about outside technology lobbying efforts such as the one for CPOE systems.

ETMC operates 13 acute care hospitals plus medical clinics in rural parts of East Texas. Anthony said the prospect of deploying CPOE technology for use by doctors, nurses and support personnel at the hospitals is "scary."

ETMC takes a conservative approach and "will not be in the forefront on technology," Anthony said.

The Leapfrog Group, a Washington-based health care consortium, last year estimated that systems for automating tasks such as prescribing medication and ordering medical procedures would eliminate a half-million medical errors annually — some of them fatal [QuickLink 29106]. The consortium was formed in 2000 by the Business Roundtable, a Washington-based organization made up of CEOs from Fortune 500 companies.

Kaiser Permanente Health Plan Inc., the largest nonprofit health maintenance organization in the U.S., this month said it plans to spend $1.8 billion during the next three years to roll out a paperless medical system that includes CPOE capabilities [QuickLink 36200].

Not a Simple Process

But Warren Chandler, CIO at St. Vincent's Health System in Jacksonville, Fla., said his 528-bed hospital is "a long way from going paperless." Developing and deploying a CPOE system may sound like a simple process, but it's not, Chandler said. "There are a lot of costs and risks," he noted.

Chandler said a good first step toward paperless operations is development of a clinical data repository, which could serve as a baseline system for CPOE and other automated medical applications.

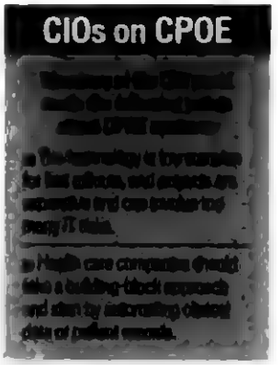
Jeff Cooper, CIO at Henry Medical Center in Stockbridge, Ga., also said health care institutions should take a "building-block" approach to the development of CPOE systems. For example, IT managers could start by putting patient records in electronic form, he said.

Health care IT managers need to get involved with local business organizations to let them know what is realistic in terms of developing CPOE systems, said Pamela McNutt, CIO at Methodist Hospitals of Dallas, which operates a 478-bed hospital, a cancer clinic and four other facilities.

Despite their concerns about CPOE technology, the CIOs who took part in the panel discussion said they have made their systems compliant with the federal Health Insurance Portability and Accountability Act's (HIPAA) IT security and privacy mandates, which go into effect in April.

Meeting the HIPAA mandates was "very expensive, but we're ready for it," Anthony said. ETMC's biggest HIPAA-related expense was the cost of having lawyers review its privacy and security plans, not the cost of new technology, she added. ▶

CIOs on CPOE



NASA Teams With Private Sector to Improve Software

Goal is to build fail-proof systems

BY PATRICK THIBODEAU
WASHINGTON

NASA's mission system software is considered to be among the best-engineered in the world. But in the aftermath of the 1999 Mars Polar Lander crash, which was caused by a software bug, NASA officials acknowledged that a long-term fix was needed in order to build systems that don't fail. And the agency's subsequent efforts may ultimately help all IT managers.

NASA played a leading role in the creation last year of the Sustainable Computing Consortium (SCC), which includes companies such as FedEx Corp., Pfizer Inc., Microsoft Corp. and Oracle Corp.

The goal of the SCC, which is based at Carnegie Mellon University in Pittsburgh, is the Holy Grail of software design: creating software that does what it's supposed to do, no matter what. It's called "high dependability" and refers to systems that tolerate hardware faults well, maintain a high level of security during attacks and are always available.

For an anlogy, think of the field of structural engineering, in which there are extensive building codes and precise measures for determining stress and loads. Right now, there no similar measures for quantifying the reliability of software, particularly in interconnected systems. "Imagine if there is no building code, where would you start? That's where we are with software," said SCC head William Guttman, a professor of economics and technology at Carnegie Mellon.

The Feb. 1 crash of the space shuttle *Columbia* brought renewed attention to the highly complex computer systems and software used by the space agency. While the cause of that disaster has yet to be determined, there's no doubt that a software bug caused the Mars Polar Lander to crash. For NASA, that crash was "an important watershed event" that prompted the agency to broaden outreach efforts to improve software design, said Henry McDonald, who headed NASA's Ames Research Center in Moffett Field, Calif., until last November.

Among systems that can't be allowed to fail are those that MasterCard International Inc. uses for its smart-card systems. Software code for those systems is inspected line by line and tested in a process that can take up half of the card development effort, particularly because of the need for high security, said Terry Stanley, the company's vice president of smart-card platform architecture.

But if vendors built better products, costs would be reduced, Stanley said. There are agreed-upon tests for chips, but that's not the case with software applications, he said. The IT industry is recognizing that application standards are needed "not only to cut down the cost of security testing, but to also reduce the time frame," he said.

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JUST THE FACTS

The SCC is a collaborative effort involving universities, companies and government agencies.

WHAT: Develop standards and measurements **that allow engineers to accurately** determine software reliability and security.

WHY: Major IT vendors **emphasize dependability and security,** but users currently have no way to ascertain software quality.

HOW: Conduct research to **develop systematic approaches** to assessing risk and value.

WHERE: *www.sustainablecomputing.org*

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Calling Carriers

Nortel's Succession Service suite for VOIP capabilities over VPNs:

IS DESIGNED to help telecommunications carriers offer corporate users managed VOIP services that can reduce voice communications costs by 25%.

IS BASED on its Succession Communication Server 2000 and Server 2000-Compact packet-switching devices.

INCLUDES services that support line-by-line migrations of corporate voice systems to IP network technology.

ADDS Web-based routing and call management capabilities for IT managers, plus Web-based videoconferencing and collaboration tools.

ADDITIONAL INFO

To read more on this topic, head online to our Networking Knowledge Center

QuickLink k1200
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BRIEFS

IBM Stops Linux On Itanium Project

IBM has stopped development efforts aimed at tuning Linux to run on servers based on Intel Corp.'s 64-bit Itanium processors. A small group of developers that was doing the work is now focused on tying the open-source operating system to IBM's own Power4 chip technology. IBM has said it will support Intel's new Itanium 2 chip in servers but has yet to ship such a system.

CSC, IBM Sign J.P. Morgan Deal

Computer Sciences Corp. (CSC) in El Segundo, Calif., announced a seven-year deal with IBM under which the services firm will continue to manage some of J.P. Morgan Chase & Co.'s servers. CSC is one of four vendors that had been doing outsourcing work for New York-based J.P. Morgan Chase, which in December signed a $5 billion contract with IBM. CSC said its subcontract is expected to be worth $500 million.

BEA Announces Upgrade, Purchase

BEA Systems Inc. released an upgrade of its Tuxedo transaction-processing software that adds Web services support and tighter integration with the company's WebLogic middleware. San Jose-based BEA also said it has acquired Redwood Shores, Calif.-based CrossLogix Inc., a developer of end-user access authorization software. Financial terms weren't disclosed.

Short Takes

MICROSOFT CORP. released a software patch for Windows NT 4.0 that was pulled earlier this month after users said the security fix was crashing their systems. . . . UNISYS CORP. signed a 10-year outsourcing agreement valued at about $450 million with London-based Royal & Sun Alliance Insurance Group PLC.

Continued from page 1

Sun

helping users pool, share and manage heterogeneous server, storage and network resources. Sun will also emphasize the role of its iForce partner centers, where users can test and specify their technology requirements for Sun to custom-configure for them.

The goal of these efforts is to reduce complexity, improve utilization and reduce the costs associated with deploying and managing IT products, Sun CEO Scott McNealy said.

Sun's strategy appears to be striking a positive chord with some users.

"We like the idea of dealing with vendors who are willing to take responsibility for a broader spectrum of services," said Jim Stock, CIO of The Landrum Co., a Columbia, Mo.-based holding company that owns four banks.

The company moved its core financial applications from a mainframe to Sun servers two years ago, not only because the technology offered better price/performance, but also because it was easy to implement, according to Stock.

Questerra LLC, a Charlottesville, Va.-based provider of mapping services, has standardized on Sun servers, storage and services for running its core applications. Sun's approach of offering more integrated technology modules is a good one because it eliminates the need for companies to integrate best-of-breed technologies themselves, said Tim von Kaenel, chief technology officer at Questerra.

"The notion that Sun has of integrating all these disparate technologies into one platform allows for computing on demand, storage on demand and services on demand," Kaenel said.

Sun's efforts address a growing area of concern for large users, said Cathy Hotka, former vice president of IT at the National Retail Federation and now principal of Cathy Hotka & Associates, a Washington-based consultancy for retail IT operations.

"The complexity involved in making many disparate products work with one another is a major concern" for large corporations, Hotka said.

"Many in the technology community have underestimated the number of kludge bridges that end users have to create" to make this happen, she said.

Great Expectations

As a result, there's growing demand from users for more modular and interoperable products, said Jean Bozman, an analyst at Framingham, Mass.-based IDC. "The idea that systems vendors play a role in assisting customers in integrating their technology is gaining," Bozman said.

Cingular Wireless is testing N1 technology in its Alpharetta, Ga., data center as part of a move to improve resource utilization and management. Under a multiphased approach, Cingular will use Sun's N1 products to pool Unix servers, storage equipment and network systems from multiple vendors and share the resources.

The goal is to get "greater value for every IT dollar that we spend," said Victor Nelson, vice president of IT at Cingular. Eventually, such an integrated IT infrastructure will also provide a base for delivering on-demand IT services, Nelson said.

Sun's strategy is a credible one that draws on its strengths in the network computing arena, said Joyce Becknell, an analyst at The Sageza Group Inc. in Mountain View, Calif. Sun's biggest challenge will be to convince users that it can really deliver multivendor interoperability, even as it continues to shun broader adoption of Wintel and Linux technologies in its own product lines, she said.

"They've got to show that they can play nicely with the other kids in the sandbox," Becknell said.

McNealy: 'Let Us Run the Machines'

Sun CEO Scott McNealy last week spoke with *Computerworld* editor in chief Maryfran Johnson and reporter Jaikumar Vijayan about the company's direction and the changing role of CIOs. Excerpts from that conversation follow:

How is Sun the systems company today going to be different five years from now? Will it be Sun the services company?

I think we will be selling more of our products as a subscription. We'll be selling more of our products through service providers and less to end users. And we'll be selling our products more integrated while still integratable.

There's going to be more stuff out there through the open-source community or that we'll offer through acquisitions. We'll have more pieces of the Lego blocks that you use to build network computing.

You say Sun is out to reduce complexity and make data centers easier to run. But then you say customers should let Sun run those data centers for them because they're so complicated. Aren't those two conflicting messages?

We're saying that if you must have your own data center, let us run the machines. The right answer is to go to the Sun Tone service provider, who will host the machine, put it in their data center, connect it to the network and run it on a 7-by-24 basis. Then we'll go to the service providers and say, "Let us manage the machines in your switch room. You manage the service, but just let our person touch the machine. That'll be a very small percentage of the head count in your data center."

What IBM is saying is, "Let us just take the whole thing." They want to do the management consulting, the architecture, the hosting, the equipment purchases, all of it.

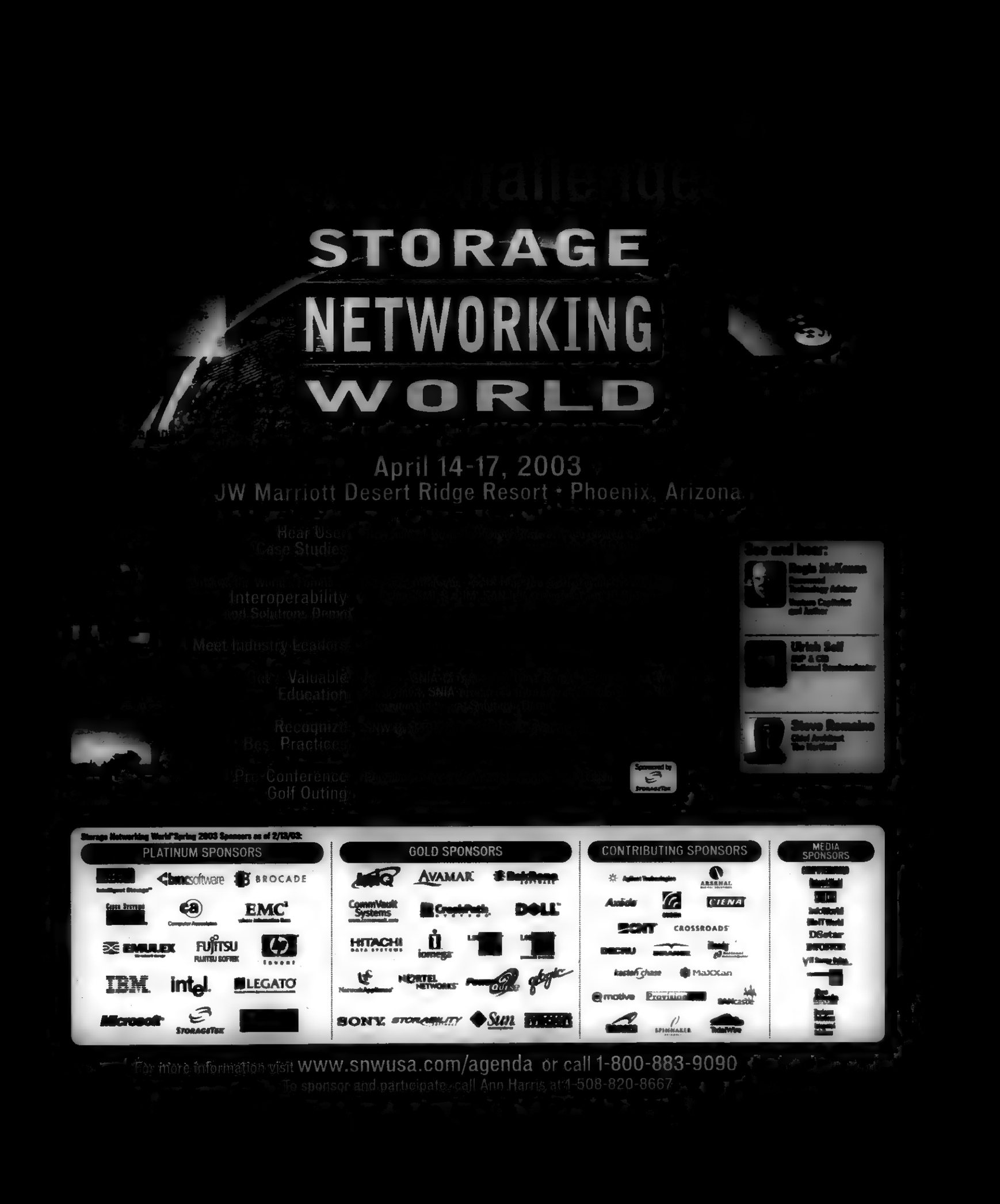
You've spoken about a new wave of CIOs. Who are you referring to? Sun's Bill Howard is an example of a new-wave CIO. He understands that his job is not managing data centers or the network for us. The CIO shouldn't be worried about assembling computers, or running data centers, or managing the network, or getting the printing stuff to work.

So, what does he spend all his time doing? He's building a world-class LDAP directory registry implementation that will have every employee, customer, reseller, shareholder and piece of equipment in the Sun community in a directory with a profile for each one, across all our business processes. That job alone will keep every CIO on the planet solely focused on being chief information officer. The old-style CIOs were all mechanics. They tended to buy their 10-speed bicycles and pay extra to have them unassembled.

What do you say to the analyst community when it makes dire predictions about Linux being Sun's undoing? They just don't get it. But that's all right; they haven't gotten it for 21 years. If I managed the company by analysts, we never would have started Sun, and I'd have killed Unix every year for 21 years. Right now, HP and IBM are reading the analyst reports saying how Linux is going to happen, and they're abandoning their Unix customers.

AT GREATER LENGTH

For an expanded version of this interview, visit our Web site: QuickLink 39278 www.computerworld.com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Merger Wave Hits Energy IT Vendors

BY THOMAS HOFFMAN

A recent flurry of mergers between energy industry software vendors and IT services firms has some technology managers worried about the potential impact of the deals on their companies.

For instance, Eugene Zimon, CIO at NStar, a Boston-based utility and energy-distribution company, is closely eyeing CGI Group Inc.'s plans to acquire rival Cognicase Inc. In early 2001, Cognicase bought M3i Systems Inc., from which NStar had licensed outage management software. The CGI/Cognicase deal would be "the second ownership change within a year, which requires a lot of new relationship-building on our part," Zimon said.

Product delivery and support of the software developed by M3i has improved since Cognicase took over that company, Zimon said. But, he added, the constant changing of the guard "continues to be a big concern among senior management here."

Meta Group Inc. last month warned that the acquisitions might bring greater financial stability to vendors but that support for some products could end if the companies involved in a merger offer similar software.

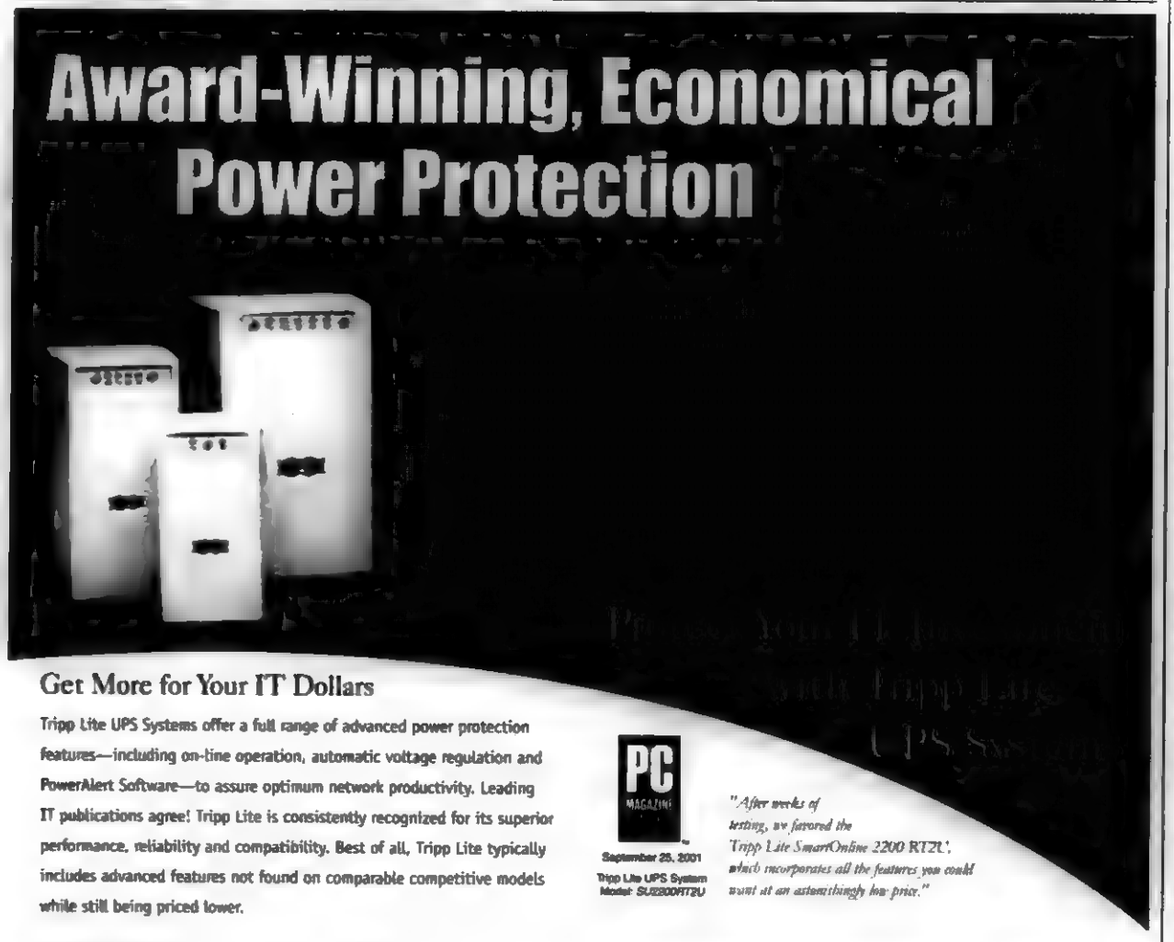
For example, Meta analyst Rick Nicholson said there's some duplication of products between Spokane, Wash.-based Itron Inc. and Silicon Energy Corp., an Alameda, Calif.-based energy management systems vendor that Itron agreed to acquire last month.

Pending Deals

Itron expects to complete its purchase of Silicon Energy this month. Meanwhile, CGI last month wrapped up a tender offer for Cognicase and said it had received sales pledges for nearly 97% of the stock issued by that company, which, like CGI, is based in Montreal.

Two other acquisitions are in the works. American Management Systems Inc. in Fairfax, Va., signed a deal to sell its utility-focused IT consulting business unit to Wipro Ltd. in Bangalore, India. And SunGard Data Systems Inc. in Wayne, Pa., plans to buy Caminus Corp., a New York-based vendor of energy-related applications, although SunGard this month said the U.S. Department of Justice's antitrust division has asked for more information about the deal.

Kevin Walsh, an IT manager at Exelon Power, the electricity-generation division of Chicago-based Exelon Corp., said he doesn't use software from the vendors involved in the deals. But the mergers have him worried about the viability of other software vendors that target energy businesses, he said.



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MARYFRAN JOHNSON

The ROI Conversation

"THERE ARE many ways to count," says a CFO friend of mine. And what could be more true when it comes to measuring ROI? Those three magic letters now embody the myriad ways in which we measure IT effectiveness. We are obsessed, in these days of budget starvation, with proving that pricey IT projects will put meat on the corporate bones.

This has not only spawned another branch of IT consulting specialties, complete with elaborate ROI scorecards, calculators, benchmarks and overengineered methodologies. It has also reawakened interest in applying to IT projects a wider array of standard financial measures such as net present value, internal rate of return and others.

"A lot of the best practices in managing a technology function can be stolen from the business playbook," says John McKinley, the departing chief technology officer at Merrill Lynch [QuickLink 36085]. "Ultimately, if you can't measure it, you can't improve it."

So, what are the many ways to count the ROI of your IT investments? We've rounded them up and spelled them out in this week's Knowledge Center ("Do the Math!" starting on page 21). This in-depth guide for CIOs and IT managers takes a blow-by-blow look at the most popular metrics to consider as you hoist your projects onto the scales of business judgment.

We also conducted a survey on this topic on *Computerworld.com* last month, and the majority of the 113 respondents confirmed that they are indeed doing ROI analyses regularly these days. Yet skepticism about these metrics still runs high. "As we say in IT," one CIO quipped, "I don't believe in any numbers I haven't massaged myself." About half of our respondents said they're ambivalent about the usefulness of ROI measures, with the majority favoring the simpler but more limited "payback period" metric over the more complicated financial formulas.

As I read the stories (and struggled valiantly through the math), I detected a distinct undercurrent flowing through the most successful applications of ROI metrics. It was the ROI *conversation*. The most important change taking place isn't in the application of anybody's mystical mix of metrics. It's in the discussions taking place among the business, financial and IT folks as their companies cobble together the best approach.

Those conversations also revealed some useful lessons, including:

Don't count on any single metric. At Gaylord Entertainment, the CIO uses the simpler measure of payback period for projects of less than $100,000, but he turns to more heavyweight financial metrics like discounted cash flow for the bigger deals.

Conserve your ammunition. Don't squander a powerful ROI rundown on every project in sight. Save it for the top 10% to 20% of your most vital initiatives.

Customize like crazy. Develop your own set of metrics, and pull your vendor and consulting partners into the game. If your suppliers can't contribute any hard numbers or sensible metrics, you have to wonder, "What good are they?"

Favor simplicity. If it takes more than a few weeks to evaluate a project, your method is too complex. CIO Catherine Kozik at Tellabs factors in two years of fully loaded IT costs and a few other key measures that map to the company's strategic goals. "If you focus just on the ROI calculation, then you're playing liar's poker," Kozik points out. "The biggest liar is going to win, and that's ultimately not a successful business practice."

Amen to that.

Let the conversation begin.

PIMM FOX

Leaders Need Vision

WHEN Hewlett-Packard announces its quarterly earnings later this month, analysts and customers will be looking for further evidence that the Compaq merger is bringing the benefits that Carly Fiorina promised when she aggressively stumped for the deal in the fall of 2001. So far the results look promising.

HP surprised Wall Street in the previous quarter by reporting a profit of 12 cents per share during one of the most difficult times in history for IT vendors. And while consulting revenue is off and customer-support revenue is flat, there's evidence that HP's managed services and outsourcing operations are growing.

So where's the chorus of praise for Fiorina?

The media pilloried her — though there were some exceptions [QuickLink 23260] — for dragging HP toward an unworkable destiny within a decaying industry. They lambasted her for being blind to the founding vision of William Hewlett and David Packard, sacrificing jobs and the company's very existence for the purportedly ill-conceived plan of combining with Compaq.

Instead, her strategy is winning out. In his recently published book, *Perfect Enough: Carly Fiorina and the Reinvention of Hewlett-Packard*, George Anders reveals several things about Fiorina and her drive and character that should serve as lessons for all would-be leaders.

First, you must have a vision of what you want to accomplish. That sounds pedestrian, but Walter Hewlett, who opposed the merger, misjudged the strength of Fiorina's vision and lacked an alternative one — and lost his battle with her.

Second, you must have the commitment to see your vision through. Fiorina clearly was committed to the merger. At one point, the investor vote to approve the merger hung in the balance. It would have been easier for her

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Looking Deeper, Reaching Farther

An intelligent network infrastructure featuring Cisco routers enhances the **value of IT investments** across the extended enterprise.

Successful companies run on information. It's that simple, and this reality drives unprecedented demands—and opportunities—for the people at the wheel of the enterprise network. Consider the case of one Global 100 manufacturer: With four technical assistance centers, a dozen regional offices, and more than 300 independent dealerships across the U.S., it's no simple feat to keep the bits flowing.

Yet flow they do, and not just in the form of data. By deploying high-performance, feature-rich Cisco routers at key sites, the company was able to extend IP telephony services securely across its wide-area network. As a result, they cut the cost of calls to the technical assistance centers by eliminating the need for separate phone services, increased employee productivity by reducing the amount of time spent searching for information, and improved customer service by ensuring everyone is up-to-speed on products and services.

Is it the Network, or the Application? Yes. Because the applications that are transforming business today are completely reliant on the enterprise network. By investing in an intelligent network infrastructure, companies create a highly secure, robust foundation for any number of applications, and even help improve performance of those applications for users throughout the company. And that allows them to reap a greater return on countless IT investments—past, present, and future.

High Availability

These days, it's hard to distinguish the network from the company. If one stops working, so does the other. That's why networks based on equipment from Cisco Systems offer unsurpassed availability, and, just as importantly, unsurpassed resilience in the face of interruptions.

To maintain productivity—and by extension, profitability—networks must be available all the time, providing employees with global, around-the-clock access to business applications and information, while ensuring appropriate internet access.

And since a network is only as reliable as its weakest link, all segments must be resilient enough to immediately bounce back from unexpected connection, component, or power failures.

To some extent, availability depends on the overall design of the network. In many cases, companies will deploy dual routers with the Hot Standby Routing Protocol that Cisco pioneered, enabling one device to seamlessly take over if the other one fails.

But availability also hinges on the design of the individual routers themselves. That's why Cisco builds layers of redundancy and resiliency into the hardware, from backup processors and power supplies to hot-swappable line cards.

Such safeguards work in tandem with Cisco IOS® Software features, including several recent enhancements collectively known as Globally Resilient IP, or GRIP. Cisco Nonstop Forwarding with Stateful Switchover, for example, enables a router's primary and backup processors to synchronize state information. That way, if a hardware or software problem knocks out the primary processor, the backup processor will pick up where it left off, without needing to reboot the system or line cards, and without losing a single data packet.

And because Cisco IOS Software runs from the enterprise backbone to the outermost reaches of the WAN, these capabilities can increase the availability of every segment of your network, and increase the productivity of every branch of your company.

CISCO SYSTEMS

Advanced Quality of Service

Imagine a city with wide roads and plenty of lanes, but no traffic lights. Things might flow smoothly enough at 3 a.m., but come rush hour, the resulting free-for-all would inevitably leave some motorists stranded in gridlock.

On the highways and byways of corporate networks, quality of service, or QoS, brings order and control to the bare asphalt of bandwidth. By prioritizing traffic, QoS ensures your most important applications and users get the bandwidth they need. For example, even slight delays in IP voice traffic will impact sound quality. But if an e-mail gets held up for a few seconds, no one will know the difference. So instead of just letting these applications compete for bandwidth, QoS mechanisms step in to direct traffic, waving voice and video packets through while the e-mail momentarily waits behind metering lights.

By establishing priorities and policies that recognize such distinctions, companies can better meet the needs of all users and applications. The alternative is to blindly throw more bandwidth at every performance problem that comes along, an unrealistic expectation in these tough economic times. QoS tools provided by Cisco Systems allow our customers to meet the business requirement to do more with less.

An intelligent infrastructure based on Cisco switches and routers provides a level of QoS sophistication that is simply unmatched in the industry. To provide true end-to-end QoS, Cisco routers classify and mark both inbound and outbound data packets, inserting tags that tell other network devices how traffic should be handled. As packets move across the network, policing and shaping mechanisms regulate the flow of traffic to ensure policies and priorities are enforced.

At the first sign of bottlenecks, congestion avoidance features take active steps to clear the way for the most vital data. Weighted Random Early Detection, for example, selectively drops packets based on IP precedence to keep high-priority traffic flowing.

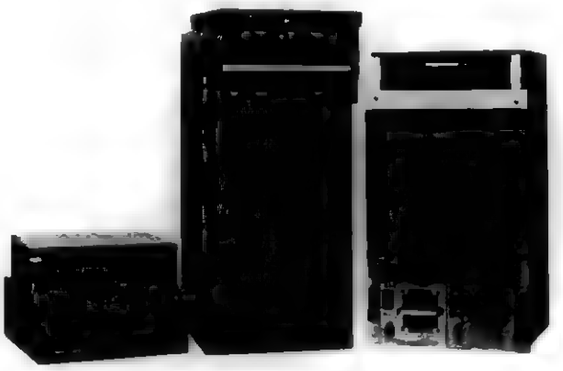
At the same time, advanced QoS features lend networks greater flexibility, making it easy to adjust to changing requirements and priorities. So easy, in fact, that policies can shift according to time of day, accommodating different business needs and patterns of network usage.

When you deploy Cisco high-performance routers, you enable the intelligent movement of information across the WAN, seamlessly and securely linking multiple networks. IP communications, optimized content and application delivery, and embedded security features ensure you can safely deploy Internet business solutions such as e-learning, executive communications, customer relationship management applications, and more.

These solutions can be extended to local, remote, or even mobile workers, increasing the overall value of technology. You can create tighter feedback loops, reduce transaction costs, and make more informed decisions on a global level, making your company more productive and profitable.

For many organizations, the return on investment can be quite rapid. As Colonel Bill Hose of the Minnesota National Guard noted after deploying IP telephony over a Cisco intelligent infrastructure, "We're planning to expand our multimedia collaboration applications like videoconferencing, and with the money we save on telecommunications bills and network administration, we can also afford to put more money into bandwidth for our end users."

Understanding and Managing the Data on Your Network. Through the combination of high-performance routers and multilayer LAN switches, an intelligent infrastructure is able to utilize not only the Layer 2 header information attached to every data packet, but also Layer 3 IP address information, Layer 4 port information, even Layer 5 through 7 content and user information.



Cisco's portfolio of routers – including the Cisco 7200, 7300, 7400, 7500, and 7600 series routers pictured above – provides the flexibility, versatility, scalability, and feature richness to enable new applications and services.

By looking deeper into streams of data, an intelligent infrastructure gains a more complete understanding of all the traffic flowing through and between networks. It can classify and mark traffic based on users and applications, and then use this information to carry out whatever policies and guidelines you set.

Cisco's portfolio of routers–including the Cisco SOHO, 800, 2600XM, 1700, and 3700 series routers pictured above–offers companies the ability to deploy advanced applications throughout their networks.

You can establish priorities, control and conserve bandwidth, and manage access to optimize employee productivity and to suit the unique needs of your company. You can adapt to changing requirements, from a routine shifting of priorities based on time of day to the deployment of new applications across the LAN and WAN. And you can extend robust, secure network services to partners, suppliers, customers, and employees anywhere in the world.

Improving Productivity—The emergence of this global, scalable approach to networking comes at an opportune time. Over the past several years, network-enabled applications have emerged as the leading driver of corporate productivity. At the same time, they've reduced the cost of doing business. In a study sponsored by Cisco Systems, researchers at the University of California at Berkeley, The Brookings Institution, and Momentum Research Group last year estimated that the adoption of Internet business solutions had yielded cumulative savings of $155 billion in the U.S. alone. They projected an additional $373 billion in future cost savings, most of it to be realized by 2005.

Yet many organizations lack the network infrastructure to make the most of their existing applications, much less future ones. One reason is that access to these applications frequently does not extend beyond the walls of corporate headquarters, despite the fact that an estimated 42 percent of enterprise employees work out of remote locations.

An intelligent network infrastructure provides everyone with the resources to do their jobs more efficiently and effectively. Applications can be securely extended out from headquarters routers to any location with intelligent, high-performance WAN aggregation routers which connect to access routers across the enterprise, linking branch offices, mobile workers, partners, suppliers, and customers in a seamless network.

Integrated Security

These days, it takes a lot more than a firewall to protect corporate networks.

After all, access is rapidly being extended beyond traditional corporate boundaries to branch offices, mobile workers, partners, suppliers, and customers. And that's a good thing, since it allows companies to do business more quickly and efficiently than ever. But it also opens up new risks, both internally and externally.

Cisco integrated security solutions provide the industry's most comprehensive and scalable safeguards, enabling you to protect productivity gains and reduce network operating costs from the head office to the branch office and beyond.

It starts with the Cisco SAFE Blueprint, which simplifies all aspects of security design and rollout. Whether you're reinforcing the entire network at once or taking incremental steps, SAFE serves as a guide to best practices in enterprise networks, focusing on expected threats and methods of mitigation, rather than specific topologies. It's a flexible, dynamic strategy for implementing multiple layers of defense, so the failure of one system will not be likely to compromise network security overall.

By the same token, the array of security features integrated into Cisco routers gives you the choice of implementing whatever levels of protection measures they need, wherever they need them. Integrated AAA services (Authentication, Authorization, and Accounting), virtual private network services, intrusion detection systems, content filtering, and stateful firewalls are all available to keep data safe as it moves through and between networks—without impacting performance.

In a study released last year, the FBI and the Computer Security Institute surveyed 503 U.S. computer security practitioners in the public and private sectors, and found that 90 percent had detected security breaches within the previous 12 months.

The most commonly reported problems included employee abuses of network resources, system penetration by hackers, and denial-of-service attacks. Any of these issues would be alarming, but together they demonstrate the range of threats companies face today, and show why no single point of defense is enough.

Integrated security is a hallmark of all Cisco products, from the switches and routers that form an intelligent network infrastructure, to Cisco PIX® Firewalls, VPN Concentrators, Intrusion Detection appliances, IP phones, and wireless access points. That level of protection should be reassuring to employees, partners, and customers alike.

The Answer is Cisco—As the worldwide leader in networking for the Internet, Cisco offers the industry's largest and most versatile portfolio of routers to suit every need, from the home office to the branch office to the enterprise campus. Modular designs allow you to expand network services incrementally as new needs and opportunities arise.

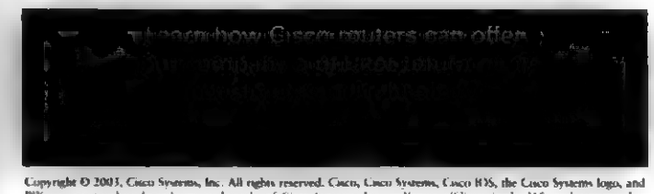
Integrated features such as virtual private network services, firewalls, intrusion detection systems, content delivery, survivable remote site telephony, inline power, and low-density switching allow you to confidently deploy the most demanding solutions, including converged data, voice, and video applications.

Cisco routers also offer a unique level of investment protection. Cisco Systems devotes approximately 18 percent of sales to R&D, giving our engineers unmatched resources to build upon established products and technologies. Take Cisco IOS® Software, for example, the operating system that unifies all Cisco routers and switches and provides most of the intelligence in the network. At this very moment, 1,200 people are working to enhance and expand the capabilities that have made it a pillar of networks the world over.

By designing products with the future in mind, Cisco offers the best value over the long term. New features and functionality can be incorporated as needs change and technologies evolve, which lowers the total cost of ownership by saving you the expense of replacing something that won't be supported a year or two down the road.

And at Cisco, support means much more than simply providing hardware and software. As *Fortune* magazine recently observed, "Whenever there is a problem big or small, the folks running the networks in corporations know they can call Cisco."

That peace of mind might not be your only motive for building an intelligent infrastructure with Cisco routers and switches, but it's a surefire sign of an intelligent investment.



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CISCO SYSTEMS

Superior Manageability

While an intelligent infrastructure offers powerful benefits, managing something so sophisticated can sound overwhelming, particularly to a harried IT department. But with the right tools, you can actually simplify most administrative tasks even as you gain greater control over network resources.

Cisco Systems provides those tools, ensuring you can capture all the benefits of an intelligent network infrastructure, without having to be an expert on every feature and capability.

One reason is that Cisco IOS® Software unifies all Cisco switches, routers, and other devices, creating a network that is inherently more manageable and providing a rich source of data to help you optimize network operations.

Drawing on that rich IOS data and unmatched industry expertise, Cisco has built best practices into the CiscoWorks family of Web-based network management tools, helping you to streamline management tasks and secure your network from end to end.

CiscoWorks templates and wizards simplify and automate complex configurations to help you implement security policies, use QoS to prioritize traffic for IP telephony or other time-sensitive applications, and manage a range of other operations. These tools also help prevent human errors—mistakes that can open holes in security or even bring down the network, cutting into your company's profits.

If a problem does occur, you won't be caught off guard. A properly managed intelligent infrastructure continually monitors for faults, and can even spot deteriorating conditions before they get out of hand, providing a safety net for your business.

CiscoWorks management applications give you the visibility to monitor the impact of the network policies and priorities you establish, and the flexibility to fine-tune things as you go along, and add new technology as your needs change and the network grows. As a result, you can get more out of your business applications today, and also do a better job of planning for the future.

If that sounds like good news just for the IT department, consider this: It's been estimated that for every dollar a company spends on new technology, it can spend another four trying to make it work. So it stands to reason that the better you're managing your network, the better you're managing your business.

if she had presented an alternative for HP if the deal was voted down. According to Anders, she never did because "she wanted to project constant certainty that the HP-Compaq merger was the right choice for the company and that she was confident most shareholders would agree in due time." Any inkling she wasn't convinced would have hurt her cause.

The same is true of any leader who tries to engage and motivate people to follow a difficult or unpopular route. It's wiser to show courage and determination to achieve a specific goal than to set out distracting alternatives or a Plan B.

Of course, vision has to be thought out and responsive to market changes, but wavering in front of the very people who look to you for leadership — no matter how touchy-feely the management books tell you to be — doesn't inspire respect. And it certainly won't help your results. ◗

DAVID MOSCHELLA

War Results Are Key to IT's Future

IT'S WINTERTIME, and the only thing growing is the number of IT spending forecasts. Goldman Sachs and Meta Group say our industry is shrinking; IDC, Gartner and Forrester expect modest growth. Of course, no one really knows.

Most of these projections are based on surveys of people like you. And since you don't know how much you will actually spend this year, how can they? At best, spending forecasts reflect the range of current business sentiments. But these sentiments can change quickly, depending on how the year develops. And during 2003, there will be only one factor that ultimately matters: war.

Even today, many free-market proponents are reluctant to acknowledge the fact that it took World War II to finally end the Great Depression and create the long U.S. boom of the 1950s and '60s. Conversely, anyone over 40 surely remembers how America's disastrous experience in Vietnam contributed to the pessimism, anxiety and stagflation of the late 1970s. Experts predicted that the best days of the U.S. had passed and that Japan and Germany would become the world's new economic leaders. Ronald Reagan became president by explicitly rejecting this message.

Given this history, it has always surprised me how few connections have been drawn between the last Gulf War, which ended in February 1991, and the long U.S. economic boom that began in 1992. America's surprisingly easy victory was particularly important to the IT industry, since it demonstrated to the entire world the power of advanced technology. Looking back, it was the economic decline of Japan, the renewed confidence in modern, mostly U.S. technology, and the emergence of the Internet between 1993 and 1995 that sent the U.S. economy and the IT sector into overdrive.

Today, another war is increasingly likely and will also prove pivotal. Even more than the dot-com bust and sickening corporate scandals, it's the threat of terrorism, the risks of war and the growing anti-Americanism in many corners of the world that are weighing down the IT marketplace. Thus, until we know whether international events are about to get better or worse, we can't possibly know which way our industry is headed. And although the impact of these events upon IT spending is among the least of our concerns, that doesn't mean their effects are any less real.

Clearly, many of us have different views about Iraq and the wider war on terrorism. But there's little doubt that unless major new terrorist attacks are avoided and the Iraq (and possibly North Korean) situation is resolved in a way that satisfies both the U.S. and most of the rest of the world, a strong 2003-04 IT market recovery won't happen. And should any of these situations turn out badly, their impact upon our industry will likely be severe. American-led interventions in Kuwait, Bosnia, Kosovo and Afghanistan have gone much better than most people expected; we can only hope this will continue.

The IT industry today doesn't need Tablet PCs, Linux, Web services or wireless LANs. It needs confidence in the future. This is essential for the risk-taking and long-term investment that a healthy IT business requires. Unfortunately, such confidence is all but impossible in the current environment of fear and looming hostilities. A real recovery will have to wait for more peaceful times. Let's hope they return again soon. ◗

WANT OUR OPINION?

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READERS' LETTERS

Contracts Depend on Relationships

MANY OF US have seen a relationship-threatening issue arise as a result of contract interpretation, despite the best intentions on both sides ["ROI or Your Money Back," QuickLink 35982].

ROI is based on input from both parties and on projections about the future. ROI-based payment contracts are complex and can require a labyrinth of terms and conditions to protect both sides from subjective interpretations and changes in the business environment that invalidate the ROI assumptions.

A good guideline is to embed as few variables as possible and tie performance-based payment to verifiable metrics that underlie the ROI. Although tying payment to ROI is desirable, it's far from a panacea. Ultimately, a performance-based contract depends on a quality relationship and the integrity of both sides. If those are present, then the measurement process will validate that relationship, but in many cases it will merely test the relationship — with the consequent legal fees.

George Blanck
Senior architect, x40 Associates Inc., New York, gablanck@nyc.rr.com

What Silver Lining?

WOW, IT'S GREAT that there's a silver lining to outsourcing. I thought we had to be worried that Americans wouldn't be able to do programming and engineering anymore. Instead I find out from Maryfran Johnson's editorial "Your Outsourced Future" [QuickLink 36001] that former IT workers will all get to be executives and project managers. When do we start? After all, there must be lots of executive jobs available at the great American companies that have shown they are eager to hire Americans.

Linda Evans
Matthews, N.C.

I WOULDN'T ENTRUST a remote third party with trade secrets and client records. Instead, we should outsource the higher-level deal-making and schmoozing, which are more generic and replaceable.

Chris Clement
Palm Harbor, Fla.

Abuse of H-1B Visa System Is Rampant

I SUSPECT THERE ARE several reasons why IT and engineering professionals object to the H-1B program, as implemented [QuickLink 36047]. The program was ostensibly designed to meet technical service needs and fill shortages. What actually happens is that H-1B workers with the same skills as many out-of-work U.S. workers are brought in for the purpose of bidding down contracting rates and salaries and making quick profits.

In the U.S., people from the same countries as the H-1B workers abuse and cheat them, paying them far less than half of the gross billing and holding them hostage by taking away their passports and return tickets. Even when they find out what's being done to them, these well-educated, competent and honest professionals often feel powerless and continue to accept these conditions as preferable to deportation.

Maybe it's time for all professional and technical service firms to engage in full disclosure and announce billing rates and consultant/contractor compensation to clients and workers. The more ethical firms already do that, and in so doing earn the respect and loyalty of their clients and consultants.

Charles H. Collins Jr.
IT consultant, Ledgewood, N.J.

Apps Not at Fault

I WAS VERY DISAPPOINTED with the premise of the Jan. 27 article "Asset Management Projects Falling Short" [QuickLink 35867], that packaged asset management software is somehow to blame for failing asset management programs. Much of the advice was sound – process is important, as are frequent audits – but you didn't illuminate the real causes of failed projects: trying to do too much with the wrong tools, and not taking a deliberate, phased approach.

Ted Jastrzembski
President, Tally Systems Corp., Lebanon, N.H.
Editor's note: *The writer's company is an asset management software vendor.*

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Letters, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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if she had presented an alternative for HP if the deal was voted down. According to Anders, she never did because "she wanted to project constant certainty that the HP-Compaq merger was the right choice for the company and that she was confident most shareholders would agree in due time." Any inkling she wasn't convinced would have hurt her cause.

The same is true of any leader who tries to engage and motivate people to follow a difficult or unpopular route. It's wiser to show courage and determination to achieve a specific goal than to set out distracting alternatives or a Plan B.

Of course, vision has to be thought out and responsive to market changes, but wavering in front of the very people who look to you for leadership — no matter how touchy-feely the management books tell you to be — doesn't inspire respect. And it certainly won't help your results.

DAVID MOSCHELLA

War Results Are Key to IT's Future

IT'S WINTERTIME, and the only thing growing is the number of IT spending forecasts. Goldman Sachs and Meta Group say our industry is shrinking; IDC, Gartner and Forrester expect modest growth. Of course, no one really knows.

Most of these projections are based on surveys of people like you. And since you don't know how much you will actually spend this year, how can they? At best, spending forecasts reflect the range of current business sentiments. But these sentiments can change quickly, depending on how the year develops. And during 2003, there will be only one factor that ultimately matters: war.

Even today, many free-market proponents are reluctant to acknowledge the fact that it took World War II to finally end the Great Depression and create the long U.S. boom of the 1950s and '60s. Conversely, anyone over 40 surely remembers how America's disastrous experience in Vietnam contributed to the pessimism, anxiety and stagflation of the late 1970s. Experts predicted that the best days of the U.S. had passed and that Japan and Germany would become the world's new economic leaders. Ronald Reagan became president by explicitly rejecting this message.

Given this history, it has always surprised me how few connections have been drawn between the last Gulf War, which ended in February 1991, and the long U.S. economic boom that began in 1992. America's surprisingly easy victory was particularly important to the IT industry, since it demonstrated to the entire world the power of advanced technology. Looking back, it was the economic decline of Japan, the renewed confidence in modern, mostly U.S. technology, and the emergence of the Internet between 1993 and 1995 that sent the U.S. economy and the IT sector into overdrive.

Today, another war is increasingly likely and will also prove pivotal. Even more than the dot-com bust and sickening corporate scandals, it's the threat of terrorism, the risks of war and the growing anti-Americanism in many corners of the world that are weighing down the IT marketplace. Thus, until we know whether international events are about to get better or worse, we can't possibly know which way our industry is headed. And although the impact of these events upon IT spending is among the least of our concerns, that doesn't mean their effects are any less real.

Clearly, many of us have different views about Iraq and the wider war on terrorism. But there's little doubt that unless major new terrorist attacks are avoided and the Iraq (and possibly North Korean) situation is resolved in a way that satisfies both the U.S. and most of the rest of the world, a strong 2003-04 IT market recovery won't happen. And should any of these situations turn out badly, their impact upon our industry will likely be severe. American-led interventions in Kuwait, Bosnia, Kosovo and Afghanistan have gone much better than most people expected; we can only hope this will continue.

The IT industry today doesn't need Tablet PCs, Linux, Web services or wireless LANs. It needs confidence in the future. This is essential for the risk-taking and long-term investment that a healthy IT business requires. Unfortunately, such confidence is all but impossible in the current environment of fear and looming hostilities. A real recovery will have to wait for more peaceful times. Let's hope they return again soon.

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READERS' LETTERS

Contracts Depend on Relationships

MANY OF US have seen a relationship-threatening issue arise as a result of contract interpretation, despite the best intentions on both sides ["ROI or Your Money Back," QuickLink 35982].

ROI is based on input from both parties and on projections about the future. ROI-based payment contracts are complex and can require a labyrinth of terms and conditions to protect both sides from subjective interpretations and changes in the business environment that invalidate the ROI assumptions.

A good guideline is to embed as few variables as possible and tie performance-based payment to verifiable metrics that underlie the ROI. Although tying payment to ROI is desirable, it's far from a panacea. Ultimately, a performance-based contract depends on a quality relationship and the integrity of both sides. If those are present, then the measurement process will validate that relationship, but in many cases it will merely test the relationship – with the consequent legal fees.

George Blanck
Senior architect, x40 Associates Inc., New York, gsblanck@nyc.rr.com

What Silver Lining?

WOW, IT'S GREAT that there's a silver lining to outsourcing. I thought we had to be worried that Americans wouldn't be able to do programming and engineering anymore. Instead I find out from Maryfran Johnson's editorial "Your Outsourced Future" [QuickLink 36001] that former IT workers will all get to be executives and project managers. When do we start? After all, there must be lots of executive jobs available at the great American companies that have shown they are eager to hire Americans.

Linda Evans
Matthews, N.C.

I WOULDN'T ENTRUST a remote third party with trade secrets and client records. Instead, we should outsource the higher-level dealmaking and schmoozing, which are more generic and replaceable.

Chris Clement
Palm Harbor, Fla.

Abuse of H-1B Visa System Is Rampant

I SUSPECT THERE ARE several reasons why IT and engineering professionals object to the H-1B program, as implemented [QuickLink 36047]. The program was ostensibly designed to meet technical service needs and fill shortages. What actually happens is that H-1B workers with the same skills as many out-of-work U.S. workers are brought in for the purpose of bidding down contracting rates and salaries and making quick profits.

In the U.S., people from the same countries as the H-1B workers abuse and cheat them, paying them far less than half of the gross billing and holding them hostage by taking away their passports and return tickets. Even when they find out what's being done to them, these well-educated, competent and honest professionals often feel powerless and continue to accept these conditions as preferable to deportation.

Maybe it's time for all professional and technical service firms to engage in full disclosure and announce billing rates and consultant/contractor compensation to clients and workers. The more ethical firms already do that, and in so doing earn the respect and loyalty of their clients and consultants.

Charles H. Collins Jr.
IT consultant, Ledgerwood, N.J.

Apps Not at Fault

I WAS VERY DISAPPOINTED with the premise of the Jan. 27 article "Asset Management Projects Falling Short" [QuickLink 35867], that packaged asset management software is somehow to blame for failing asset management programs. Much of the advice was sound – process is important, as are frequent audits – but you didn't illuminate the real causes of failed projects: trying to do too much with the wrong tools, and not taking a deliberate, phased approach.

Tod Jastrzembski
President, Tally Systems Corp., Lebanon, N.H.
Editor's note: *The writer's company is an asset management software vendor.*

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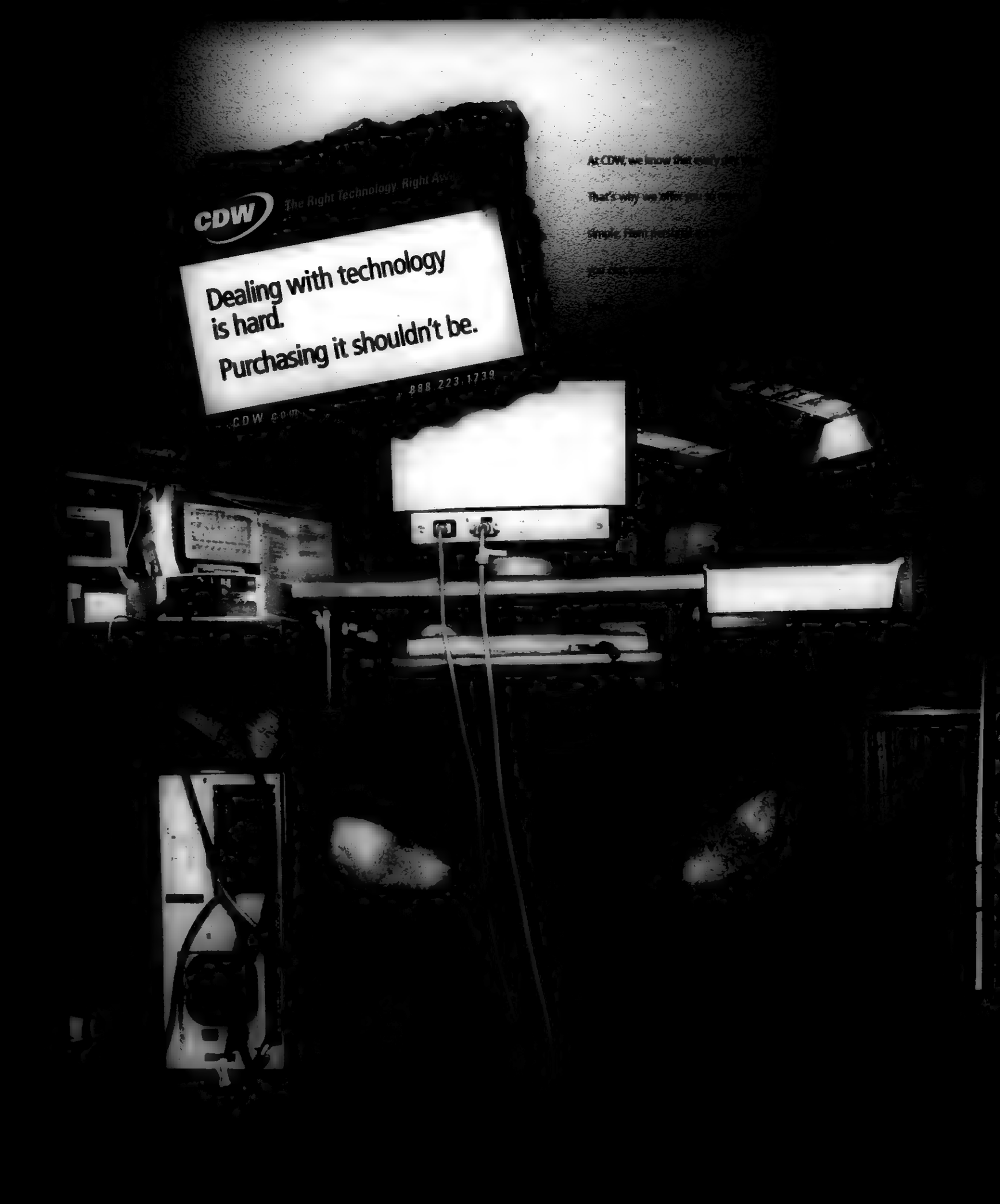
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The Next Chapter
It may be time to dig out your old finance textbooks, says one pundit. Others predict that Wall Street analysts will start monitoring corporate IT investments and that CIOs will find their compensation linked to delivering ROI. **Page 48**

Where ROI Models Fail
ROI models such as net present value are effective in helping CIOs cost-justify IT investments to top brass, but they come up short in measuring "soft" benefits such as the impact on sales, customer service or employee productivity. **Page 38**

EDITOR'S NOTE

I'VE HEARD THE ARGUMENT that failing to do return-on-investment calculations is business malpractice. And I've heard the argument that they're a waste of time. The truth is more complicated, of course.

As a general rule, major IT investments should go through the ROI wringer just like any other business investment — even more so, because IT investments have a tarnished history. One side benefit to ROI scrutiny is that it can kill off pet projects that need to be stopped, like the customer relationship management initiative launched because the marketing vice president is a golf buddy of a guy at Siebel.

Doing the math is especially important for projects that have million-dollar price tags. On the other hand, it may be overkill for projects so small that the ROI exercise would be more expensive than the project itself. Even ROI calculations need an ROI.

And sometimes, an IT project would deliver such a mind-blowing competitive advantage that crunching the numbers seems unnecessary. There's a chance that we're killing off revolutionary IT ideas with today's relentless focus on the 12-month payback.

I'm inclined to agree with John Jordan, a big thinker at Cap Gemini Ernst & Young, who predicts that there will be a middle ground between what he calls the "just do it" and the "by the book" ends of the spectrum. "This middle ground will still require sound business cases," he says, "but they'll incorporate a mix of common sense, professional judgment, quantitative modeling and strategic perspective." ◗

Mitch Betts (mitch_betts@computerworld.com) is director of Computerworld's *Knowledge Centers.*

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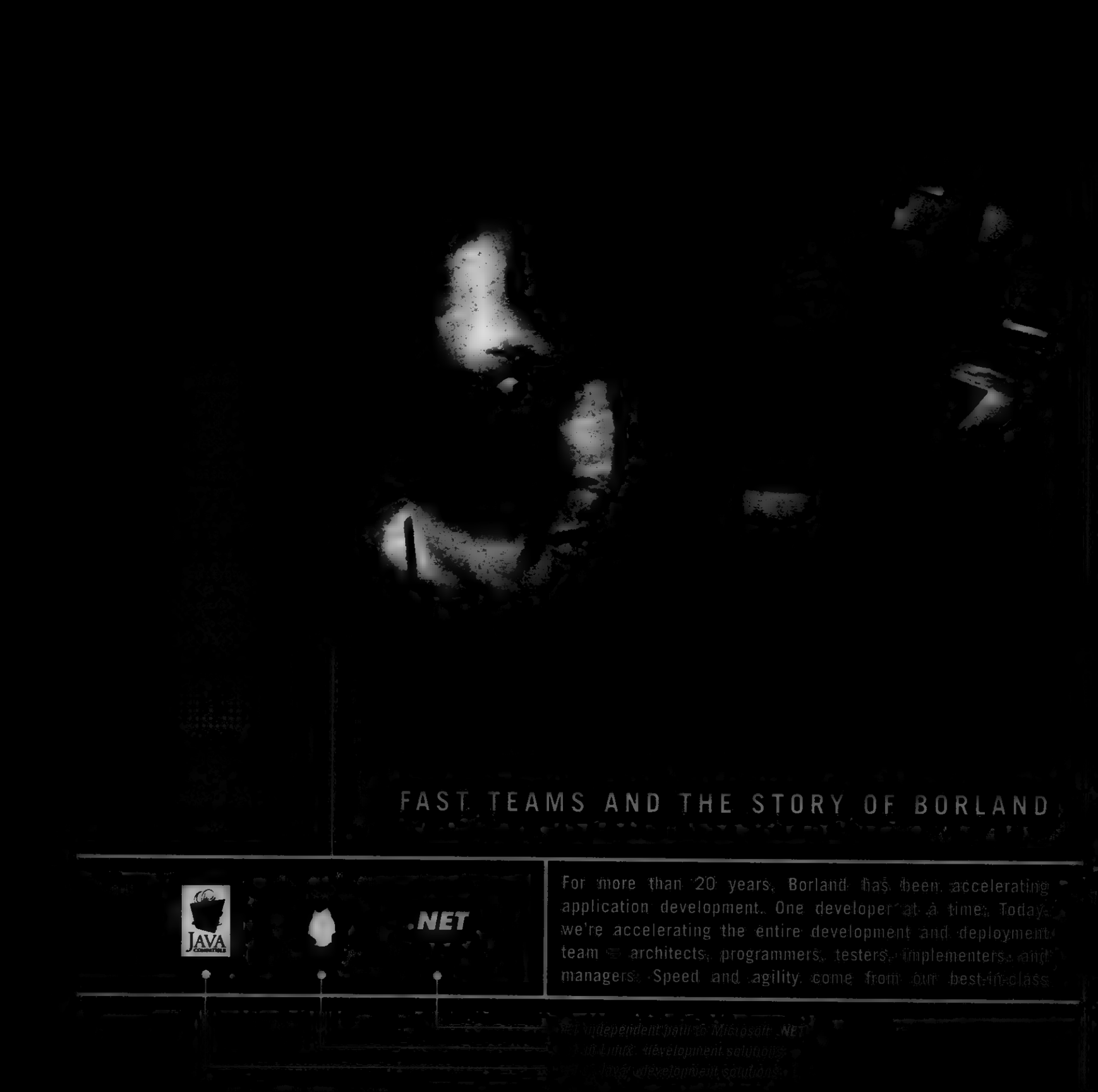
MARIA REBOOM

Do the Math!

A CIO's guide to the strengths and weaknesses of ROI calculations.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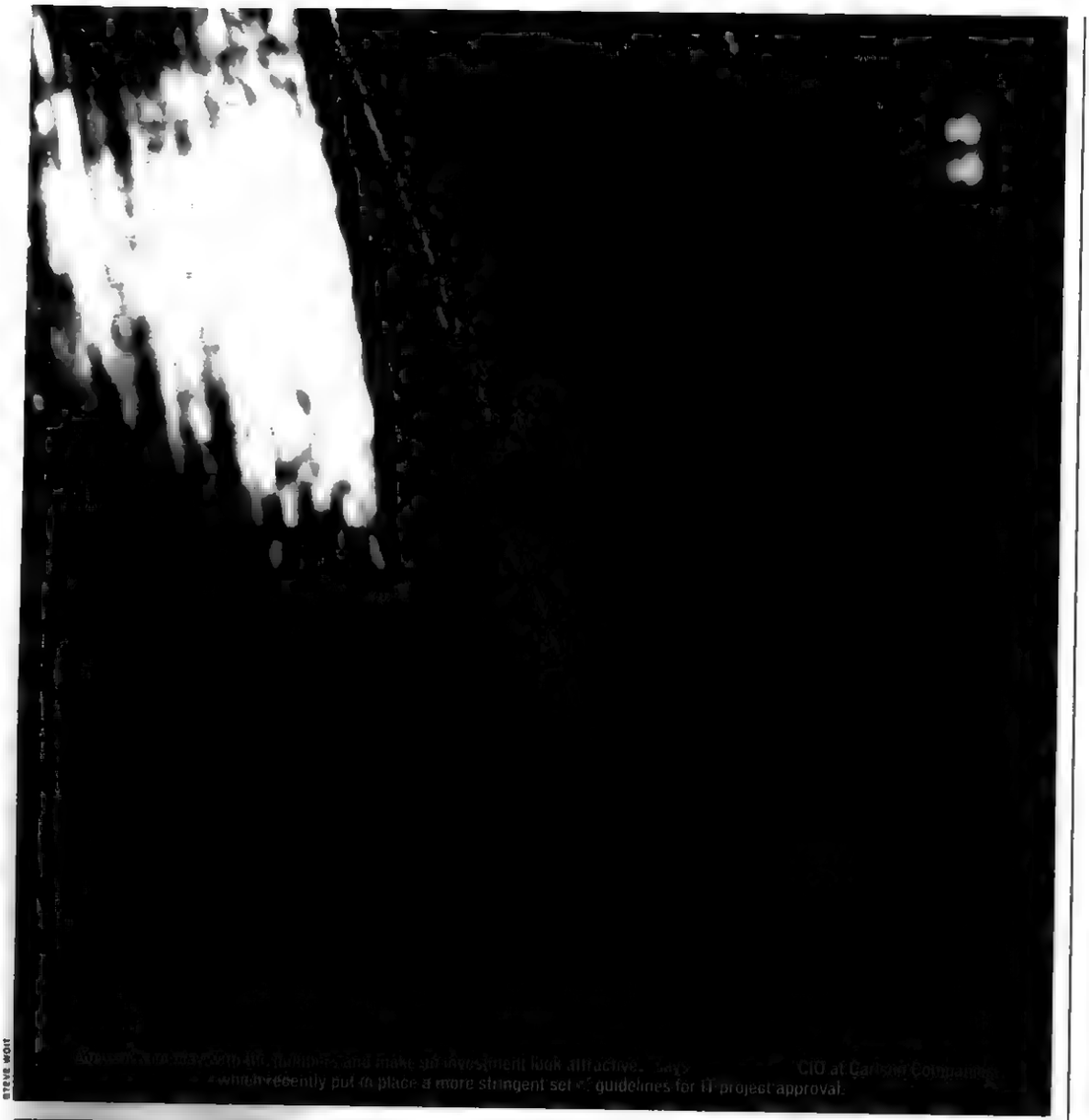


STEVE WOIT

Diligence Rewarded

CIOs who do the ROI math have some tips for making the task easier and more beneficial. By Johanna Ambrosio

THEIR METHODS MAY VARY, but IT executives who calculate return on investment before launching major technology projects say they reap benefits that make doing the math worthwhile.

The most obvious payoff is getting resources to do the job, but the ROI process also forces IT to explain to corporate management what's going on. This can provide buy-in for a particular project. It also enforces two-way communication between the CIO and other company executives about IT's overall role in the company.

Here's what four IT executives say about the benefits and lessons learned from their ROI calculations.

Factor in Business Goals

Just about all the IT executives interviewed for this article agreed that using a single ROI model isn't enough to justify an expensive technology buy.

"Anybody can play with the numbers and make an investment look attractive," says Steve Brown, CIO at Carlson Companies Inc. The Minneapolis-based travel conglomerate and parent of Radisson Hotels, among other brands, recently enacted a more stringent set of guidelines for IT projects. To get approval, IT projects have to add to top-line revenue growth or profit, reduce costs, create or strengthen the existing brand image or mitigate a risk. The guidelines help the company steer clear of bad investments and maximize the investments it does make.

"Each measurement is something important to a specific business unit or to the company to help us grow," says Brown. "As conditions change, we can measure the effect of the changes in each business unit's quarterly results. So if something changes in the business, we can tie it back to our strategy — it's not a lagging indicator."

Look Beyond Financials

But where Carlson turned to a stricter approach to ROI, Catherine Kozik, CIO at bandwidth services provider Tellabs Inc. in Naperville, Ill., went the other direction. "We do simple math," she explains. "We look at the fully loaded costs for the first two years — implementation costs, people and acquiring skills. But there's a limitation to the accuracy of the data in many ROI models, so what's the point? If you're making up numbers to begin with, it's not really going to help you" decide whether an IT project makes sense.

So instead of a financial-only ROI process, Kozik's group looks at many factors as part of its overall evaluation of any new technology. First is how mature the technology is and whether it represents a continuation of the company's existing skill set or a totally new direction.

Kozik's group also looks at the market position of the vendor — not its financial strength — she says, because in a down market, many technology providers are struggling. Instead, she figures, if the product or service has the lion's share of its market, it will continue to be offered, even if the vendor is ultimately acquired by another.

The last step is viewing the project in the context of the firm's overall strategy. "Not the written strategy or whatever people are paying lip service to, but the things that are really important to the executive team," Kozik says. "I consider it my No. 1 job to keep in touch with what's going on at that level."

After all these factors are gathered and given a numerical weight — costs, skill sets, market position of the vendor and how the project fits with Tellabs' overall strategy — the IT team assigns the pending project an assessment number. The lower the number, the more risky the project and the more iffy its likelihood of success.

All told, the entire ROI process takes only about two weeks at most. "We don't want to overengineer the process, because then people would walk away," Kozik explains.

Save ROI for Big Projects

La-Z-Boy Inc., a furniture maker in Monroe, Mich., takes a different approach. There, ROI analyses are done only for "major" IT projects — those over a certain dollar amount that Gary Clark, director of corporate IT services, declines to specify. He says that perhaps 10% to 20% of all IT projects are put under a sharp financial microscope, but those projects represent a majority of the IT budget.

Tough Task

It's helpful to remember why ROI is done in the first place: to get the dollars needed for IT, certainly, but more important, for IT to help the business achieve its objectives.

The jury has been out for years about IT's role in enabling productivity. A November 2002 report by McKinsey & Co. says IT's impact over the past decade has been "diverse and complex, depending on when, where and how it has been deployed."

Indeed, the report singles out only three sectors where IT has had a quantifiable impact on productivity: semiconductors, retail and financial services.

Just as there is no silver bullet in terms of IT's financial impact, there is no single answer regarding how to measure technology-related ROI and what to include in that assessment. Expectations for IT's ROI can and have changed, based on the economic circumstances and corporate culture.

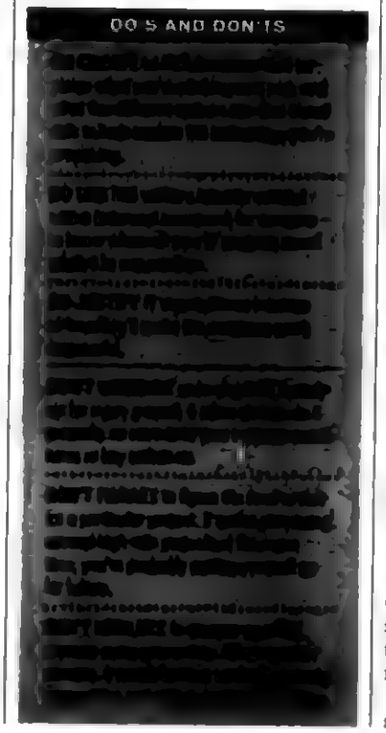
Erik Brynjolfsson, a management professor at MIT's Sloan School of Management who specializes in IT effectiveness, says that "unfortunately, many worthy projects are not getting funding" right now. "After being burned by vague promises in the past, CFOs have become highly skeptical" of the promises of IT's soft benefits and are insisting on hard, tangible returns for each investment, he notes.

"While a bit of this is healthy," Brynjolfsson says, "my research shows that up to 90% of the costs and benefits of IT investments are in intangibles. Firms that ignore this fact risk sacrificing their long-term growth to make their short-term numbers. Striking the right balance requires a fair assessment of both tangibles and intangibles."

– Johanna Ambrosio

Clark echoed a sentiment heard from other CIOs: Because of the time and resources required to do any type of major financial analysis of new technology, many shops reserve a truly in-depth ROI process for their biggest-ticket or highest-impact strategic initiatives. Adding more PCs or storage to existing systems is hardly worth the effort in most cases; those kinds of expenditures typically come out of the operations budget.

La-Z-Boy looks at any projects that are subject to ROI analysis for how much the initiatives will cost in terms of ongoing maintenance fees, as well as for net present value. The net present value method essentially figures out how much the project's future net cash flow will be worth in today's dollars. That amount is then compared with the amount of money needed to implement the project.



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Work With the Finance Folks

At General Motors Corp., IT staffers work closely with the financial organization to do ROI analyses, says Tony Scott, chief technology officer at the automotive giant. "The financial organization has a formal ROI calculator — what we're replacing, current costs, future costs, transition costs and other metrics," he says.

Where this model isn't as helpful is when technology is being used to do something completely new. "If we have a new business venture, there's nothing to compare it against" — no historical trends or costs, Scott says. This is where it's crucial to align organizational objectives, he explains. It becomes a lot easier to justify something when you can show that it will grow customer retention by 15%, because that benefit is already well tracked and well understood.

One key ROI metric is time spent or saved, and GM has used technology to help reduce the time it takes to develop a new car from 48 months to 18.

Both complicating and helping matters is GM's organizational chart. Within IT, there are CIOs responsible for overall IT profit and loss (P&L) within a given geographic region. Then there are PIOs, or process information officers, who are responsible for specific horizontal applications across all geographic regions — manufacturing or finance, for instance.

"There's a natural tension between PIOs, who want to drive new applications, and CIOs, who want to optimize P&L for their region," Scott says. "There are interesting discussions about what's the right thing to do at any intersection of that matrix." One result, though, is that "it's hard to pull the wool over anyone's eyes — you have to make a business case in each geographic region" for any major new technology initiative, he says.

As Tellabs' Kozik explains, "If you focus just on the ROI calculation, then you're playing liar's poker. The biggest liar is going to win, and that's ultimately not a successful business practice. So we have to get back to what we're trying to achieve: value to our customers and shareholders. Our justification process makes sure we're working on the right things for the business."

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THE CARLSON WAY

For more on CIO Steve Brown's approach to ROI, including how a possible war with Iraq might factor into his analysis, read the full Q&A.

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DO'S AND DON'TS

DO CREATE an ROI document that explains what you're pitching and why, and what the different options are. Use visual aids to help explain the technology you're proposing.

DO USE ROI within a broader context – with a balanced scorecard, for instance – to know where all your IT projects stand relative to one another.

DO JUSTIFY IT expenditures in terms of how they'll make the company more successful.

DON'T CONDUCT an in-depth ROI analysis for every project; it takes time to do it properly, so save it for your major expenditures or key initiatives.

DON'T FORGET to figure the level of risk for a particular project. If you're proposing several high-risk projects at the same time, you're probably setting yourself up for failure.

DON'T NEGLECT to revamp your ROI process every year or two. Like any other process, it needs to keep up with company, competitive and global economic changes.

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The Magic Genie Lamp was celebrated in server rooms. With one rub, the owner's manual read, the genie would grant added capacity. With another, he would reduce the added capacity. With a third wish, servers would instantly be self-healing. All in the blink of an eye. It was a lifesaver. A cost saver. IT directors were giddy. They could handle spikes. Their servers would never crash. They'd run at peak performance. It was beyond belief. Way beyond belief: the Magic Genie Lamp was still in beta testing and never actually worked.

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Payback Period

It's quick, easy, popular — and incomplete. By Gary H. Anthes

DEFINITION: An investment's payback period in years is equal to the net investment amount divided by the average annual cash flow from the investment.

WHAT IT MEANS: How long will it take to get my money back?

STRENGTHS: It's easy to compute, easy to understand and provides some indication of risk by separating long-term projects from short-term projects.

WEAKNESSES: It doesn't measure profitability, doesn't account for the time value of money and ignores financial performance after the break-even period.

PAYBACK PERIOD is the most widely used measure for evaluating potential investments. Its use increases in tough economic times, when CIOs are apt to say things like, "We won't even consider a project that has more than a 24-month payback."

For those IT managers, projected cost savings or revenue enhancements resulting from the project would have to equal or exceed the upfront investment within two years for the project to win approval.

"We start with payback period," says Ron Fijalkowski, CIO at Strategic Distribution Inc. in Bensalem, Pa. "For sure, if the payback period is over 36 months, it's not going to get approved. But our rule of thumb is we'd like to see 24 months. And if it's close to 12, it's probably a no-brainer."

Payback period has the virtue of being easy to compute and easy to understand. But that very simplicity carries weaknesses with it. Payback period says nothing about how the investment performs after the break-even period.

Consider the two examples of $1 million projects shown in the chart at right. A bank can spend $1 million on server consolidations and save one-third that amount in each of the following three years on reduced license fees, telecommunications costs and systems administration labor. Or it could spend the same amount to install ATMs, eliminate four teller positions and save $250,000 per year indefinitely.

Which is a better investment? Payback analysis clearly favors the server consolidation, which recoups its investment a year earlier than the ATM project. But the ATM project goes on to produce returns after three years and is therefore a better long-term investment. In fact, the server project isn't even profitable.

"Payback gives you an answer that tells you a bit about the beginning stage of a project, but it doesn't tell you much about the full lifetime of the project," says Chris Gardner, a co-founder of iValue LLC, an IT valuation consultancy in Barrington, Ill.

But payback period's emphasis on the short term has a special appeal for IT managers. "That's because the history of IT projects that take longer than three years is disastrous," says Gardner.

Indeed, Ian Campbell, chief research officer at Nucleus Research Inc. in Wellesley, Mass., says payback period is an absolutely essential metric for evaluating IT projects — even more important than discounted cash flow — because it spotlights the risks inherent in lengthy IT projects. "It should be a hard and fast rule to never take an IT project with a payback period greater than three years, unless it's an infrastructure project you can't do without," Campbell says.

Of course it's possible to consider payback period in concert with other, more sophisticated measures. Payback period may be a good way to quickly size up a portfolio of projects and winnow it down to a few that merit more careful scrutiny with, for example, discounted cash flow.

The simplicity of computing payback may encourage sloppiness, especially the failure to include all costs associated with an investment, such as training, maintenance and hardware upgrade costs, says Douglas Emond, senior vice president and chief technology officer at Eastern Bank in Lynn, Mass. For example, he says, "you may be bringing in a hot new technology, but uh-oh, after implementation you realize you need a .Net guru in-house, and you don't have one."

PAYBACK RESOURCES

Links to more tutorials on payback calculations are available at:

QuickLink 30052
www.computerworld.com

PAYBACK PERIOD:

What It Looks Like

	ATM installation	Server consolidation
	Investment: $1 million	Investment: $1 million
	$333,333	$250,000
	$333,333	$250,000
	$333,333	$250,000
	-	$250,000
	-	$250,000
	$1 million	$1.25 million
Payback period	3 years	4 years

A payback calculation answers the question: How long will it take to get my money back? But it doesn't tell you what happens after the break-even point. In this example, a bank can spend $1 million on server consolidations and save one-third that amount in each of the following three years on reduced license fees, telecommunications costs and systems administration labor. Or it could spend the same amount to install ATMs, eliminate four teller positions and save $250,000 per year indefinitely.

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THE BEST-RUN BUSINESSES RUN SAP

Net Present Value

Measure the future in today's terms. By Gary H. Anthes

DEFINITION: The net present value (NPV) of an investment is the present (discounted) value of future cash inflows minus the present value of the investment and any associated future cash outflows.

WHAT IT MEANS: It's the net result of a multiyear investment expressed in today's dollars.

STRENGTHS: By considering the time value of money, it allows consideration of such things as cost of capital, interest rates and investment opportunity costs. It's especially appropriate for long-term projects.

WEAKNESSES: Ranking investments by NPV doesn't compare absolute levels of investment. NPV looks at cash flows, not at profits and losses the way accounting systems do. NPV is highly sensitive to the discount percentage, and that can be tricky to determine.

UNLIKE the more widely used payback period, NPV accounts for the time value of money by expressing future cash flows in terms of their value today. It recognizes that money has a cost (interest), so that you would prefer to have $1.00 today to having $1.00 a year from now. If you earn 10% interest on your money, $1.00 today will be worth $1.10 a year from now. Or, turning that around, the "present" value of $1.10 one year out is $1.00.

You probably wouldn't want to make an investment that's estimated to produce a negative NPV. The bigger the NPV — other things being equal — the more attractive the investment is.

Computing NPV requires use of a discount rate equal to some minimum desired rate of return. This could be your company's average weighted cost of capital (debt and equity) as computed by your finance department. If capital costs your company 10%, you aren't likely to invest that capital for an 8% return. Unfortunately, computing the cost of capital can be difficult and controversial.

The discount rate (say, 10%) determines the discount factor for each year (say, .909) that is applied to that year's cash flow to convert it to today's dollars. The discount factor for year *n* can be computed as: discount factor = $1/(1+i)^n$, where *i* is the target rate of return. So at a discount rate of 10% in Year 1, discount factor = 1/(1.1), or .909. Thus, in the earlier example, the present value of $1.10 a year from now is $1.10 x .909, or $1.00.

Fortunately, this math is automated in spreadsheet packages. You enter only the undiscounted cash flows, the years in which the flows are expected and some target interest rate. NPV will pop out.

The chart below compares two projects that a bank could undertake. Each has an initial investment of $1 million and a minimum desired rate of return of 10%. On the basis of absolute (undiscounted) return, the ATM installation is better because it generates $250,000 more cash over the life of the investment. But when the time value of money is considered, the server consolidation project looks slightly better, with an NPV higher by $9,000. Its present value is higher because the returns occur earlier in the project's life.

Gaylord Entertainment Co., a Nashville-based hotel and resort company, relies on relatively simple measures such as payback period to evaluate investments of less than $100,000. Between $100,000 and $500,000, it also looks at discounted cash flow (DCF). "And above $500,000, DCF is absolutely necessary," says CIO Kent Fourman.

The yearly cash flows from a hotel or entertainment project are net revenues, but for an IT project, they generally are cost savings, Fourman says. But he says NPV isn't appropriate for an IT project that can't be associated with clearly defined cash flows.

"We are doing Windows 95 to Windows 2000 and XP conversions, for example, and you're not going to come up with a traditional DCF on that kind of project," Fourman says. "There are benefits that are not necessarily financial in nature."

NPV has some flaws, says Ian Campbell, chief research officer at Nucleus Research Inc. in Wellesley, Mass. He offers an example in which two investments each have an NPV of $100, but one involves an initial investment of $1,000 and the other an investment of $1 million. Clearly the $1,000 investment is preferable because it's less risky and ties up less capital, he says.

But, Campbell adds, NPV is a good "no-go indicator," because you'd normally reject an investment with a negative NPV without further consideration. Those with a positive NPV should then be measured by other yardsticks, he says.

NET PRESENT VALUE:

What It Looks Like

Year	Discount factor (at 10%)	ATM installation		Server consolidation	
		Cash flow	Present value	Cash flow	Present value
0	1.000	-$1 million	-$1 million	-$1 million	-$1 million
1	0.909	+$500,000	+$454,500	+$1 million	+$909,000
2	0.826	+$500,000	+$413,000	+$750,000	+$619,500
3	0.751	+$500,000	+$375,500	+$500,000	+$375,500
4	0.683	+$500,000	+$341,500	-	-
5	0.621	+$500,000	+$310,500	-	-
Total		+$1.5 million	+$895,000	+$1.25 million	+$904,000

■ NPV considers the time value of money. In this example, we compare two $1 million projects with a minimum desired rate of return of 10%. On the basis of simple cash flow, the ATM installation looks better because it generates $250,000 more over the life of the investment. But when the time value of money is considered, the server consolidation project looks slightly better, with an NPV higher by $9,000, because the returns occur earlier in the project's life.

NPV FOR DUMMIES

For links to more NPV resources, check out this collection:

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NET PRESENT VALUE: What It Looks Like

ATM installation		Server consolidation	
-$1 million	-$1 million	-$1 million	-$1 million
+$300,000	+$454,500	+$1 million	+$909,090
+$300,000	+$413,000	+$750,000	+$619,500
+$300,000	+$375,500	+$500,000	+$375,500
+$300,000	+$341,500	-	-
+$300,000	+$310,500	-	-
+$1.5 million	+$995,000	+$1.25 million	+$904,000

NPV FOR DUMMIES

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Internal Rate of Return

Sort projects into 'go' and 'no-go' piles. By Gary H. Anthes

DEFINITION: The internal rate of return (IRR) is the discount rate that results in a net present value of zero for a series of future cash flows.

WHAT IT MEANS: It's a cutoff rate of return; avoid an investment or project if its IRR is less than your cost of capital or minimum desired rate of return.

STRENGTHS: It provides a simple hurdle rate for investment decision-making. It's the method favored by many accountants and finance people, possibly the ones at your company.

WEAKNESSES: It's not as easy to understand as some measures and not as easy to compute (even Excel uses approximations). Computational anomalies can produce misleading results, particularly with regard to reinvestments.

IRR is the flip side of net present value (NPV) and is based on the same principles and the same math. NPV shows the value of a stream of future cash flows discounted back to the present by some percentage that represents the minimum desired rate of return, often your company's cost of capital.

IRR, on the other hand, computes a break-even rate of return. It shows the discount rate below which an investment results in a positive NPV (and should be made) and above which an investment results in a negative NPV (and should be avoided). It's the break-even discount rate, the rate at which the value of cash outflows equals the value of cash inflows.

Consider the three scenarios shown here (see table), each involving an initial investment of $1 million. The investment returns $300,000 (undiscounted) per year in each of the five years after the initial investment, for a net return of $500,000.

A company evaluating this investment using cash flow discounted at 10% would compute an NPV of $137,000, a decent but not spectacular result. But if the company evaluates the same investment at 15%, the project has a present value of only $6,000, essentially just breaking even, and at 20% the project's present value is negative. The IRR is a fraction of a percentage point above 15%; at that discount percentage, the investment's NPV is zero.

IRR is often used as a hurdle rate, a sort of go/no-go investment threshold. Gaylord Entertainment Co. in Nashville, for example, has computed its weighted average cost of capital — a percentage that it won't disclose — and a "hurdle" percentage rate a few points higher. An investment's IRR must generally equal or exceed the hurdle rate to be approved by management, says CIO Kent Fourman.

"We calculate the IRR and then compare that to our hurdle rate," Fourman says. "And we compare that IRR against every other [project's] IRR, because you always have limited cash."

But the IRR cutoff isn't an absolute test, he says. For example, management's subjective assessment of risk may influence an investment decision, he says. "But if you can't show that IRR exceeds our hurdle rate, then you'll have to have a lot of the soft justifications to get it approved," Fourman says.

Not everyone is as enthusiastic about IRR. Like NPV, it doesn't measure the absolute size of the investment or its return. And because of the way the math works, the timing of periods of negative cash flow can affect the value of IRR without accurately reflecting the underlying performance of the investment.

IRR can also produce misleading results because, as classically defined, it assumes that the cash returned from an investment is reinvested at the same percentage rate, which may not be realistic. That error is magnified when comparing two investments of different durations. Some software, such as Microsoft Excel, will compute an optional "modified IRR" that allows the user to specify a different reinvestment rate.

IRR becomes increasingly misleading the more it diverges from the cost of capital, says Ian Campbell, chief research officer at Nucleus Research Inc. in Wellesley, Mass. "IRR is a terrible metric, and it should never be used," he asserts.

The key metric for IT projects, Campbell says, is payback period, because it favors short-term, and hence less risky, projects that IT should be doing.

INTERNAL RATE OF RETURN:

What It Looks Like

	Discount rate: 10%		Discount rate: 15%		Discount rate: 20%	
	1.000	-$1 million	1.000	-$1 million	1.000	-$1 million
	0.909	$273,000	0.870	$261,000	0.833	$250,000
	0.826	$248,000	0.756	$227,000	0.694	$208,000
	0.751	$225,000	0.658	$197,000	0.579	$174,000
	0.683	$205,000	0.572	$172,000	0.482	$145,000
	0.621	$186,000	0.497	$149,000	0.402	$121,000
	NPV = +$137,000		NPV = +$6,000		NPV = -$102,000	
	IRR = slightly more than 15%					

■ IRR is often used as a hurdle rate, a sort of go/no-go investment threshold. In this example, there is an initial investment of $1 million, with a net (undiscounted) return of $500,000. The NPV of the $1 million outlay depends on the discount rate, or cost of capital, used to evaluate the investment. The NPV is zero at the IRR, here a fraction of a percentage point above 15%.

LINKS GALORE

More tutorials on IRR are available online:

QuickLink 38052
www.computerworld.com

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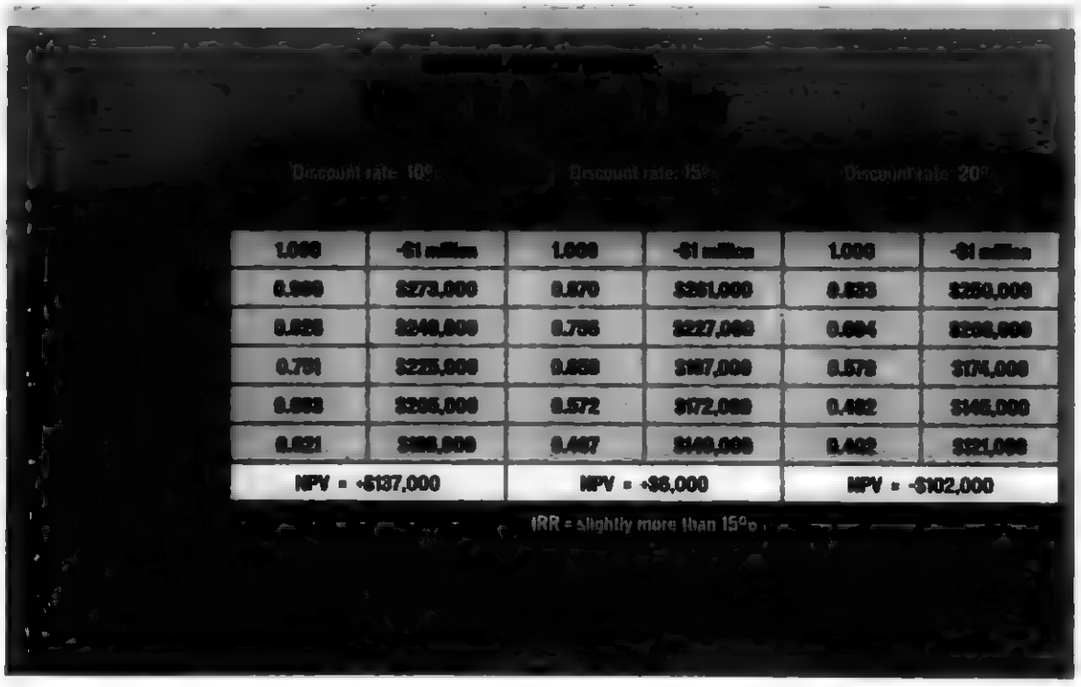

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Balanced Scorecard

It's a forward-looking 'dashboard' for executives. By Gary H. Anthes

DEFINITION: A set of principles and analytic techniques for improving an organization's performance in four general areas: financials, customers, learning and internal processes.

WHAT IT MEANS: Long-term organizational excellence can be achieved only by taking a broad and holistic approach, not by focusing solely on financials.

STRENGTHS: This approach is potentially all-encompassing, combining financial and nonfinancial goals and measures. It can encompass the performance of entire companies or business units, not just individual investments or projects. Balanced scorecard is future-oriented, not a rearview mirror on performance.

WEAKNESSES: This method is potentially so broad that it may divert resources from those few areas that really are vital to shareholder return. It doesn't readily weight the relative importance of the different metrics it uses.

CREDIT FOR the balanced scorecard idea most often goes to Robert S. Kaplan and David Norton, who wrote an article about it for the *Harvard Business Review* in 1992. Certainly, many of the underlying ideas go back much further, and today, many companies use one or more of its principles without having adopted the balanced scorecard methodology in any formal sense.

"There are many different balanced scorecards, and they serve many different purposes," says Arthur Schneiderman, an independent business-process management consultant in Boxford, Mass. "But most organizations will say its purpose is to link strategy to action."

Regardless of how one defines it, the balanced scorecard is based on several underlying notions. The first is that financial measures alone aren't sufficient to size up the health of a company and that a single-minded pursuit of financial objectives could lead your company to ruin in the long run.

The second is that balanced scorecard focuses on process, not metrics. As such, it's forward-looking (How can I retain my best customers?) rather than backward-looking (What were my earnings per share last quarter?).

The scorecard is an analytic framework for translating a company's visions and high-level business strategies into specific, quantifiable goals and for monitoring performance against those goals. The methodology breaks high-level strategies into objectives, measurements, targets and initiatives.

For example, Southwest Airlines Co. employs a number of scorecards, one of which relates ground-crew performance to company profitability (see chart). It arranges the four quadrants of the balanced scorecard — learning, internal, customer and financial — in a hierarchy that shows how objectives relate to one another.

Directly relating a financial measure such as "lower costs" with an operations metric like "fast ground turnaround" is a relatively new idea at the Dallas-based airline, says Mike Van de Ven, vice president of financial planning and analysis. "Historically, the budget system was the primary system to monitor costs, and if you were an accountant, you got it," he says. "But if you were an operations person, and you weren't used to cost centers and general ledgers and budget-to-actual variances, it didn't make any sense to you."

The operations people had hundreds of metrics dealing with things such as on-time performance or baggage delivery, but they weren't linked directly to the financial measures or the budget system, Van de Ven says. "So what we have been doing over the past several years is putting these things together, and that neatly rolls into this balanced scorecard concept," he says.

Another advantage of this integrated scorecard approach is that it retains the hundreds of detailed metrics for front-line supervisors but gives top management a "dashboard" displaying a few key measures. "We are trying to get more focused on key measurements that we want to stay on top of," Van de Ven says.

Although nearly everyone applauds the broad view that the balanced scorecard encourages and its proactive, forward-looking thrust, some critics say the scorecard is often misused. "Most of the time, the balanced scorecard will help you identify the wrong things to measure," Schneiderman says. That can waste a lot of corporate resources, he adds.

There's a danger that use of the balanced scorecard can divert management attention away from the most important goals, which are financial, says Ray Trotta, co-founder of iValue LLC, an IT valuation consultancy in Barrington, Ill. "We like the way the Street does things; they talk about dollars and cents," he says. "The balanced scorecard talks about customer relationships, internal processes, learning and growth. I mean, those things are good, but where's the money?"

TO DIG DEEPER

Links to more tutorials on the balanced scorecard are available online:

QuickLink 36002
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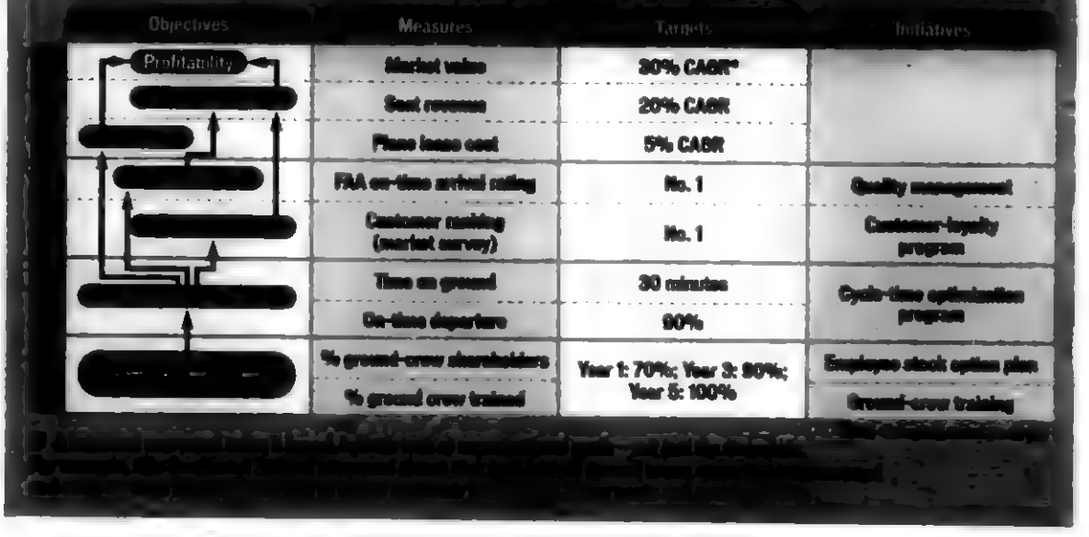

Economic Value Added

The cost of capital isn't free.

By John Berry

DEFINITION: Economic Value Added (EVA) – a name trademarked by Stern Stewart & Co. – subtracts the capital charge (the capital investment times the cost of capital) from the net financial benefits of the investment.

WHAT IT MEANS: Economic profit is wealth created above the capital cost of the investment. EVA prevents managers from thinking that the cost of capital is free.

STRENGTHS: EVA focuses managers on the question, "For any given investment, will the company generate returns above the cost of capital?" Companies that embrace EVA have bonus compensation schemes that reward or punish managers for adding value to or subtracting value from the company.

WEAKNESSES: As with any metric, it's hard to link precise EVA returns to a specific technology investment. EVA is ideally suited to publicly traded companies, not private companies, because it deals with the cost of equity for shareholders, as opposed to debt capital.

IF A COMPANY INVESTS in manufacturing equipment or a warehouse, how much additional profit will be required to pay for it? Managers are intuitively aware of the importance of value creation to their businesses. EVA is a management philosophy and performance metric that elevates those goals from intuition to rigorous analysis and ensures that no investment escapes scrutiny.

Yes, that includes IT. The fundamental proposition of EVA is that capital isn't free and its cost must be factored into every benefit analysis or return-on-investment model when an investment in a plant, equipment or a new customer relationship management system is contemplated. Putting a finer point on this concept, EVA targets equity capital as opposed to debt capital. Managers often treat equity capital as free when it's not — shareholders could have invested elsewhere.

Since IT represents a big percentage of a company's annual capital budget, whether a company factors in the cost of capital when deciding on some technology investment is hardly academic. The pure EVA calculation for the company as a whole is:

Net operating profit after taxes – capital charge (capital investment x cost of capital)

But, purely speaking, there is no net operating profit after taxes (NOPAT) arising out of an IT investment, so the net financial benefits of the IT investment are used as a replacement for NOPAT.

Consider, for instance, a case where the cost-benefit analysis reveals that a $50,000 IT investment will return $8,000 in net quantifiable benefits. The ROI is 16% ($8,000 divided by $50,000). The cost of capital in the company is 12%. Using the formula above, the EVA in this case is $2,000:

$8,000 net benefits – ($50,000 capital investment x 12% cost of capital) = $2,000 EVA

Another way to calculate EVA in this example is to simply deduct the 12% cost of capital from the 16% ROI, then multiply by the investment:

4% x $50,000 = $2,000 EVA

EVA is always expressed as a dollar amount.

"EVA doesn't make it easy to quantify IT benefits but creates clarity so that all the pluses and minuses of these IT decisions can be considered in ways that companies [that don't use EVA] find difficult to do," says Bennett Stewart, co-founder of Stern Stewart & Co., a New York-based consultancy that coined the term *Economic Value Added*, but not the concept.

Consider a recent EVA analysis that Robert Egan, vice president of IT at Boise Cascade Corp., and his colleagues conducted for a storage investment. The decision was whether to keep storage assets or replace them with new technology that has lower maintenance charges. (The example is illustrative. Egan declined to provide real cost figures.)

The new storage technology costs $1 million, with maintenance costs of $100,000 per year. The maintenance expense on the old storage technology is $350,000. (For simplicity, we'll assume that the new storage equipment offers no benefits other than the lower maintenance costs.)

Boise's cost of capital is about 16%. Therefore, the capital charge for investing in the new storage is 16% x $1 million, or $160,000, which EVA says must be added to the $100,000 maintenance costs to get the true cost.

The result: The total cost of the new storage is $260,000, vs. $350,000 for the old storage. "In this case, have you lowered the operating cost enough to make up for spending the capital?" asks Egan. Yes — $90,000 worth.

Boise is constantly reminded of the obvious point that technology isn't free. The company is also aware of the less obvious fact: neither is the capital to finance it.

Berry is an IT management consultant and analyst in Bend, Ore. Contact him at vision@according2jb.com.

MORE VALUE ADDED

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Outsourcing's Payoff

[illegible]

In-house application

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– $10,000 in rental fees
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[illegible]

Balanced Scorecard

It's a forward-looking 'dashboard' for executives. By Gary H. Anthes

DEFINITION: A set of principles and analytic techniques for improving an organization's performance in four general areas: financials, customers, learning and internal processes.

WHAT IT MEANS: Long-term organizational excellence can be achieved only by taking a broad and holistic approach, not by focusing solely on financials.

STRENGTHS: This approach is potentially all-encompassing, combining financial and nonfinancial goals and measures. It can encompass the performance of entire companies or business units, not just individual investments or projects. Balanced scorecard is future-oriented, not a rearview mirror on performance.

WEAKNESSES: This method is potentially so broad that it may divert resources from those few areas that really are vital to shareholder return. It doesn't readily weight the relative importance of the different metrics it uses.

CREDIT FOR the balanced scorecard idea most often goes to Robert S. Kaplan and David Norton, who wrote an article about it for the *Harvard Business Review* in 1992. Certainly, many of the underlying ideas go back much further, and today, many companies use one or more of its principles without having adopted the balanced scorecard methodology in any formal sense.

"There are many different balanced scorecards, and they serve many different purposes," says Arthur Schneiderman, an independent business-process management consultant in Boxford, Mass. "But most organizations will say its purpose is to link strategy to action."

Regardless of how one defines it, the balanced scorecard is based on several underlying notions. The first is that financial measures alone aren't sufficient to size up the health of a company and that a single-minded pursuit of financial objectives could lead your company to ruin in the long run.

The second is that balanced scorecard focuses on process, not metrics. As such, it's forward-looking (How can I retain my best customers?) rather than backward-looking (What were my earnings per share last quarter?).

The scorecard is an analytic framework for translating a company's visions and high-level business strategies into specific, quantifiable goals and for monitoring performance against those goals. The methodology breaks high-level strategies into objectives, measurements, targets and initiatives.

For example, Southwest Airlines Co. employs a number of scorecards, one of which relates ground-crew performance to company profitability (see chart). It arranges the four quadrants of the balanced scorecard — learning, internal, customer and financial — in a hierarchy that shows how objectives relate to one another.

Directly relating a financial measure such as "lower costs" with an operations metric like "fast ground turnaround" is a relatively new idea at the Dallas-based airline, says Mike Van de Ven, vice president of financial planning and analysis. "Historically, the budget system was the primary system to monitor costs, and if you were an accountant, you got it," he says. "But if you were an operations person, and you weren't used to cost centers and general ledgers and budget-to-actual variances, it didn't make any sense to you."

The operations people had hundreds of metrics dealing with things such as on-time performance or baggage delivery, but they weren't linked directly to the financial measures or the budget system, Van de Ven says. "So what we have been doing over the past several years is putting these things together, and that neatly rolls into this balanced scorecard concept," he says.

Another advantage of this integrated scorecard approach is that it retains the hundreds of detailed metrics for front-line supervisors but gives top management a "dashboard" displaying a few key measures. "We are trying to get more focused on key measurements that we want to stay on top of," Van de Ven says.

Although nearly everyone applauds the broad view that the balanced scorecard encourages and its proactive, forward-looking thrust, some critics say the scorecard is often misused. "Most of the time, the balanced scorecard will help you identify the wrong things to measure," Schneiderman says. That can waste a lot of corporate resources, he adds.

There's a danger that use of the balanced scorecard can divert management attention away from the most important goals, which are financial, says Ray Trotta, co-founder of iValue LLC, an IT valuation consultancy in Barrington, Ill. "We like the way the Street does things; they talk about dollars and cents," he says. "The balanced scorecard talks about customer relationships, internal processes, learning and growth. I mean, those things are good, but where's the money?"

TO DIG DEEPER

Links to more tutorials on the balanced scorecard are available online:

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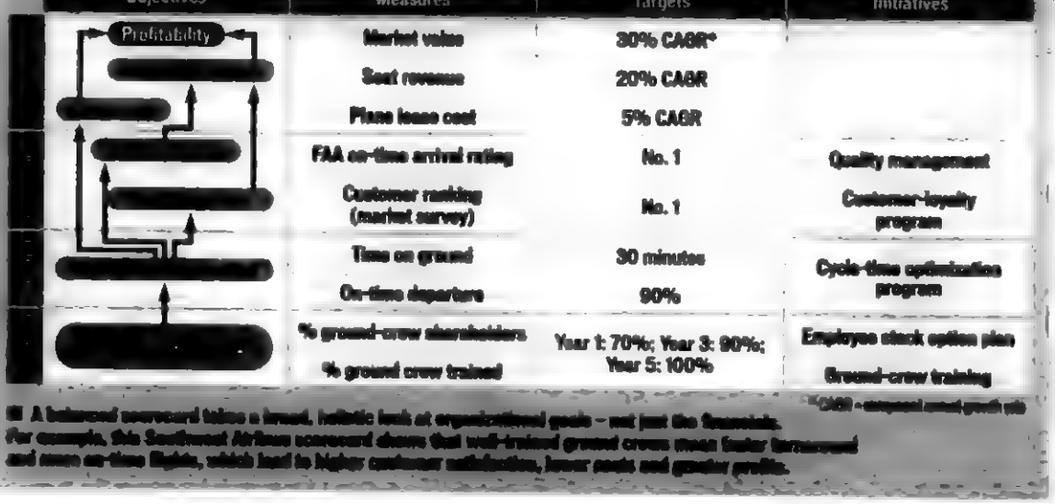
SOUTHWEST AIRLINES' BALANCED SCORECARD:

What It Looks Like



A balanced scorecard takes a broad, holistic look at organizational goals — not just the financials. For example, this Southwest Airlines scorecard shows that well-trained ground crews mean faster turnaround and more on-time flights, which lead to higher customer satisfaction, lower costs and greater profits.

Economic Value Added

The cost of capital isn't free.

By John Berry

DEFINITION: Economic Value Added (EVA) – a name trademarked by Stern Stewart & Co. – subtracts the capital charge (the capital investment times the cost of capital) from the net financial benefits of the investment.

WHAT IT MEANS: Economic profit is wealth created above the capital cost of the investment. EVA prevents managers from thinking that the cost of capital is free.

STRENGTHS: EVA focuses managers on the question, "For any given investment, will the company generate returns above the cost of capital?" Companies that embrace EVA have bonus compensation schemes that reward or punish managers for adding value to or subtracting value from the company.

WEAKNESSES: As with any metric, it's hard to link precise EVA returns to a specific technology investment. EVA is ideally suited to publicly traded companies, not private companies, because it deals with the cost of equity for shareholders, as opposed to debt capital.

IF A COMPANY INVESTS in manufacturing equipment or a warehouse, how much additional profit will be required to pay for it? Managers are intuitively aware of the importance of value creation to their businesses. EVA is a management philosophy and performance metric that elevates those goals from intuition to rigorous analysis and ensures that no investment escapes scrutiny.

Yes, that includes IT. The fundamental proposition of EVA is that capital isn't free and its cost must be factored into every benefit analysis or return-on-investment model when an investment in a plant, equipment or a new customer relationship management system is contemplated. Putting a finer point on this concept, EVA targets equity capital as opposed to debt capital. Managers often treat equity capital as free when it's not — shareholders could have invested elsewhere.

Since IT represents a big percentage of a company's annual capital budget, whether a company factors in the cost of capital when deciding on some technology investment is hardly academic. The pure EVA calculation for the company as a whole is:

Net operating profit after taxes - capital charge (capital investment x cost of capital)

But, purely speaking, there is no net operating profit after taxes (NOPAT) arising out of an IT investment, so the net financial benefits of the IT investment are used as a replacement for NOPAT.

Consider, for instance, a case where the cost-benefit analysis reveals that a $50,000 IT investment will return $8,000 in net quantifiable benefits. The ROI is 16% ($8,000 divided by $50,000). The cost of capital in the company is 12%. Using the formula above, the EVA in this case is $2,000:

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Outsourcing's Payoff

Including a capital charge when assessing the economic returns from an IT investment reveals just how powerful outsourcing can be as a management strategy.

The Manitowoc Co. in Manitowoc, Wis., a diversified food service, crane manufacturing and marine operations company, outsourced a reverse-auction procurement system to a vendor instead of acquiring a software package itself. A comparison using EVA of buying vs. renting would look like this for the first year (numbers are hypothetical):

In-house application

$180,000 in net benefits
- ($1 million capital investment x 12% cost of capital)
= $60,000 EVA

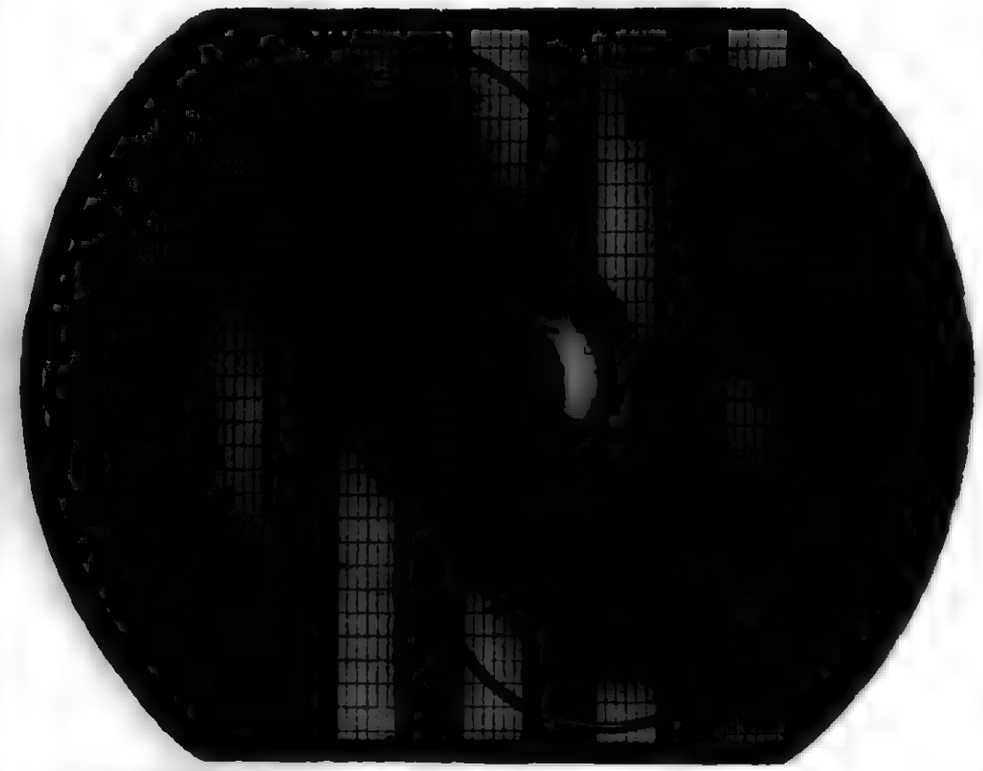
Outsourced application

$180,000 in net benefits
- ($0 capital investment x 12% cost of capital)
- $90,000 in rental fees
= $100,000 EVA

Notice that the outsourced application requires no capital investment and therefore has no capital charge. Suppose the operating costs to run the system in-house were $50,000 per year. Most companies only look at the income statement side of the ledger; they wouldn't outsource this application because it would be exchanging $50,000 of in-house expenses for the $90,000 rental fee, another kind of expense on the income statement. Yet on an EVA basis, the company would outsource the system, because doing so would produce nearly twice the residual income ($100,000 vs. $60,000) by virtue of the $0 capital charge.

"When you are exposed to the EVA philosophy, you recognize how to better manage your capital," says Jim Pacquin, Manitowoc's CIO.

– *John Berry*



MARIA RENDON

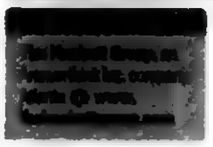
The Consultants' Offerings

Consulting firms are inventing their own ROI metrics at a steady pace. Here's a quick look at five more IT evaluation models.

By Steve Ulfelder

WITH IT BUDGETS TIGHT, CIOs are being asked to tally up ROI figures for every sizable project these days. Not surprisingly, consulting firms ranging from Gartner Inc. to two-man start-ups — often founded by Gartner alumni — have stepped in with a full complement of ROI metrics, methodologies, guidelines and benchmarking services to cash in on the opportunity. We've sifted through some of the offerings.

Business Value Index



The Hackett Group recently revamped and renamed its IT benchmarking methodology. An intriguing characteristic of its Business Value Index is that it offers clients the ability to compare themselves against other enterprises. Hackett has benchmarked 2,000 IT organizations, including those at General Electric Co. and Citigroup Inc., on their alignment with corporate strategy, ability to partner with suppliers, and level of technology integration, according to Bruce Barlag, the firm's president and a former Gartner ROI analyst. Barlag adds that client companies are able to examine the practices that help top-quartile corporations succeed.

From Hackett's extensive database, you can learn, for example, that the average IT organization has 11.5 full-time IT employees per 1,000 company employees, while at high-performing companies, the number is less than half that — 5.2 IT workers per 1,000 company employees.

The other major Business Value Index differentiator is its continuous focus; many customers, includ-

ing The New York Times Co. and Alcoa Inc., use their initial results as baselines for ongoing measurement. "Most companies benchmark every two or three years, but clients tell us they want more of an ongoing process," Barlag says.

Hackett says a Business Value Index analysis can take as little as two weeks. The firm's Web-enabled software gathers, scrubs and validates data; consultants collaborate with clients throughout the process and then deliver a final report.

Strength: Hackett's large existing database can be used to compare IT practices and business value on a continuous basis.

Weakness: May not offer the hard numbers you're looking for; moreover, the index is new and untested.

Information Economics

Tom Bugnitz, president of The Beta Group, stresses that although his Information Economics methodology encompasses metrics, they are simply a means to an end — that end being "a holistic view of all IT investments and an understanding of the linkage between IT spending and business results that lets management make decisions."

The Beta Group is another consultancy that includes Gartner alumni among its principals. The key differentiator of the firm's approach to IT ROI assessments is its focus on communication rather than data analysis.

The firm's methodology includes four steps. First, client companies list and prioritize their strategic business endeavors. As part of this process, The Beta Group forces clients to use standard language across all departments and projects.

Second, the IT organization is asked to catalog its technology investments. Again, standard language and metrics are used. With this information, The Beta Group builds what it calls a "project book." At this stage, says Bob Rouse, a company principal, it often becomes apparent that business managers know shockingly little about where the IT group is spending its money.

Next, a scorecard committee, composed of business, financial and IT executives, develops a relative valuation for each IT project. According to Bugnitz, this development process is the core of Information Economics, because it forces executives at the client's company to understand and analyze their IT program in detail.

"People on this committee must learn whatever they need to know about every project," Bugnitz says. "We provide a framework for disciplined thinking about business communication."

Finally, the company creates a scorecard, which is a list of proposed IT expenditures ranked according to their business value. Once a Beta Group client that was faced with a $50 million IT project backlog ran out of money halfway down its list — and simply eliminated the rest, with no ill effects. "The CEO said, 'If the process works, it works,' " says Bugnitz. A typical Beta Group engagement lasts six to 12 weeks.

Strength: Clearly ties IT projects to overall strategy, offering a good big-picture perspective.

Weakness: Requires a major effort from the scorecard committee, and the results of the exercise are only as strong as that group's commitment.

IT Performance Management Scorecard

Mike Bitterman, a principal at IT Performance Management Group (ITPMG), is yet another Gartner refugee — he worked in benchmarking at Gartner's measurement division. There, he says, "CIOs would tell us, 'Something's broken, and we don't know how to fix it.' And benchmarks don't tell you how to fix anything." So Bitterman moved on to co-found ITPMG and developed the IT Performance Management Scorecard.

In an ITPMG engagement, the client company establishes critical success factors associated with the health of its IT organization. These factors vary depending on how IT is regarded — as a utility, as a "demand" organization that delivers applications when requested, or as an "enabling" group that truly helps plan corporate strategy. (Brutal honesty is needed here: "Everybody wants to be an 'enabling' IT group, but very few are," Bitterman says.)

With critical success factors and metrics determined, ITPMG's scorecard software, which the firm installs on clients' servers, helps companies develop eight to 15 key performance indicators. The goals: unambiguous metrics, a translation of typical IT jargon into business-value terms. ("Somebody still measures CPU cycles and all that," Bitterman says. "But our software automates your ability to turn that into useful information.")

Developing a scorecard for one department of a company takes six to eight weeks.

Strength: Provides the hard ROI numbers that business executives want to see.

Weakness: When it comes to translating age-old IT measurements into information that's useful for business people, "there's still a lot of missionary work to be done," Bitterman says. To fully exploit the IT scorecard, a business must be ready and willing to confront the historical divide between IT and other organizations.

Total Economic Impact

Giga Information Group Inc.'s methodology essentially expands on traditional cost analysis by adding benefits and flexibility to the mix. Chip Gliedman, a Giga research fellow, says it's important to factor in flexibility because investments in infrastructure, excess storage capacity or network bandwidth look like red ink in a cost analysis — but offer flexibility that can pay off in time.

Where benefits of an IT project are concerned, Giga, like nearly all its competitors, forces clients past generalities such as "boosts productivity." Gliedman says IT executives tend to slip into a discussion of features but that Giga's methodology keeps them on track. "We don't talk features, but rather business benefits, and we always add 'as measured by' and a metric," he says.

Typically, a Total Economic Impact assessment begins with identification of an IT project's goals. IT then determines technology costs. Next, affected business units decide what benefits they stand to gain.

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Finally, the results of the assessment are communicated to all concerned parties, and metrics for measuring the project's success are determined.

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Strength: Takes flexibility and risk — major factors in real-world decision-making — into consideration.

Weakness: In some companies, those additional considerations may dilute the ROI message.

Total Value of Opportunity

Total Value of Opportunity (TVO) is a methodology based on the Gartner Business Performance Framework, the company's set of business metrics. Gartner analyst Audrey Apfel claims that's an important differentiator: "Generic ROI cases tend to go right from geekspeak to financial numbers, and that's too big a leap," she says.

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REAL OPTIONS

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www.computerworld.com

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

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The Beta Group, St. Louis www.the-beta-group.com

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IT Performance Management Group, Bethel, Conn. www.itpmg.com

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Giga Information Group Inc., Cambridge, Mass. www.gigaweb.com

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Gartner Inc., Stamford, Conn. www.gartner.com

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This IT ROI model, championed by Collaborative Consulting, emphasizes an incremental approach to IT investment.

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Where ROI Models Fail

The models don't measure IT's soft benefits, such as customer service. By Thomas Hoffman

NOW THAT COST IS KING, more IT executives are relying on standard accounting methodologies such as net present value (NPV) and internal rate of return (IRR) to cost-justify IT investments to top brass. Sometimes they're using the models because the rest of the company is doing it.

IT leaders "should adopt what the business adopts, and that's fine if that's how the organization wants to view the numbers," says Audrey Apfel, an analyst at Gartner Inc. in Stamford, Conn.

Problem is, say Apfel and other pundits, return-on-investment models are usually incomplete and don't reveal as much as they should about intangibles such as an investment's impact on employee productivity, sales or customer satisfaction.

"ROI models fail because they become overly complex," adds Stephen Andriole, an MIS professor at Villanova University in Villanova, Pa., and a senior consultant for the Cutter Consortium in Arlington, Mass.

Andriole, who has held senior IT positions at Cigna Corp. and Safeguard Scientifics Inc., says that there are roughly 15 financial calculations that CIOs can use to tally ROI, "and that's part of the problem — the more complicated the method, the more you have to feed the method rather than working the project."

That's why Andriole leans toward the use of more simplified ROI techniques, such as payback.

"At Cigna, we had all these complicated ways of collecting the data, with five people collecting data. And I said, 'Whoa, wouldn't it be more effective to have three of those people actually working on the project and just two people collecting the data?' "

Capturing Soft Gains

ROI models also aren't well suited to capturing soft benefits, such as customer satisfaction or employee productivity gains.

"If you reach a customer on the second ring instead of the third ring, how do you capture that? Are they more profitable? Are they happier? The human factor of computer-assisted work is neglected by the ROI model," asserts John Jordan, a principal at Cap Gemini Ernst & Young in Cambridge, Mass.

Further, ROI calculations typically fail to include the complexity costs associated with adding a new application — such as additional hardware, storage or WAN/LAN equipment, and support personnel — to an IT infrastructure, says Jordan. That's one reason he advocates asking another question: What's the cost of doing nothing vs. the cost of making an IT investment?

Jordan paints the following scenario: An IT manager is faced with buying five Unix servers in order to add new services to his company's Web site. The consideration isn't "just the hardware that you buy but the business capability you achieve in three weeks instead of three months," he explains. "That kind of thinking is hard to put a dollar value on."

The problem with relying solely upon financial techniques such as NPV or IRR "is that they don't necessarily capture all of the business benefits of an IT investment, nor do they help to evaluate all of the options that are open to you," says Chip Gliedman, an analyst at Giga Information Group Inc. Giga recommends that CIOs use options models, decision trees and other tools "to try to quantify and communicate the value of those options and the value of that flexibility."

Take a company that's about to install a new application that requires a two-processor server. You have two options, says Gliedman: "You can buy a two-processor server or a 16-processor cabinet and put two processors in it. The first option has higher immediate returns, but the second gives you the option to put additional processors in as they're needed."

A *Computerworld.com* survey indicates that it's common to try to calculate ROI for IT projects. Most of the 113 IT managers responding to last month's survey said their IT organizations do some sort of ROI calculation for major projects; only 6% said they do no ROI calculations at all.

But about half (48%) of the respondents agreed with the statement that "sometimes ROI calculations are a good idea, and sometimes they're not" (see chart, page 40). Many IT organizations go to the trouble of doing the ROI math only for really expensive projects.

Sometimes, financial justifications have to be tossed aside when an IT investment simply makes good business sense, some IT executives say.

As General Motors Corp. Chief Technology Officer Tony Scott put it: "We have some areas where we use metrics to measure [business returns]. But in some instances, we have to go on faith."

"We have some areas where we use metrics to measure [business returns]. But in some instances, we have to go on faith.

TONY SCOTT, CTO, GENERAL MOTORS CORP.

Three Problems

Gregor Bailar, CIO at Falls Church, Va.-based Capital One Financial Corp., says the following questions highlight three big problems with using a single financial calculation, such as NPV, to justify and track the benefits of an IT investment:

1 How does the company arrive at the figures? For example, does a company factor in depreciation costs for software?

2 Can you tie a productivity improvement directly back to an IT investment? For instance, if there's a 10% boost in sales from a direct-marketing campaign, to what extent was that caused by IT?

3 Who's accountable? In some ways, it doesn't matter what calculation you use. What matters is who's accountable for the investment and who's responsible for tracking it, Bailar says.

CONTRARIAN VIEWS

John Jordan of Cap Gemini Ernst & Young has written a paper on why ROI models often fail. For a link to that paper, visit our Web site:

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SNAPSHOTS

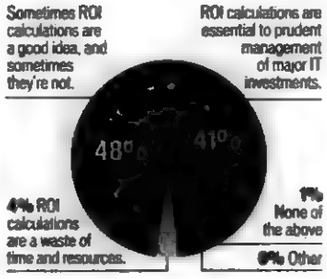
Growing Importance

Are ROI calculations for IT investments becoming more important or less important in your organization?

BASE: 163 IT managers involved in IT spending decisions, surveyed at Computerworld.com

Prudent or Wasteful?

Which statement matches your view on ROI?



BASE: 163 IT managers involved in IT spending decisions, surveyed at Computerworld.com

Top Five Challenges

What will be your biggest challenges in 2003?

1. Maintaining operations with a lower budget
2. Cutting costs
3. Completing major projects
4. Maintaining infrastructure
5. Improving security

SOURCE: MERRILL LYNCH & CO., NEW YORK, DECEMBER 2002

MARK HALL

Forget ROI

A CARTOON IN A RECENT ISSUE of *The New Yorker* depicts the classic scene of a father sitting in a chair, looking over the report card his young son has handed him. The father says, "They may be your grades, but they're the return on my investment." CIOs are hearing similar sentiments when they face their CEOs, perusing a list of corporate IT projects.

It's a lot less funny but at least as silly.

Because just as no child's education can be seen strictly through the narrow prism of "investment," IT operations can't be judged solely on hard numbers. Anyone who tells you otherwise isn't seeing the big picture.

MARK HALL is *Computerworld*'s opinions editor. Contact him at mark_hall@computerworld.com.

If you're jumping through ROI hoops for every IT project on your whiteboard these days, you're wasting your time. It may sound ironic, but the simple truth is that there's no ROI in analyzing the ROI on everything. At the risk of being labeled a blasphemer, I suggest you rid yourself of the fancy-schmancy, spreadsheet-happy blather of ROI gurus and use your own wisdom to evaluate IT projects.

If it makes sense to you, do it. If not, don't. You know the business. You know the technology. You know your crew. You know your budget. You know if it's feasible or not. What else do you need? A report card for Dad? I think not.

I'm not saying that just because you've got a lofty C-level title and a few years in the industry, you can fly by the seat of your pants. But who knows better which projects have been well conceived, which are half-baked and which deserve never to see the light of day? If you can't make that call, you should look for another job.

After all, your company depends on progress to succeed, and you're in charge of systems that support that progress. Your company's success is utterly dependent on smart people like you who take risks. In a best-case scenario, an ROI analysis is a stall tactic for undeserving projects. Worst case, it's a rationalization for undeserving projects. In effect, ROI analyses justify rejections to division managers or failures to stockholders and venture capitalists.

ROI activity is risk-averse. That makes it ideal in an era when CEOs are listening to their lawyers and accountants more often than they're listening to their CIOs, CTOs and VPs of engineering. If you're a fan of the *Lord of the Rings* saga, you'll know what I mean when I say that Wormtongue — the master of calculating the virtue of caution to the point that opportunities are lost — is the master of ROI. Meanwhile, Gandalf, the advocate of risk and a wizard who rules over what passes for progress in Middle Earth, intuitively understands a situation and knows when to act.

The best, most innovative IT improvements have no ROI. There was no decent ROI on installing the first Wang word processor in the 1970s or the first PC to run VisiCalc in the 1980s or the first Linux server for corporate Web sites in the 1990s.

But the people who took those risks pushed their companies ahead of their competitors and made working there better, improving the lot of their employees and, most likely, attracting more talented individuals who brought even more progressive ideas with them. If we let the ROI Wormtongues rule the day, this decade will never see an analogue to the technological achievements of past decades.

The best CIOs understand the political necessity of living through the latest management craze. ROI is the trendiest of the lot today, so you know it will be tough to stand firm against the rising tide of ROI demands. And I suspect that many of you won't be able to avoid having to submit one mind-numbing report after another.

But when everyone jumps off the ROI bandwagon, your company will still need to depend on your instincts, knowledge and experience. Those attributes got you where you are today, and they, not ROI theory, will be the basis for the best IT decisions you can make. Because wisdom can't be reduced to an ROI calculation.

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The Almanac

An eclectic collection of research and resources. By Mitch Betts

Beware of Fuzzy Math

When *Computerworld* conducted an online survey on IT return-on-investment techniques last month, one of the more interesting comments we got was this: "Many times, investments are gambles into where the business is going and ROI [calculations] are fabricated."

Indeed, we continue to get reports of ROI numbers that have been fudged in order to get IT expenditures approved. "It happens all the time," says Amir Hartman, co-founder of Mainstay Partners LLC, a management consultancy in Redwood City, Calif. Office politics, time pressures and less-than-rigorous ROI processes can lead to cooked numbers. "The project sponsor will get a call from his boss saying he needs an ROI number next week. That broken process drives the bad behavior," says Craig LeGrande, Mainstay's other co-founder.

One CIO quipped, "As we say in IT, I don't believe in any numbers I haven't massaged myself."

On the ROI Bookshelf

■ ***The Alignment Effect: How to Get Real Business Value Out of Technology***, by Faisal Hoque (Financial Times Prentice Hall, 2002). Advocates a step-by-step "business technology management" methodology for getting the business, processes and IT in alignment — before any money is spent.

■ ***The Valuation of Information Technology***, by Christopher Gardner (John Wiley & Sons, 2000). Describes how to perform the financial calculations to make sure that IT produces shareholder value.

■ ***Manage I.T.***, by Joe Santana and Jim Donovan (Lahaska Publishing, 2002). Chapter 2 teaches newbie CIOs how to get business and IT in alignment.

■ ***Revolutionizing IT: The Art of Using Information Technology Effectively***, by David H. Andrews and Kenneth R. Johnson (Wiley, 2002). Explains how to prevent IT project failures.

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Four New IT Lieutenants

Most IT management staffs "are a kludge of unstructured hirings, promotions and compromises," says Jonathan Poe, an analyst at Meta Group Inc. Therefore, new CIOs who want to succeed past their honeymoon period will need to clean up the mess and install a team of talented IT lieutenants to handle certain tasks, such as personnel matters, so the CIO can focus on IT/business alignment.

Poe says the new IT organizational chart will have four lieutenants:

■ **The organizational development leader**, a "change agent" who's in charge of constantly updating the IT department's mission, vision and values.

■ **The IT human resources manager**, who handles recruiting, "reskilling," promotions, performance evaluations, compensation analyses and employee satisfaction.

■ **The IT financial controller**, who deals with budgets and depreciation, manages portfolios and risk, and measures ROI and total cost of ownership.

■ **The IT communications director**, who makes sure the IT shop sends clear and consistent messages, from marketing materials to status reports.

Usability Has Big Payoff

It makes sense that Web sites that are easier to use have a bigger payoff than ones that aren't. Now comes research on the ROI of Web site usability to back up the notion.

A study of 42 e-commerce sites that were redesigned for better usability found that the sites had a 100% increase in the sales conversion rate, a 150% increase in traffic, a 161% increase in user performance and a 202% increase in the use of specific, desired features.

The research was done by usability guru Jakob Nielsen at Nielsen Norman Group in San Francisco. Nielsen says he was pleased to see that the redesign projects allocated an average 10% of their budgets for usability improvements — up from 6% in an earlier study — but he says it should be even higher. ▶

"Software costs are the most misunderstood, poorly managed costs within IT organizations. Good software asset management must begin with cost modeling to identify the long-term costs and possible risk exposure associated with licensing software. Contracting for software entails more peril than IT commodity items, yet we continue to see IT organizations – and more often, project teams – fall for vendor hype, with negative results. The importance of cost modeling cannot be understated. In these lean economic times, locked-in software costs cannot be reduced, which prevents effective cost control. Our research continues to indicate that more than 70% of software cost models fail to illustrate the total economics of software acquisition.

– William Snyder, analyst, Meta Group Inc., November 2002

MORE RESOURCES

Our ROI Knowledge Center has research links, tutorials and news. Visit our Web site:

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IT Discipline

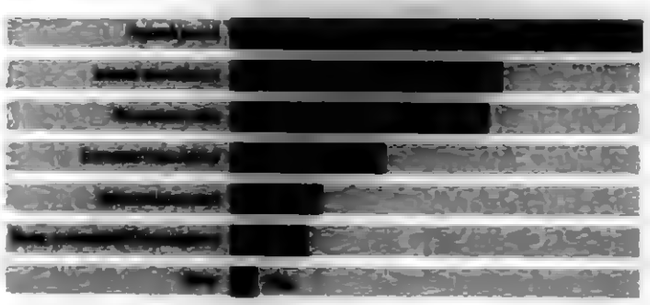
Does your organization calculate the ROI or total cost of ownership for major technology deployments?

BASE: IT managers

SOURCE: COTTER CONSULTING, ATLANTA, GA., SEPTEMBER 2002

The ROI Metrics Scorecard

Which of the following financial calculations does your organization perform when deciding to make a major IT investment?



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SOURCE: COMPUTERWORLD.COM, JANUARY 2003

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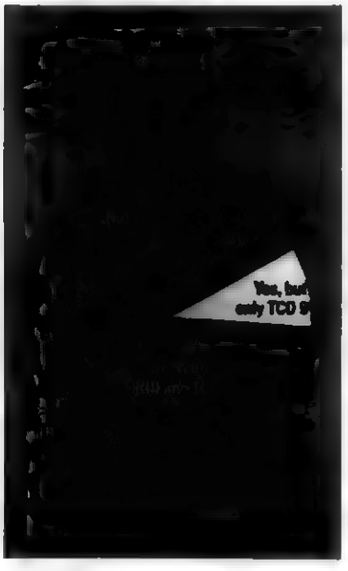

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The Next Chapter

Predictions: Wall Street analysts will start tracking corporate IT investments. And CIOs will find their pay linked to delivering ROI.

■ WALL STREET CARES

Executives of public corporations will begin disclosing large capital investments as part of their quarterly analyst calls by end of 2003. By the end of 2004, 30% of IT spending will have to pass a board of directors' capital-approval process.

■ *Craig LeGrande, co-founder and managing director, Mainstay Partners LLC, Redwood City, Calif.*

■ VENDOR CALCULATORS

ROI is here to stay. Chief financial officers are pleased with the structure it brings to IT decision-making, and CIOs can finally sleep well at night knowing they can prove the value of their decisions. But during the next 12 months, we'll see the death of the automated ROI calculators from vendors. They're just sales tools that few people trust.

■ *Ian Campbell, chief research officer, Nucleus Research Inc., Wellesley, Mass.*

■ COMPENSATION LINKED

CIOs and other IT executives will find their compensation directly linked to their ability to provide ROI to their companies, using a complex formula that monitors effectiveness and efficiency. The formula will take into account the complexity of a company's operations, how quickly the company and its market are changing, and how well the IT organization has been able to address the needs of the business.

■ *Bruce Barlag, president, The Hackett Group, Atlanta*

■ ROI MYOPIA

Clients say they can't do any projects that don't provide a payback within one year. And look at their IT investment portfolios — they have a lot of small projects that result in incremental improvements. The breakthrough stuff of real competitive advantage is gone. ROI is a great discipline for cutting costs, but we're in danger of developing ROI myopia and missing opportunities to grow revenue and market share.

■ *Eileen Birge, vice president, The Concours Group, Kingwood, Texas*

■ FINANCIAL PENALTIES

CIOs and vendors will begin to truly collaborate on ROI analysis — and tie compensation to achieving financial returns — by hammering out ROI service-level agreements. If vendors fall short in meeting the SLAs, they'll be asked to make corrections or suffer financial penalties for continued failure. On the flip side, suppliers who substantially exceed the benchmark will be able to extract benefits like additional revenue, testimonials and other marketing support.

■ *Tom Pisello, president and CEO, Alinean LLC, Orlando*

■ CRM TRENDS

Customer relationship management projects will experience the following trends in the next few years: They'll be smaller, more focused and self-funded from cost savings or new revenue. ROI metrics will be geared to specific vertical industries, such as the automotive, financial services and pharmaceutical industries, instead of being generic. And the goal of many CRM projects will be to identify the most profitable customers vs. the low-value customers.

■ *Adam Klaber, global leader for CRM, IBM Business Consulting Services, New York*

■ LOW-TECH CIOS

It's ironic that finance departments routinely use sophisticated technological models to manage risk and value investment portfolios, but IT departments have not seriously applied financial modeling techniques to assess the true value of IT projects. That will change in a few years.

■ *Ray Trotta and Chris Gardner, co-founders, iValue LLC, New York*

■ VIABILITY CHECK

Wall Street analysts, ratings agencies and banks will begin using an evaluation of IT ROI as they determine a company's viability, its future prospects, the credibility of its forecasts and its ability to deliver customer and shareholder value.

■ *David Axson, managing director, The Hackett Group*

■ CULTURE COUNTS

By the year 2007, 90% of companies will budget for the cost of culture change and factor that into the ROI equation. Companies will no longer turn a blind eye to having billions of dollars' worth of technology sitting unused in closets due to "adoption resistance" by people in the company.

■ *Joe Santana, co-author of* Manage I.T. *(Lahaska Publishing, 2002)*

■ VISUAL MODELING

Company executives must find a way to shorten the gap between an ROI prognostication and the actual outcome. In three to five years, visual modeling will gain momentum as a way to improve the accuracy of ROI forecasts. Information captured in the upfront design of an IT initiative will provide critical underlying data about tangibles and intangibles, which will make ROI calculations more in sync with what actually pans out.

■ *Faisal Hoque, president and CEO, Enamics Inc., Stamford, Conn.*

■ PORTFOLIO TRACKING

Low returns on large capital investments will stimulate the use of portfolio-tracking software for IT investments. That will boost the market for project and portfolio management software by up to 15% in 2003.

■ *Sanjeev Agrawal, co-founder and managing director, Mainstay Partners*

Finance 101

When it comes to calculating benefits, chief financial officers have been assessing tangible and intangible benefits for years, and it's made an issue only by IT folks and consultants who know little about finance. During the next two years, we'll see finance departments mandating a common structure and consistency when assessing benefits. If you're an IT person today, dig out your old finance textbook and start reading.
– *Ian Campbell, chief research officer, Nucleus Research*

MARIA NEVADA

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Senior IT Consultant - Atlanta, GA. Plan & direct implementation & customization of ERP (Enterprise Resource Planning) systems to fit clients' business needs. Consult w/managerial & systems analyst personnel to clarify needs, identify problems, suggest changes, & determine extent of prgmg & coding reqd. Manage IT personnel in dvlpg, maintaining, improving & supporting ERP software implementation projects. Modifies procedures to increase efficiency &/or adapt to new reqmts using ERP systems. Supv overall dvlpmt of prgms. Supv & train subordinates in ERP systems dvlpmt. Propose ERP systems to clients in achieving bus solutions. BS in Comp Sci or Engg (or foreign equiv) & 5 yrs exp in ERP systems dvlpmt, incl 2 yrs project mgmt exp. $75K. Resumes to: Vedic Group, H.R., 14202 Penview Lane, Alpharetta, GA 30009.

Product Manager, Commercial

GE Network Solutions, a major designer and developer of geographic information systems software for the telecommunications industry has an opening in its Englewood, Colorado, office for a Commercial Product Manager who will develop new product initiatives and product collateral for GIS software as well as develop marketing and business strategies and material for technical solutions, sales and service for customers. The product manager will also represent GENS to industry organizations, review proposals for GIS products, and complete risk assessment, orders forecasting and operating margin determination for product contracts. Additional responsibilities include researching industry-wide technical advances and market financial trends, managing relationships with external partners, and preparing proposals for software licenses and contracts.

Qualified applicants will have a minimum of six years experience developing geographic information systems software for the telecommunications industry.

Applicants should send resumes to Kristin Gillan, GE Network Solutions, 3600 Greenwood Plaza Blvd., Suite 300, Englewood, CO 80111. Applications will be accepted via mail only, not by fax or email; please reference job number R2154SC.

Lead Oracle/Internet Developer sought by pharmaceutical R&D Co. in Princeton, NJ. Candidate must have a Master's degree or equiv in Comp Sci & at least 5 yrs of exp in IT, specifically applications development. The following skills are required: 1+ years in pharmaceutical industry exp w/business development environment and Strategic Intelligence function; min. 3 yrs exp in web development using Java/JSP/Servlets/Oracle (versions 7-9i, Oracle Application Server 9iAS); Oracle DBA certification; exp w/ Documentum, WDK 4.2.4; Documentum Web Development Kit; exp w/ data modeling using ERWIN & Visio; exp in full life cycle software development of IT projects & applications including design, development, testing and delivery. Ability to lead a small team, manage vendor responsibilities on projects, possess excellent verbal/written communication skills in order to provide technical options to business users. Send resume to: Strategic Staffing, BMS, MS E14-12, Route 206 & Provenzano Road, Princeton, NJ 08540. Job Code: NS-788.

Sr Programmer Analyst for requirements analysis, design, test, integrate, evaluate web based object oriented applications using MVC, J2EE & Websphere studio. Software engineering using Rational unified Process; build Java applns., web services using HTTPS & SOAP; design msg agents using MQ Series, JavaMail, JMS, Oracle8i & Websphere. Provide tech. supp., PM, & troubleshooting; monitor performance using jProbe, debug & maintain existing applns. Write specs., documentation & programs for software applns. in wide range of networking environments. Requires MS in Computer Science + 1 yr. of exp. in Software Develop. Competitive salary. Apply to Software Superheroes, LLC, 4867 Ashford Dunwoody Road, #8003, Dunwoody, GA 30338 with proof of permanent work authorization in US.

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CLIENT-SERVER APPS ANALYSTS provide tech support for claims and/or financial systems and seamless integration with other in-house systems. Implement functions incl. operation setup, conversion, migration, etc. Perform data warehousing & mining. Bachelor's degree in Comp Sci, Comp Eng'g or related, plus 2 yrs exp. as programmer, software eng'r, sys analyst or related is acceptable. Applicant must have knowledge/experience of SQL data base and Crystal reports, MS operating system 2000 & Visual Studio Suite of products. Proof of U.S. Work auth req'd. Resumes to: L. Cannady/Motion Pic. Indus. Pension & Health Plans, 11365 Ventura Blvd, Studio City, CA 91604. No calls please.

Database Administrator wanted by Digital Mktg Agency in CT. Create database design & modeling; maintain production & dvlpmnt database environ; resolve database problems; assist in dvlpmnt of tech design docs. 2yrs exp in job offered req. Respond to: HR Mngr/EURO, 372 Danbury Rd, Ste 100, CT 06897.

Senior Software Developer Consultant. Provide tech leadership for dsgn & dvlpmt of Internet & Intranet applics using MS tools & products. dvlp inventory mgmt & e-commerce applics for B2B envmnt; eval user requests, analyze current operational procedures, identify probs, learn specific input/output reqmts & clarify prgm objectives; formulate & implmt plans to dvlp & deploy applics for internal use & sales to customers; & provide structured analysis & dsgn of project specs for coding in comp lang. BS in Comp Sci or engg or related field +4 yrs exp in job offrd or as Prgmr/Analyst or simlr duties under different job title. Exp to incl Unix, Unix CVS, MS-DOS, Win NT 4.0, Oracle 7.x/8.0 & Oracle Reports, SQL Server, COM & HTML. Must be certified in MS VB, Oracle Prgmg, & Active Server Pages Prgmg. 40hrs/wk, $48K/yr. Must have proof of legal auth to work in US. Send resume to IA Workforce Center, 215 Watson Powell Jr. Way, Ste 51, Des Moines, IA 50309-1727. Please refer to Job Order IA1101678. Employer paid ad.

Positions are available for Software Development Engineer II in Atlanta with a technology solutions company. The company architects and designs next generation software for point-of-sale and internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.

The Software Development Engineer II is primarily responsible for developing financial reporting software for major subsystems or sets of applications. Specific responsibilities include analyzing, programming, debugging, & modifying computer programs for end user applications.

Candidates for these positions should possess a Bachelor's degree in Computer Science or a related field and at least two years' experience in a point-of-sale retail environment including software documentation, utilities, and job control languages including SQL, data modeling, OO design, and Visual Basic. Apply with resume by mail to:

Christie LoCurto
Radiant Systems, Inc.
3925 Brookside Parkway
Alpharetta, Georgia 30022

Developer: 2 yrs exp w/ CCOM,DCOM & back end MS SQL Server Relational Database Design & Implementation Enterprise Integration Application Tools & prior exp. w/ financial apps req'd. Submit resume to Dara Ambrose Judge Technical Services 1800 Diagonal Rd. Suite 250, Alexandria, VA 22314

Software Engineer wanted by medical software developer to perform research, design, coding and testing of medical software applications using Java programming language, Enterprise Java Beans, with Oracle and Weblogic application server. Bach. in Computer Engineering required. Send resume to Hamid Amjadi of Prime Clinical Systems at 3675 E. Huntington Dr. Ste. A, Pasadena, CA 91107.

GIS Software Quality Control Specialists (Atlanta, GA & Jacksonville, FL): GIS Software test planning and preparation. Generate test cases and scripts using geographically referenced data, report and coordinate test activities, execute test scripts, record results in a defect tracking pool and implement sound QA testing practices using GNIS, LODE data, GE Smallworld, Framme, Microstation & Autocad. Communicate and resolve QA issues with Programmers and Developers. Develop & initiate quality standards for new software tools to implement new versions of GIS. 2 years exp. in job offered required. Think Resources, Inc., 280 Technology Parkway, Norcross, GA 30092. No phone calls please. EOE.

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Senior Network Engineer req'd for CT telecom co. Must be CCIE and have M.S. or equivalent, 4 yrs. Practical experience required. NO TELEPHONE CALLS Please. Send Resume to: attn. Jim Florwick Globalcom LLC, P.O. 605,Old Greenwich,CT.06870

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Remedy Applications Engineer / System Administrator req'd for CT telecom co. Must have M.S. or equiv't + 3 yrs. exp. NO TELEPHONE CALLS Please. Send Resume to: attn. Jim Florwick Globalcom LLC, P.O. 605,Old Greenwich,CT.06870

CAD Potential, Inc. seeks Snr Applic. Engr./Automation Dev. Program automation for Manf Process using C/C++, Unigraphics, UFUNC & GRIP. Dev. E-learning system for CAD/CAM. BS/Engr.+5 yrs relevant exp. or MS/Engr.+3 yrs relevant exp. Also seek Programmer/Applic. Dev. dev+maintain 2-tier&mlter appl for e-commerce+corpo use. Using ASP, VBScript, VB6, J-Script, HTML, SQLL, etc. Mng & doc code changes. BS/Comp SC or Engr+1 yr relevant exp. Both Westminster job loc. Resumes to 1490 W121st Ave., Westminster, CO 80234, Attn HR.

F/T Computer Systems Administrator. To manage information system activities and design POS systems using Visual Basic, Microsoft SQL Server 2000 & 7.0, MS FrontPage, Access 2000, and Vb Script. Must have 4 yrs. of exp. Must have Bachelor's degree or foreign degree equivalent in Software Engineering. Course work must have included Computer Architecture & Microprocessor courses. Salary: Competitive. Send resumes to: T. Ford, Le Petit Bistro, Inc., 5600 Roswell Rd., East Bldg., Ste 250, Atlanta, GA 30342. No Calls Please.

LAN NETWORK & DATABASE ADMINISTRATION - Maintain all comp. networks & databases. Req'd: MS in CS/rel'd field, & 1 yr. exp. as network &/or database admin. Exp. w/ MS Access & Oracle; AutoCAD, UNIX, Visual Basic, and PL/SQL. Exp. w/ network/database admin. for eng'g firms. Send resumes to Hirani Engineering, 47 Mineola Blvd, Mineola, NY 11501. Attn: J. Hirani.

SOFTWARE DEVELOPER, for int'l freight fwdg. Co. in Morristown, NJ. Req'd to conduct analysis, dvlpmt & implmt. of proprietary software for imp/exp sys. in AS/400 & S36 programs. Dvlp & test new & revised sys. Must have Bach. Deg & either 3 yrs exp in job clfd or 3 yrs exp as Progr/Anlst. Must be exp'd in Java, COBOL, RPG, CL & OCL. Send resumes to Asst. VP, IT-CC, Panalpina, Inc., 1776 On-the-Green/67 Park Pl., Morristown, NJ 07960.

Solutions Analysts wanted by IT comp in NYC to analyze/design/develop workflow mgmt systems, carry out release/debug/quality assurance processes & automate regression/business tests/build processes for Benefit, Workflow and Equity Applications, PowerBuilder, PL/SQL, Oracle, DB Artisan, PVCS, Visual SourceSafe, WinRunner, PowerGen, C++, OOD, Visio, Windows, UNIX. Resumes to Vitech Systems Group, 401 Park AveSouth, NY, NY 10016.

Informerica is looking for system/programmer analysts, software/project engineers & computer consultants. Candidates must have BS with some exp. in IT fields. Skills of Oracle, Informix, Java, SQL, VB, Web technology preferred. Send resumes to info@informericainc.com. EOE.

CDI is a multinational company with branch offices all over US. We have openings for various levels IT professionals. Applicants must have degree and experience in the IT field. Travel maybe required. Please visit www.cdicorp.com for various positions & submit resumes. EOE

Financial Engineer-Must have at least MS degree; Employer: Pinnacle West Capital Corporation; Location: Phoenix. Fax resume to C. Enslow at 602-250-3007.

PROGRAMMER ANALYSTS: Analyze/develop/test/implement web-based info management sys. on Windows/Unix platform; apply OO program.tech; Develop appl. modules using C/C++, Java and PL/SQL; design GUI screens and create reports/queries app to communicate with Access/Oracle/ Paradox database using VB, SQL and Crystal Reports; perform debugging, troubleshooting and user support. Requires BS in Comp.Sc., Engr., or MIS, plus 6 mon exp. Full-time with competitive salary. Apply to HR at Three Rivers Systems, Inc. PO Box 4067 St. Louis, MO 63006-4067

Senior Systems Analyst: Lead workgroup for project team to support existing systems and large projects. Support and develop systems in mainframe, client-server, mid range, PC/LAN or PC Stand Alone. Budget and project costs to IT Mgmt. Perform need based special assignments. Bachelors Degree with relevant experience or substantial relevant experience. Resume to: HR, Carlson Wagonlit Travel, 3200 North Central Avenue, Suite 400, Phoenix, Arizona 85012.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Programmer Analyst. Formulates/defines functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with UNIX Shell programming, C and/or C++, and SQL also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Art Director, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121: careers@sbiandcompany.com; Fax (801) 733-3201.

DATA MANAGEMENT ASSOCIATE (DATABASE DEVELOPER) sought by pharmaceutical research and development company in Wallingford, CT. Candidate must have a minimum of a Bachelor of Science degree in Applied Mathematics, Statistics or Computer Science (with coursework in applied mathematics or statistics). Knowledge of data management and process data collection and evaluation a plus. Strong leadership and communication skills required. Send resumes to: Strategic Staffing Specialist, Job Code TH-694, Bristol Myers Squibb Co., P.O. Box 4000, Mail Stop E14-12, Princeton, NJ 08540.

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Inovant currently has opportunities in the San Francisco Bay Area (Foster City and San Mateo, CA), Highlands Ranch, CO, Portland, ME, and Austin, TX for:

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JUNIOR PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain web-based application software using Java, JSP, J2EE, EJB, Servlets, VB, Java Script, Oracle, VB Script, Visual Interdev and Web Services under Windows operating system; Perform duties under close supervision of project director to ensure accuracy and that project progresses according to prescribed instructions and expected results are met. Require: B.S. degree in Computer Science/Engineering, or a closely related field with one year of experience in the job offered or as a Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Srinath Duddilla, President, SunPlus Data Group, Inc., 3783 Presidential Parkway, Suite 130, Atlanta, GA 30340; Attn: Job KD.

Web Developer to develop & administer large-scale corporate Web site w/remote Oracle database connections; develop back-end integration strategies w/Oracle applications, SQL & related modeling tools; perform computational simulations; develop, test & integrate NSAPI applications in C/Java & maintain & improve database authentication system. Respon. for Oracle database backup & changing database schema. Min req's: BS in Comp. Sci., Engineering or related field; and 1 yr. & 6 months exp. in position or as Software Engineer/System Analyst respon. for developing Internet applications & related interfaces using Java/C for remote Oracle or related database technologies. Must have unrestricted authorization to work in U.S. M-F, 9:00am-5:00pm, 40+ hrs/week. Salary range: $69,000 to $110,000/yr. An EOE. Send 2 copies of resume to Case No. 200115858, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Software Engineers: Apply knowledge of software architecture to perform software development tasks associated with the modification, design, development, and debugging of software applications. Provide input to team leader and/or manager to develop schedules, milestones, and priorities. Req. BS or equivalent in CS or Engineering, or related field, plus proficiency in Java 2 SDK, Oracle Spatial, ArcView, and ARC/INFO on NT and Unix Platforms. 40hr/wk, 9-5,$50k-$65k/yr. Contact Byers Engineering Co., 6285 Barfield Rd. Atlanta, GA 30328. Attn.: Recruiter.

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain application software in mainframe and web-based environments using CoolGen, IEF Composer, DB2, VS COBOL, JCL, CICS, File-Aid, Comparex, CA-7 Job Scheduler, Endevor, Sync Sort, Visual Basic, DTML, Python, Java, Java Script, XML/XSL, SQL Server and My SQL. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Competitive salary offered. Apply by resume to: Frank Beeman, Global Software Development Services, Inc.,10 South Fifth St., Suite 600, Minneapolis, MN 55402; Attn: Job VA.

Computer Programmer
Numeric LLC seeks Computer Programmer in our Chicago, IL loc. Involves SAS programming for clinical/pharmaceutical trials including for experimental design, protocol review, case report form design, database structure & statistical analysis plans. Develop & validate SAS programs, create and manage data sets, stat analysis, and statistical reports. Must have a Bachelor's in Comp. Sci., Statistics or related field and min. 1 yr relevant exp. Send résumé to Zach Devis, Numeric LLC, 233 East Lancaster Ave., Ardmore, PA 19003.

Programmer Analyst, PCBs: Fulltime. competitive salary offered. Requires Bachelor degree in Computer Science and 1 year experience in job or Instrument Engineer, PCBs. Must have proof of legal authority to work permanently in the U.S. No phone calls. Interested applicants should send resume to:Milan Mortimer, Amitron Corp, 2001 Landmeier Rd.,Elk Grove Village, IL 60007.

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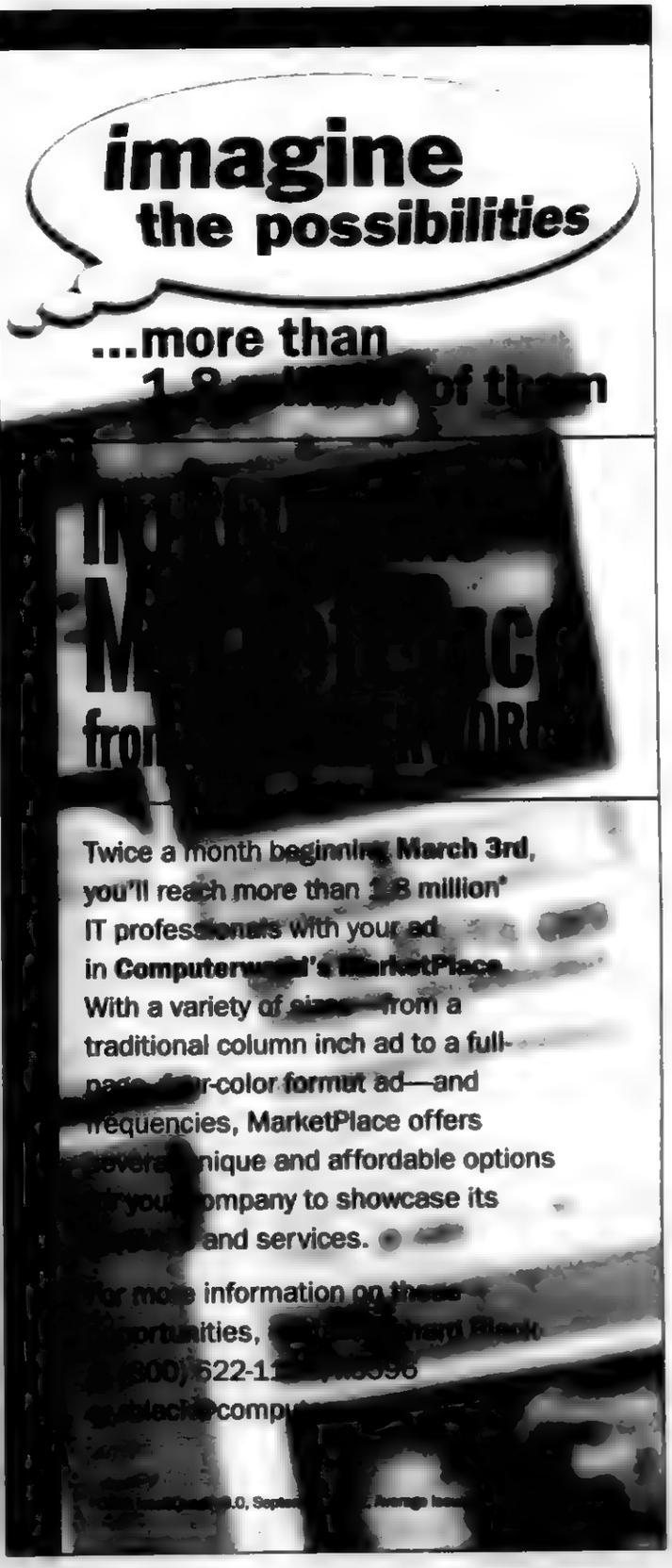

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iSCSI

with iSCSI over the same wire," said Bryce Mackin, chairman of marketing for the IP Storage Forum in the Storage Networking Industry Association, a trade group in Mountain View, Calif.

Joe Bishop, a database systems engineer at NASA's Jet Propulsion Laboratory in Pasadena, Calif., said the lab plans to install an iSCSI network within the next 30 days or so. It will use an iSCSI software kit from Network Appliance Inc. that is being announced today. The iSCSI protocol upgrade for NetApp's 800 and 900 series arrays is free.

The network will be used to back up Sun Solaris servers, which hold flight, financial and project management data in Oracle databases, to network-attached storage devices made by NetApp.

"We want fail-over capability between buildings on our campus," Bishop said. By using iSCSI, the lab can take advantage of its existing IP network and avoid the need to install new cabling, he added.

Joe Stocker, a network coordinator at Safeco Corp., an insurance and financial services company in Seattle, said he plugged in a 1.5TB iSCSI array in November to offload data from three Compaq ProLiant servers that were using about 90% of their storage space at the time. The array, made by San Diego-based IP SAN appliance start-up StoneFly Networks Inc., cost $25,000 and took just one hour to install, Stocker said.

A SAFE BET
An iSCSI array provides a quick and scalable fix for Safeco:
QuickLink 36362
www.computerworld.com

Although he doesn't think iSCSI technology is robust enough for large server environments, Stocker noted that the technology suited his purposes perfectly. For example, iSCSI required no additional network configuration work or IT training expenditures, as Fibre Channel technology would have, he said.

It will take time for iSCSI to mature into an enterprise-class storage technology, said Tony Prigmore, an analyst at Enterprise Storage Group Inc. in Milford, Mass. But iSCSI will eventually find its way into data centers as an alternative to Fibre Channel technology for some applications, he added. "We expect it to earn its stripes on the periphery and then, over time, migrate to elements of the core infrastructure," he said.

The protocol got off to a rough start last year when IBM stopped development of native iSCSI arrays after its IP Storage 200i appliance met with poor sales [QuickLink 30960]. The company still offers the 200i, but Roland Hagan, vice president of marketing for storage systems, said that in the future, IBM will likely resell iSCSI devices made by other vendors instead of developing its own technology.

Despite IBM's pullback, many small vendors are already shipping iSCSI arrays, switches and host bus adapters. And industry leaders such as Hewlett-Packard Co., Dell Computer Corp. and EMC are expected to roll out devices during the next few months.

Another important milestone will be Microsoft Corp.'s release of iSCSI software drivers for Windows. Microsoft said via e-mail that drivers should be available for Windows 2000, Windows XP and the upcoming Windows Server 2003 within 90 days.

SOURCE: MICROSOFT CORP.

Continued from page 1

Datacenter

Under the current Datacenter program, OEMs are responsible for rigorously testing a complete hardware and software configuration — which typically includes a server, operating system, attached storage, storage backup utility and antivirus software — to ensure that it will provide the sort of reliability and performance customers expect from high-end systems. The test configuration must run for 14 days without a failure.

Under the new program, Microsoft has streamlined the process so low-level component changes can be tested more quickly and reliably. Drivers or application components such as antivirus programs and backup utilities can be tested in as little as one day, once they have been certified through VeriTest, the testing arm of Lionbridge Technologies Inc. in Waltham, Mass.

FEATURES RUNDOWN
Microsoft says it has improved the reliability of Windows Server 2003:
QuickLink 36373
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Bob Crownhart, an IT director at Premera Blue Cross in Mountlake Terrace, Wash., said the new, streamlined process could help his company. He recalled a case in which Premera wanted to shift to a new driver level, only to learn that Unisys Corp. hadn't certified it yet. Consequently, Premera had to make sure Unisys and the other vendor hooked up to work out the issue. "It was aggravation and delays," Crownhart said.

But the new certification policy won't help every customer. Koeneke said he was considering five storage vendors, but of those, only EMC Corp.'s had been included in a configuration that Unisys had tested. He recalled that he was once given a price tag of more than $100,000 to test a configuration that differed from the one Unisys had tested, though he was able to negotiate his way out of paying it.

Bob Ellsworth, director of Microsoft's Windows server product management group, acknowledged that substitutions of major components like storage subsystems in a Datacenter configuration will still require the 14-day retest. To address that, Koeneke wants Microsoft to come up with a set of predefined standards for vendors to achieve Datacenter certification.

Ellsworth said Microsoft has heard that suggestion from some customers but isn't yet ready to support that kind of change. "It's something that we're investigating," he said.

Tony Iams, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y., predicted that the program changes will make it easier to certify products on Datacenter, thereby making more systems available to customers. That, in turn, might spur more Datacenter usage, he said.

Another change that's catching the attention of some customers is the set of new support options that will take effect April 24, with the release of Windows Server 2003. OEMs will no longer be the only choice for support. Instead, users will gain the option to contract for support from resellers, systems integrators or Microsoft.

Customers that have premier support contracts with Microsoft will gain the benefit of having Datacenter as an included product. But they will need a separate registration if they want access to Microsoft's High Availability Resolution Queue, a 24-hour direct hot line to engineers who can solve their problems.

Pricing hasn't been announced for the high-availability resolution program, which is an expansion of the existing Joint Support Queue.

Under the current system, OEMs are supposed to serve as the single point of contact, coordinating support among the various vendors that touch the Datacenter system. It remains to be seen how the new system will play out, since some early adopters don't appear to be following the existing program's procedure for requesting support.

Larry Godec, CIO at First American Title Insurance Co. in Santa Ana, Calif., said he already gets high-availability resolution. When his company has problems, it calls Microsoft, which has "jumped through hoops" to resolve them, he said. Godec said his company's OEM, Unisys, was mentioned as the single point of contact during a couple of conversations, but Microsoft didn't balk in helping out when called first.

Koeneke, too, said he isn't shy about going directly to Unisys, Microsoft or his company's storage vendor, Hewlett-Packard Co., with problems. He said he can't imagine going with a consulting organization for support.

"They aren't in the engineering team at Unisys, Microsoft or HP," he said. "Microsoft is going to get bogged down with certifying a bunch of resellers of support, and I personally have yet to see delivery on repair of the existing OEM support provision."

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FRANK HAYES ■ FRANKLY SPEAKING

UCITA: Not Dead Yet

IS UCITA DEAD? Nope. True, only two states have adopted the proposed software licensing law called the Uniform Computer Information Transactions Act, and it's opposed by a wide range of legal, consumer and IT organizations. And true, the American Bar Association just washed its hands of this "model" legislation that's notorious for giving software vendors a green light to booby-trap their products (see story, page 6).

But dead? Don't kid yourself.

The National Conference of Commissioners on Uniform State Laws (NCCUSL) has worked on UCITA since the 1980s. It was originally going to be part of the Uniform Commercial Code (UCC), a set of standard laws that make it easier for companies to do business throughout the U.S. Under the UCC, laws governing many commercial activities are the same from state to state.

And uniform state laws relating to software licenses would be good for software vendors and software customers alike — right?

The NCCUSL's lawyers spent a decade getting input and dealing with complaints and negotiating language. They did their best.

But UCITA ended up heavily slanted toward the interests of software vendors. It was so deeply flawed that by 1999, the NCCUSL's partner in drafting UCC laws, the American Law Institute, refused to work on it. Since then, groups ranging from the American Library Association to the FTC, IEEE, the Society for Information Management and a long list of corporate IT users have come out against it. Its main supporters are software vendors.

What's so awful about it? UCITA lets vendors change default license terms at will, without informing customers. And disavow any responsibility for bugs. And sue a customer in any state of their choosing.

Under UCITA, software vendors could booby-trap software so they could remotely disable it if a customer was suspected of violating the software license.

It's a bad law. And today, UCITA looks dead in the water. No state has adopted it since 2000, and three states have passed laws that actually block UCITA provisions from being enforced. It has no real chance of ever offering the benefits of a truly uniform law.

So why doesn't it just die? Why doesn't the NCCUSL junk it and draft new software-licensing legislation that could actually become law in most states?

There's a clue in what NCCUSL President K. King Burnett wrote to the ABA last Monday:

"After meeting with many section officers and other leaders of [the ABA] concerning the Uniform Computer Information Transactions Act, it is apparent that there is a strongly held view among a number of sections and delegates that this body shouldn't take a position on the merits of UCITA. You are our friends, we respect your views.

"We brought UCITA to you and attempted to present its merits in a manner that befits the standards of our organizations. In this respect, we have done our duty — we have no plans to bring this act back to the House. Based on the recommendation of so many of you, we have decided not to ask this House to take a position on this act."

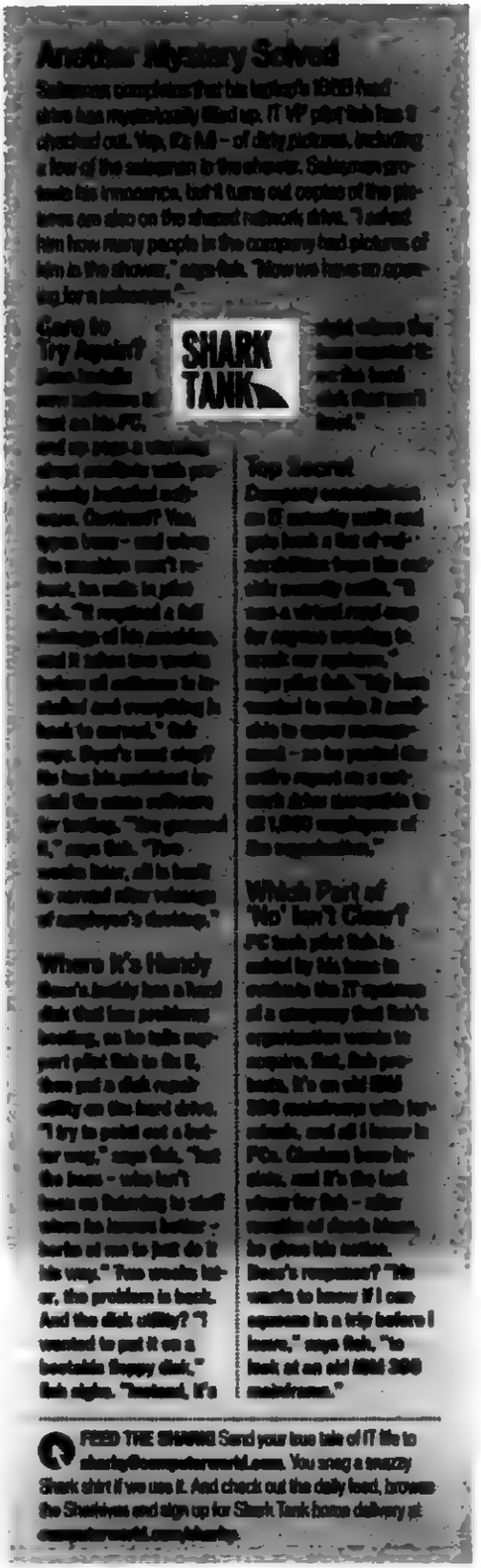
He sounds wounded, doesn't he? His feelings have been hurt. He's done his duty, tried his best. But his baby has been rejected, and he won't expose it to further ridicule.

That's why UCITA won't die. For the NCCUSL, UCITA is a matter of pride, of craftsmanship, of history. The NCCUSL has invested 15 years of work, sweat and negotiation in UCITA, in recent years fighting almost alone in the face of massive opposition. Burnett and his group are too proud to start over again. And since the NCCUSL holds the monopoly on drafting uniform laws, it's UCITA or nothing.

Frank Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

And that means it's nothing — at least until someone persuades the NCCUSL to swallow its organizational pride, start from scratch and get it right.

No, UCITA's not dead. And we'll all have to suffer with that fact until the NCCUSL finally lets it die. ◗



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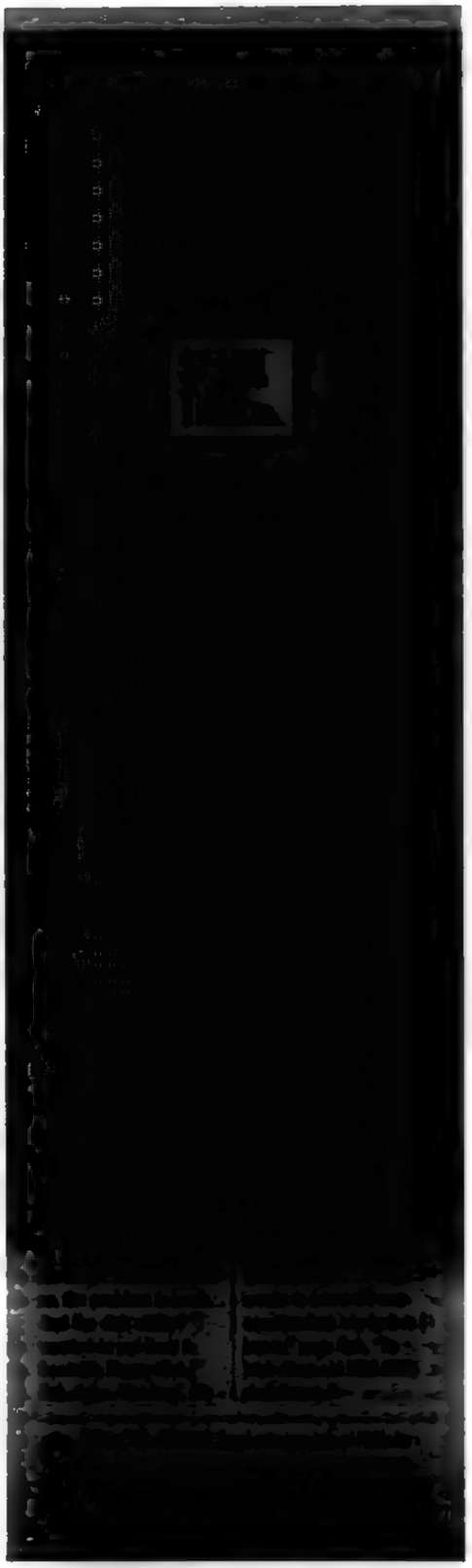

White Paper

Enterprise Storage Security:

Context, Challenges & Solutions

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Enterprise Storage Security: Context, Challenges & Solutions

The rapid growth of networked storage finds IT professionals calling for industry standards and best practices. Users must share the responsibility for setting the storage security agenda. Groups such as the Storage Networking Industry Association (SNIA) Storage Security Industry Forum offer an opportunity to do just that.

Over the past several years, a large number of enterprises have built networked storage environments. These storage networks, using technologies such as NAS and SAN, have allowed firms to create scalable, flexible storage infrastructures; improve productivity while reducing management costs; and promote the efficient use of enterprise information sources. Storage networks also help businesses develop cost-effective backup, data mirroring and disaster recovery procedures.

Yet the key assumption behind storage networks—that enterprise data is most valuable when it can be shared, distributed and replicated as easily and efficiently as possible—is also a source of significant risk. As networked storage systems evolve beyond the data center and expand throughout the enterprise, mission-critical data becomes more vulnerable to unauthorized access, alteration, theft and misuse. As storage capacity continues to increase (many enterprises double their capacity every six to eight months), so does the amount of data at risk—and the potential damage such a breach could inflict.

The trend toward networked enterprise storage environments is inexorable; the economic and operational benefits of the technology associated with networked storage are simply too significant to ignore. However, far too few IT professionals have a clear understanding of storage security issues or a firm grasp on the solutions available to them.

In order to help enterprise storage users evaluate their storage security risks, associated security requirements and solutions, this paper will examine the following questions:

- Are enterprise users aware of storage security issues?
- How should we define storage security?
- What types of storage security solutions are necessary?
- What is the best way to achieve these solutions?

Ultimately, storage security isn't simply a matter of finding and implementing the right technology solutions. Businesses must also demonstrate to vendors and solutions providers that they consider storage security an important IT issue, and that they deem storage security a high priority for the industry.

Perception vs. Reality

Security is obviously a vital concern for any enterprise IT professional. And many IT managers understand that storage networks present unique security challenges, due to the

mission-critical nature of enterprise data systems and the potential consequences of a storage security failure.

A recent study conducted by the SNIA Storage Security Industry Forum (SSIF) concluded that enterprise IT managers do indeed consider storage security an important issue, and that most managers have made an effort to improve their companies' security postures.

On a more granular level, however, the study also found a great deal of uncertainty and unease. An overwhelming number of end users don't know if their efforts have succeeded. Those users are frustrated at the lack of best practices, industry standards and even a basic common language for discussing storage security issues with vendors. Moreover, most users rely on default security features within individual vendors' storage products, rather than adopting a proactive, comprehensive approach.

This uncertainty has a direct (and negative) impact on how IT professionals deal with storage security issues. Based on research conducted by the SNIA SSIF, as well as discussions with leading industry analysts and consultants, IT managers commonly face four storage security misconceptions:

● **It's someone else's problem.** In many enterprises, network administrators, storage managers and system administrators lack the authority, resources and expertise to take responsibility for storage security issues. "The problem is that few IT professionals understand both security and storage," says Jamie Gruener, a

senior analyst with the Yankee Group. "People have expertise in one discipline or another, but there's not much crossover." As a result, storage security issues often fall through the cracks.

● **It can't happen here.** IT managers may assume that storage networks are less vulnerable to security failures due to the relatively insular nature of these networks. However, most storage-area networks emphasize high availability and powerful management tools, rather than robust security; this can expose a storage network to significant vulnerabilities, such as potentially damaging insider attacks. In addition, businesses may associate SAN security procedures with the perimeter defense measures commonly used in corporate LANs, making them even more vulnerable to internal compromise.

● **It's already been fixed.** Many IT professionals rely on default security features in storage products as their first—and sometimes only—line of defense. At the same time, many vendors configure their products under the assumption that users will implement network-level storage security solutions. This cycle, in which each party expects the other to take primary responsibility for security, can lead to serious problems.

● **It can't be helped.** The uncertainty many IT professionals feel over storage security practices may leave them unable even to assess the effectiveness of their security solutions. "There's an enormous problem caused by the lack of widely understood best practices. In fact, it's not clear that there even are best practices," says Mike Karp, senior analyst with Enterprise Management Associates. This uncertainty can make it more difficult for IT managers to sign off on additional security investments, since they lack the context and standards to weigh the impact of those investments.

Defining the Problem

To avoid these misconceptions, it's essential to understand where, when and how to recognize storage security risks. Within an enterprise IT infrastructure, those risks involve four key areas:

● **Servers, hosts and applications.** Even in SAN environments, hosts and application servers are usually linked to the corporate LAN, allowing access to the storage network through these points.

● **Storage connectivity.** The hubs,

switches and directors that link servers and storage systems are also sources of significant vulnerability. Physical transport, for example, is susceptible to wiretapping; traffic interception and redirection; and other forms of attack.

- **Storage subsystems and media.** Security threats to storage devices, subsystems and media (the physical core of a storage network) can be an even greater threat than access to data in transit, since destroying or damaging these systems may have a devastating impact.
- **Management access.** Given the power and flexibility of storage networking management tools, inadequate security on a single management console can compromise even the most comprehensive security solution.

These areas of vulnerability suggest that the greatest threat to storage security comes from within the corporate firewall, and perhaps even from within an IT organization—a suggestion supported by research and expert opinion. According to various industry studies, between 50% and 70% of security breaches are attacks by disgruntled employees, contractors or IT staffers. "Insiders far outweigh outsiders in terms of security threats," says Tom Petrocelli, president of Technology Alignment Partners. "It's easy enough to mess up a SAN without even trying—imagine what could happen as a result of a truly malicious attack."

In addition to weighing the likelihood of internal and external threats, firms must consider the security implications of simple errors. If an employee destroys data through a configuration error or other innocent mistake, the loss to the enterprise is just as real as if an intruder had deliberately attacked the system. To make matters worse, senior managers may never learn about these "indirect" security failures due to fear of retaliation, leaving them unaware of the true scope of the problem.

Finally, the compartmentalized nature of many IT organizations reinforces the tendency to associate data integrity with the application, rather than with the storage infrastructure as a cohesive system. Administrators may, for example, treat authentication and authorization procedures as application-level data security tools rather than as internal, system-wide storage security components.

To avoid misconceptions, it's essential to understand where, when and how to recognize storage security risks.

Building Effective Solutions

The scope and scale of these challenges demand more than technical solutions; enterprises must rethink their storage security priorities and practices from the ground up. From an operational perspective, IT managers should consider two fundamental changes in their thinking about storage security:

- **Raising awareness.** Decision-makers must recognize storage security as a distinct and important IT priority. "Managers know security is a huge problem at the corporate level, but they don't always recognize how insecure their storage networks really are," Yankee Group's Gruener says. "In fact, the data on their storage network is a lot more valuable, and requires a higher level of security than most of the data moving across their IP LAN today."
- **Assigning responsibility.** Senior IT managers must also assign the resources and responsibility required to deal with storage security issues—including the ability to evaluate, purchase and implement security solutions. "A lot of IT executives don't see this as something they should invest in," Enterprise Management Associates' Karp says. "They have to see storage security as a strategic issue, and they have to get involved rather than handing it off in piecemeal fashion."

IT managers should also recognize that point solutions—the "silver bullets" of storage security—are at best partial remedies and at worst a waste of resources. In addition, managers must understand that traditional network security measures, including virtual private networks; software- and application-level encryption; and LUN (logical unit number) masking and zoning, are an inefficient and incomplete way to manage security risks. To be sure, these measures—when implemented in a comprehen-

The industry needs to focus on defining and publicizing a set of universally accepted storage security best practices.

sive fashion—can provide additional layers of security, but a truly effective solution will encompass two key classes of security technology: storage encryption and authentication, authorization and access control.

Storage security encryption appliances provide several benefits. They operate at wire speed, and they provide end-to-end data security over a storage network no matter where the data is sent or received from. Encryption appliances also provide integrated key management; help enterprises comply with government data privacy directives; extend a consistent security standard across both in-transit and at-rest data; and allow IT managers to outsource storage management functions (such as key management) to their clients.

Storage encryption offers another important advantage as well; it can actually improve efficiency and cut management costs for enterprise storage networks. By assigning different keys to different classes of data—for example, human resources vs. customer service information—an enterprise can segregate data classes without providing separate, fully redundant physical storage resources. This represents an unusual and welcome departure: a security solution that generates a direct and measurable (if still secondary) return on investment.

The next class of security technology—authentication, authorization and access control—is just as vital. Storage network zoning provides a measure of access control. However, enterprises may want to consider "intelligent" storage switches that provide integrated authorization, authentication and accounting features. These solutions provide access control by specifying which devices can attach to which ports; reduce the risk of accidental configuration errors; support transport-independent authorization techniques; and enable more efficient management and accounting procedures.

Typically, such solutions include robust policy-based authorization features that give IT managers a great deal of control over who can access particular segments of a storage network or execute particular storage management responsibilities. As a result, when combined with robust encryption appliances, they create powerful and scalable solutions.

Technology Isn't Enough

A growing number of vendors are entering the storage security market with encryption appliances, intelligent switches, management software, firewalls and other components required to build a comprehensive storage security solution. Unfortunately, as long as deeper problems remain, the storage networking industry cannot meet customers' security needs simply by introducing new products. Among the lingering problems are a dearth of industry standards, widely accepted best practices and a common language for defining and discussing storage security issues.

According to Michael J. Alvarado, chair of the SNIA SSIF, storage security standards must rise to meet two major challenges. "The storage networks of the future will be even more highly distributed than they are today, with far more points of access and more non-technical users accessing them," Alvarado says. "As storage infrastructures move away from being tightly controlled and include more points of vulnerability, the industry needs a set of consistent, vendor-neutral standards for managing these vulnerabilities."

Alvarado adds that storage security standards must move away from an emphasis on perimeter security—a reflection of established IP-based network security models—and toward a layered approach. "There are currently no standards that allow us to extend a single authentication model through the lower layers of a storage network, or to unify different layers

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for security management and coordination," he says. "We need that level of coordination, and the standards-setting process needs to focus on those types of issues."

The industry also needs to focus on defining and publicizing a set of best practices; many experts call this the most urgent problem facing business users today. "Many enterprises still don't understand exactly how to manage storage networks; there's no frame of reference, and what is available is often focused on the corporate LAN, not storage networks," Yankee Group's Gruener says.

The lack of best practices also has a negative impact on vendors, many of which still have a relatively low profile in the industry. "Storage security companies don't have much visibility, and that won't change if people have problems, because they won't think of them as being storage problems," Enterprise Management Associates' Karp says. "The lack of a systems-level approach to the problem is frustrating; these point solutions can't possibly work, but there's no understanding or attempt to fix the complete environment."

Conclusion: Making Change Happen

Enterprise users are more than just technology consumers in this process; they are vital catalysts for change and growth in the storage networking industry. Although storage vendors are eager to tap into new markets, they can be equally reluctant to disrupt existing market opportunities. As a result, much of the responsibility for promoting industry standards and best practices (and for creating demand for the technologies that will incorporate these standards) inevitably falls on companies that use storage networking products.

In order to accomplish this, users must make it clear to vendors that storage security is an important priority that will affect both their storage networking strategies and their investment decisions. This involves asking vendors to deliver product roadmaps, detailed explanations of their storage security technologies and other specific evidence that they are committed to embracing security requirements.

Collective action is an equally important part of the process. Industry groups such as the Storage Security Industry Forum within the SNIA give users an opportunity to set the storage security agenda, promote industry standards and give vendors a clear picture of their customers' needs.

Moreover, participation at this level is more than simply a community-building exercise; it has a direct and immediate impact on the products, technologies and standards on which companies build their IT infrastructures. "As more companies engage with us and give us a clear view of their requirements, we're able to address the vendor community with a single voice and to make it clear that storage security is a vital issue," Alvarado says.

In fact, for many enterprises, storage security is rapidly turning into a high-stakes game with no clear rules. Storage networks aren't just the latest technology fashion; they are quickly becoming as pervasive, powerful and essential as the corporate LAN. Yet it's also clear that businesses must rethink their storage security assumptions and requirements in order to apply this technology safely and effectively. Ultimately, IT professionals face a clear choice: manage their firms' storage security risk today, or manage the consequences tomorrow.*

About the SNIA

The Storage Networking Industry Association, or SNIA, was incorporated in December 1997 and is a registered 501-C6 non-profit trade association. Its members are dedicated to "ensuring that storage networks become complete and trusted solutions across the IT community." The SNIA works toward this goal by forming and sponsoring technical work groups, by producing (with its strategic partner Computerworld) the Storage Networking World Conference series, by building and maintaining a vendor-neutral Technology Center in Colorado Springs, and by promoting activities that expand the breadth and quality of the storage networking market.

For more information on SNIA and the SSIF, go to www.snia.org. For information on the Customer Advisory Council, contact the CAC chairman at ssif-cac@snia.org.

Q&A: Mike Alvarado, SSIF Chair

Michael J. Alvarado is chair of the newly formed Storage Security Industry Forum and is senior product manager at NuSonic Systems Inc. Alvarado has been involved in the storage networking industry for over 15 years; he has been instrumental in developing customer and industry acceptance for next-generation SCSI-interface products, the Direct Access File System, a new file protocol, and the Open Storage Networking Initiative. We asked him to discuss the SSIF's mission.

Q: What is the SNIA Storage Security Industry Forum, and what does it do?

Alvarado: SNIA created the SSIF to understand and document end-user requirements of storage security practices. To accelerate the development of storage security solutions, SSIF is communicating this feedback to industry technical groups for incorporation into upcoming standards, initiatives and best practices.

Q: Why are standards important?

Alvarado: Standards let users build consistent policies and practices for their entire enterprise. Without a common set of standards, end users in the enterprise must implement a multitude of product-based standards, which will defeat their ability to have a consistent security policy that's executed consistently. Without consistent implementation of policy, security will never be optimal or effective.

Q: What concerns do users have about storage network security?

Alvarado: The top concern is configuration. Many users fear that something like an incorrect configuration on a switch or a storage node will result in data loss.

Storage management applications are another major concern, due to the openness of the environment in which they're deployed. Unlike any other part of the storage architecture, management applications can subvert or undermine security controls installed at the device, record or block layer. Thus, they have significant control in a storage environment.

Q: What are some of the myths about security and IP storage or open storage networking?

Alvarado: The key assumption behind storage networks—that enterprise data is most valuable when shared, distributed and easily and efficiently replicated—also represents a source of significant risk. As networked storage systems evolve beyond the data center and expand throughout the enterprise, mission-critical data becomes more vulnerable to unauthorized access, alteration, theft and misuse.

IT managers may assume that Fibre Channel SANs are less vulnerable to security failures due to the relatively insular nature of these networks. Yet the fact that most SANs emphasize high availability and powerful management tools, rather than robust security solutions, can expose a Fibre Channel SAN to significant vulnerabilities, such as insider attacks.

Q: What role do end users play in the SSIF's communication with vendors?

Alvarado: SSIF has created a Customer Advisory Board that provides direct feedback about what's critical for the industry to focus on. By providing this input, end users assure themselves that development plans and priorities are set in the right direction.

Q: Do customers have a wide variety of secure storage networking options to choose from in today's environment?

Alvarado: End users must drive the storage security agenda. They must begin to demand storage security roadmaps of standards, initiatives and vendor solutions. There are many solutions available; the real challenge is to make sure these solutions follow industry standards.

Q: Where can people get more information about storage security?

Alvarado: The SSIF is unveiling a new Web site that will be a single portal at which users can gain a broad perspective on available issues and solutions. White papers, links to key information sources, news about standards and technology alternatives are all easily accessible. For more information about this site, people can contact mikeha@snia.org.

SSIF Members on the Forum's Importance

"Proper attention to the security issues of storage networking is long overdue. The SSIF is the only organization that fosters better both industry cooperation and higher user awareness. The SSIF also lets customers help set the agenda. The success of the SSIF will help everyone who sells or uses storage networking, and we're proud to be a contributor to that effort."

— LeRoy Budnik, managing partner and founder, Knowledge Transfer

"SNIA and SSIF bring together leaders in the software and hardware industries to increase the attention and understanding about a complex industry. Interphase looks forward to sharing our storage networking expertise in both hardware and software, as it applies to the emergence of security protocols. We're committed to delivering standards-based storage networking security solutions that interoperate with those from other SNIA vendors."

—Randall McComas, vice-president of global sales and marketing, Interphase Corp.

"SSIF represents an important effort in building a comprehensive SAN framework to address customers' security concerns. As a major contributor to security standards and chair of the T-11 Security Workgroup, Brocade is helping create security protocols for authentication, access control, and confidentiality through the adoption of standards. Brocade is proud to work with other SNIA members to build secure storage networks and promote standards-based solutions that are highly scalable and fully manageable."

— Jay Kidd, vice-president of product marketing, Brocade

"Now that networked storage is moving toward including support for IP transport, data is more susceptible to integrity and privacy attacks. As the leader in network security, Hifn is well placed to contribute to the security of storage networks. As an active member of SNIA, Hifn will bring our expertise to the security best practices database."

— Doug Maldonado, vice-president of marketing, Hifn

"Enterprises are expanding their storage infrastructure to achieve greater availability and integrity. While reducing operational risks, this may increase the exposure of unauthorized access to sensitive data. Neo6cale views the SSIF as a great vehicle for increasing the awareness of and potential solutions for addressing stored data confidentiality. Industry standards and best practices are essential in order to cost-effectively yield distributed data protection."

— Aseem Vaid, CEO and co-founder, Neo6cale Systems

"With SANs becoming mainstream, concern for protecting the data on them has increased. QLogic develops standards-based Fibre Channel and iSCSI SAN products that address customers' security concerns. The SSIF provides an important forum not only for driving these standards, but for determining SAN security best practices."

— Frank Berry, vice-president of marketing, QLogic Corp.

"The increasing vulnerability of data networks and the deployment of virtual storage networks across multiple sites using public and private IP networks are driving the need for IP security solutions at every access point. Adaptec is excited about supporting the SSIF's mission to identify best practices for building secure storage networks and promoting standards-based solutions."

— Glen Clowney, director of marketing for IP storage, Adaptec

"As storage networks expand and customers leverage their information infrastructure across different applications, security becomes a top priority. As a major contributor to the Fibre Channel Security Protocol standard, McDATA is working with its SSIF partners to develop security solutions that make sense. The SANtegrity Security Suite, McDATA's security solution, provides flexible, easy-to-manage, standards-based and comprehensive techniques that give customers peace of mind."

— Mike Gustafson, senior vice-president of worldwide marketing, McDATA Corp.

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Getting Strategic With Tape Backup

For users that have outgrown DDS, Sony AIT solutions offer a clear migration path.

If your company has had formal tape backup systems in place for a year or more, there's a good chance no one is giving them a lot of thought, beyond making sure that the regular backups are completed. But there are a variety of new business challenges and advances in data storage technologies that make this the right time to take a fresh look at your tape storage strategy.

Sony's Advanced Intelligent Tape (AIT) is a proven data storage format, now in its third generation, that many organizations are using to meet business challenges in a more consistent and practical way. Unlike legacy tape solutions such as Digital Data Storage (DDS), organizations can use AIT to create a tape storage strategy that adapts to changes in IT requirements while meeting future performance needs.

Organizations often implement tape storage in an ad-hoc fashion, adding tape backup units to PCs and servers as needed, purchasing different units (and even different formats) for individual, workgroup and data center needs. Users of DDS tape systems whose tapes lack the capacity, speed or level of automation to meet burgeoning demands typically need to implement different tape storage systems for different needs, creating the lack of a consistent, broad strategy. That situation relegates tape storage to a tactical (but still important) function, incapable of easily adapting to new business challenges. Those challenges include:

Explosion of data – A few years ago, most users considered only a handful of specialized documents or specific databases to be business-critical data. But that's all changed. E-mail files, Web site content, transaction data, multimedia files, sales materials and PowerPoint slides are among the business-critical data that most organizations want to archive and protect on a regular basis. In 2000, the research firm IDC projected that data storage requirements would grow an average of 87% annually.

Increasing storage costs – With traditional backup systems, more data means more tapes, and more tapes mean more money spent on media. Unfortunately, backup systems created 5 or 10 years ago simply aren't designed to handle the explosive growth of backup requirements we see today. Consequently, companies are caught on a tape treadmill, constantly purchasing additional tapes to handle increased volume.

Greater need for business continuity – While it's always been important to ensure that critical data can be recovered in the event of a problem, over the past few years, it's become critical to ensure that businesses can continue to function in the event of equipment problems or a disaster. For most companies the cost of downtime—even a few hours—can greatly exceed the expense of adequate protection.

New government mandates – A variety of organizations need to archive more data because of new government mandates and industry standards that require increased protection of data, as well as the archiving and storage of a broader range of corporate or customer data. For example, health care organizations must meet requirements for the Health Insurance Portability and Accountability Act (HIPAA), while financial services companies are subject to more stringent Securities and Exchange Commission regulations for data storage.

Faster backup/reduced administration – Backup and restore processes take longer as the volume of business-critical data that needs to be archived grows, both on the desktop and in the data center. The number of tapes necessary to handle that data also increases, as does the administrative overhead. In many organizations, IT personnel spend far too much time managing inefficient tape strategies and not enough time working on tasks that add value to the business.

With such a wide range of new data storage challenges facing companies, it's no wonder that traditional tape storage systems have become almost more of a hindrance than a help. What's needed is a way to turn archival data storage from a time-consuming chore to a strategic advantage—one that can help increase business continuity, increase IT flexibility, decrease the time spent on routine maintenance tasks and proactively meet evolving business needs.

A variety of data storage advances over the past few years bring just such dramatic benefits, especially to organizations currently employing DDS formats. For example, Sony's AIT data storage systems are designed to cover everything from PC backup and workgroup-level requirements to automated data center needs. Instead of having multiple tape formats across these groups, Sony's AIT allows an organization to have a single tape format, providing a seamless migration strategy as backup volumes grow. Enterprises can upgrade to AIT gradually, replacing individual older systems as capacity needs dictate—typically for a price equivalent to that of traditional DDS-4 systems, but with increased performance, capacity and reliability. And with AIT, your investment is protected. Indeed, since AIT was introduced in 1996, Sony has doubled capacity with each generation culminating in today's super-drive class AIT-3.

AIT also has a number of other important benefits when compared to DDS tape systems, including:

Better reliability – Sony AIT systems are rated for 100% duty cycle (unlike DDS), so they are perfect for automated libraries and network-attached storage needs. In addition, AIT's helical scan recording and Advanced Metal Evaporated (AME) tape provide increased reliability, extended media life and reduced cleaning requirements compared with DDS systems.

Smaller form factor – AME media and helical scan recording provide the highest density of any data tape, enabling high-capacity AIT systems to fit in a 3.5-inch format.

Fewer tapes, more capacity – AIT cartridges can hold up to five times the uncompressed capacity of DDS-4, greatly reducing the number of tapes required for backups and thereby cutting the ever-growing cost of media.

Greater speed – With Sony's Memory In Cassette (MIC) flash memory chip, AIT cartridges provide much faster file access and recovery, reducing the amount of time it takes to recover lost data or downed systems and contributing to a strong business continuity plan.

Lower cost – AIT-1 drives cost less than DDS-4 drives, yet deliver increased capacity and speed.

As data volumes grow, perhaps you can make do with your current DDS tape systems by adding more tapes to the backup rotation, allocating more time for maintenance and restoration, and using a jumble of different tape formats for different needs. But in the long run, it makes more sense to reconsider your data storage needs and to find a solution that will provide continuity, consistency and compatibility throughout your entire organization. With proven new technologies such as Sony's AIT tape storage systems addressing today's most pressing business and backup requirements, you can turn your backup processes into a business benefit instead of an IT liability.

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Download the free white paper, "Formulating A Tape Backup Strategic Plan," and learn more about Sony storage solutions. Visit www.nwfusion.com/sony/DDSCW

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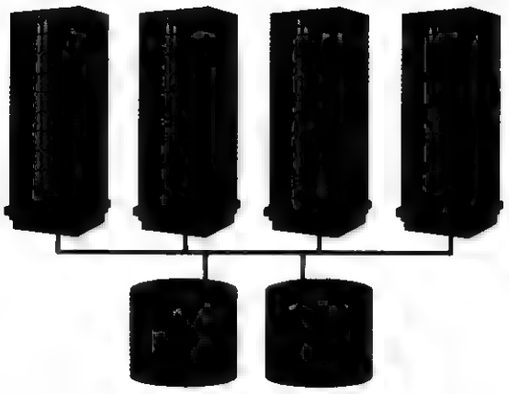

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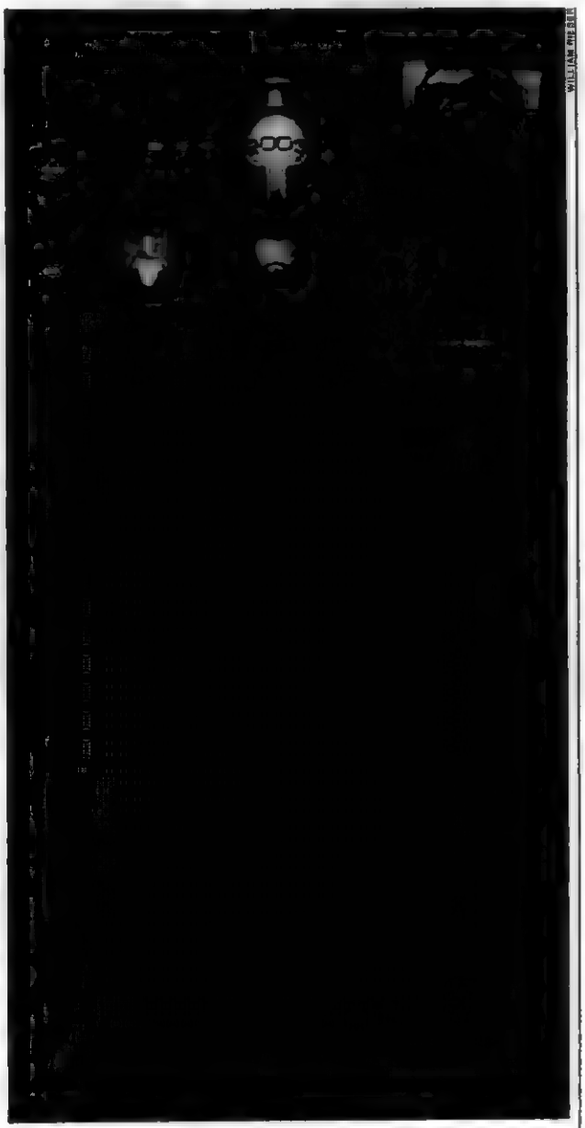

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Microsoft Buys Its Way Into Server Consolidation Space

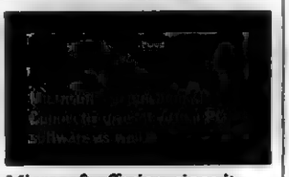
Delay in virtualization product's release may be saving grace for rival offerings from VMware

BY CAROL SLIWA

Microsoft Corp. is counting on the virtual machine software that it acquired last week from Connectix Corp. to appeal to Windows NT Server 4.0 users who are interested in server consolidation and migration.

The Connectix Virtual Server software lets users run multiple distinct copies of server operating systems — including Windows, Linux and Unix — on a single physical machine.

But it's unclear how receptive users will be to the new



Microsoft offering, since it won't become generally available until year's end and its arch competition, GSX Server from VMware Inc. in Palo Alto, Calif., has been shipping for more than two years.

San Mateo, Calif.-based Connectix recently said its Virtual Server product would ship this quarter. But Jim Hebert, general manager of Microsoft's Windows server product management group, said security and code reviews, tuning and localization work will cause Microsoft to delay the product until the fourth quarter.

"Do I wait? They've never hit a deadline yet," said Tom Pane, a vice president of technology at New York-based AnnTaylor Stores Corp., which has been exploring server consolidation with VMware.

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Virtualization, page 57

Telecommuters Weather Storm

IT strategies need to include out-of-office provisions, users say

BY PATRICK THIBODEAU
WASHINGTON

The big winter storm that shut down many federal government operations in Washington last week, along with businesses throughout the Northeast, didn't hurt Mattress Giant Corp. much. That's because it has made telecommuting an essential part of its IT strategy.

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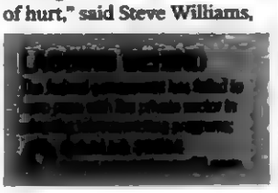
"If we didn't have [telecommuting] . . . we'd be in a world of hurt," said Steve Williams, CIO at the Addison, Texas-based company, which has more than 250 stores, many in the Northeast and Mid-Atlantic regions. Telecommuting employees were able to stay in touch with customers to keep them apprised of the status of deliveries. "Even in a crisis situation, our people were still able to be productive and save sales," Williams said.



Mattress Giant's decision to implement a formal telecommuting program was prompted by an earlier ice storm in the Dallas area. But many companies lack such programs, opting instead to take an informal approach. That could be costly for IT managers.

Without a telecommuting management program, a company may find itself paying for

Telecommuters, page 16

HIPAA Data Rules Leave Choices to IT

But new health care security standards raise legal concerns

BY BOB BREWIN

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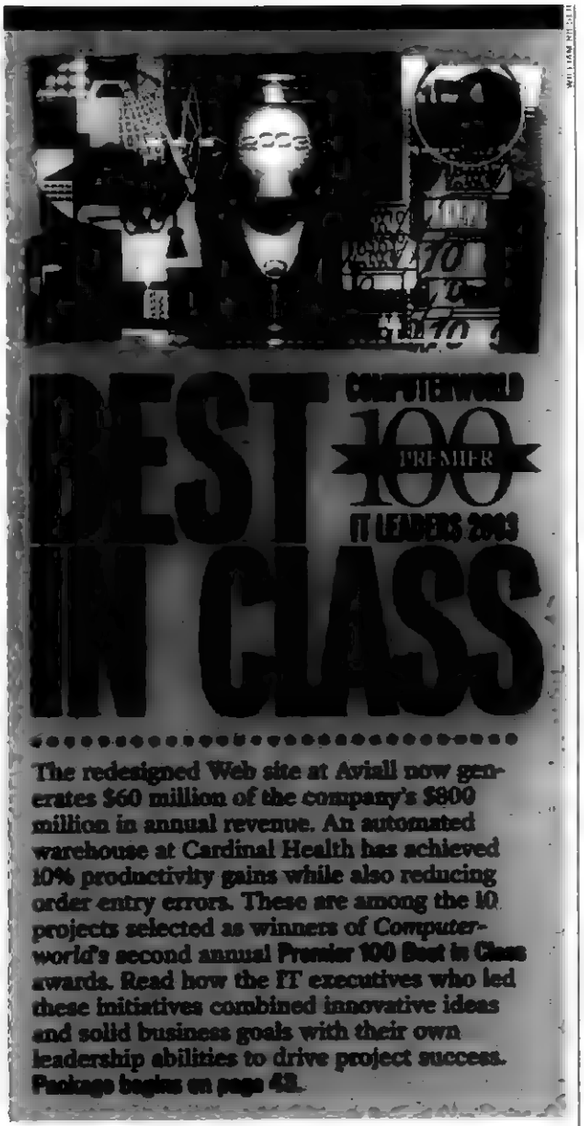

The redesigned Web site at Aviall now generates $60 million of the company's $800 million in annual revenue. An automated warehouse at Cardinal Health has achieved 10% productivity gains while also reducing order entry errors. These are among the 10 projects selected as winners of Computerworld's second annual Premier 100 Best in Class awards. Read how the IT executives who led these initiatives combined innovative ideas and solid business goals with their own leadership abilities to drive project success. **Package begins on page 43.**

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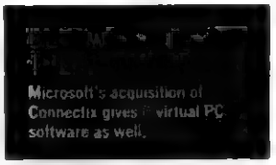
Microsoft's acquisition of Connectix gives it virtual PC software as well.

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LAGGING BEHIND

The federal government has failed to keep pace with the private sector in adopting telecommuting programs.

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BY BOB BREWIN

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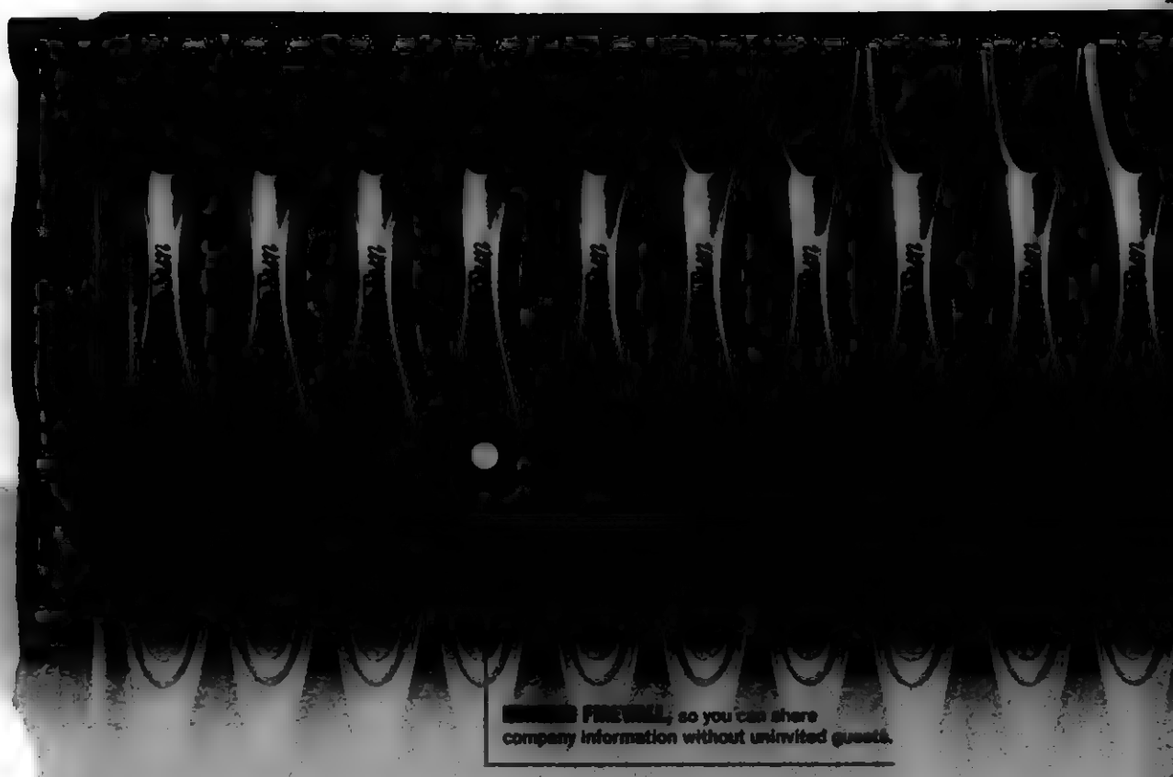

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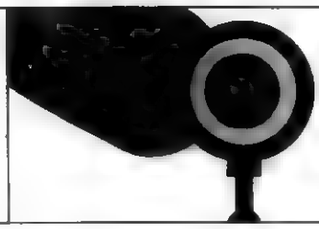

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CIO INSIGHT 100 IT LEADERS 2003

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46 A supply chain overhaul has saved the **Tennessee Valley Authority** $23.5 million.

46 A new data warehouse at **Office Depot** boosts annual sales by $117 million.

47 Celanese Chemicals' wireless system gives salespeople access to back-end billing and shipping data — and e-mail.

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12 CIOs say IT cuts could be avoided through better communication of IT's business value to the company.

12 A Retiring Microsoft official says the software vendor must embrace open source or risk a bleak future.

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24 Pimm Fox claims that you could have known years in advance about your IT shop's current predicament, if only you had used business-simulation software.

25 Dan Gillmor says IT managers are addicted to monopolies for reasons of simplicity. But that addiction may cause problems in the future.

40 Tommy Peterson suggests a few small security steps by corporate IT that would go a long way toward reducing threats to the nation's Internet infrastructure.

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Safe Harbor: A Success Story

PRIVACY: It's practical, it's voluntary, and companies are signing up for the agreement at a pace of one every two days, columnist Jay Cline says of the U.S./European Union accord. ⓒ QuickLink 29458

Top Intrusion-Detection Mistakes

SECURITY: Some common errors in setting up network monitoring can seriously degrade your system's effectiveness. Columnist Anton Chuvakin offers tips on avoiding them. ⓒ QuickLink 29066

Reusable VB .Net Code

DEVELOPMENT: This tutorial shows you a technique for building reusable class frameworks in Visual Basic .Net.
ⓒ QuickLink 29047

Bridging Communication Gaps

DEVELOPMENT: Columnist Esther Derby offers advice on how to avoid misunderstandings that can stall projects.
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Wi-Fi Outlook

MOBILE/WIRELESS: UCLA professor Rajit Gadh outlines the benefits and potential pitfalls of Wi-Fi applications.
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QuickLink 28548
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Rising power costs are expected to give a boost to energy management software aimed at corporate users. Page 18

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Correction

The chart accompanying the article explaining payback period on page 28 in our Feb. 17 issue was mislabeled. What was shown as the payback period for ATM installation was actually the payback period for server consolidation.

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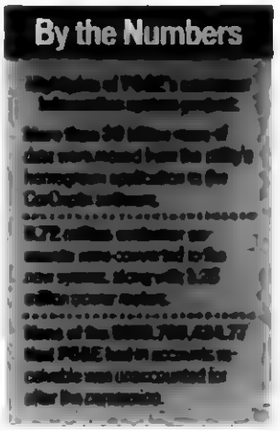

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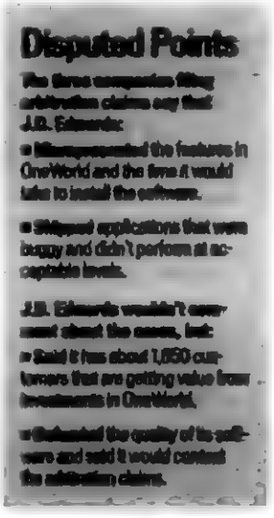
Disputed Points



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MARK HALL ▪ ON THE MARK

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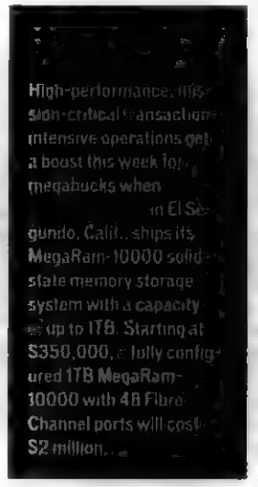

IBM to Ship Power5 Chip Next Year

Unix partitioning will be advanced

BY JAIKUMAR VIJAYAN
NEW ORLEANS

IBM will ship its next-generation Power5 RISC microprocessor architecture in mid-2004, according to company officials here at last week's IBM PartnerWorld event.

The processors will deliver roughly four times the performance of current-generation Power4 chips and feature technologies that support application-specific performance boosts and mainframe-like partitioning capabilities.

Power5 chips will also feature a technology called simultaneous multithreading, which will enable up to 80% better application-level performance than current technologies permit, said Karl Freund, vice president of IBM's pSeries product group.

Simultaneous multithreading builds on the capabilities available in the dual-core Power4 processor architecture, according to Freund. Dual-core processors feature two processors in one piece of silicon. With simultaneous multithreading, each processor will be able to run two separate processes or tasks at the same time, Freund said.

The Power5 architecture will also introduce a mainframelike subprocessor partitioning capability in IBM's Unix server space. With it, users will be able to slice and dice individual Power5 processors to create up to 10 partitions. And at the highest end, users will be able to create up to 512 partitions on a 64-processor system, said Freund.

The 0.13-micron Power5 chips will feature an acceleration technology that optimizes performance in some applications, IBM said. It will allow certain commonly used code that's executed by software in many popular applications to be executed much faster by the processor hardware.

The first systems based on the new chip will start shipping in the second half of 2004, IBM officials said. ◗

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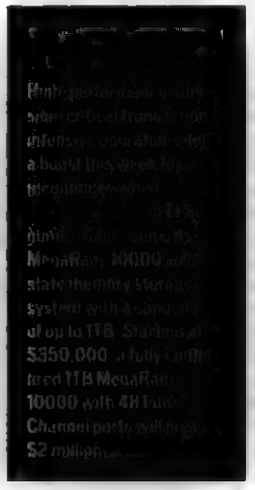

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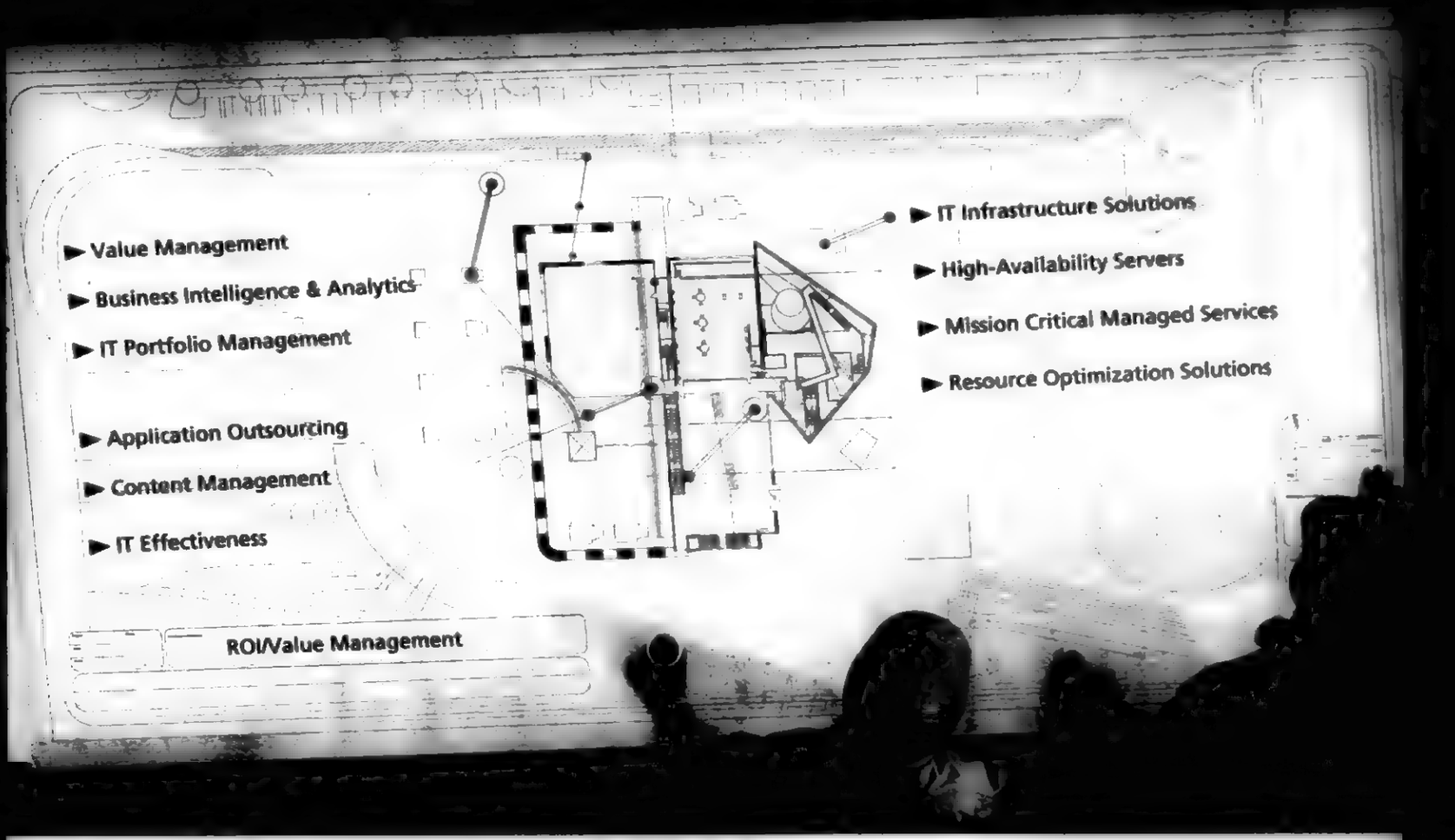

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IBM Augments On-Demand, Small Business Initiatives

Bundles channel partner services with new incentives and programs

BY JAIKUMAR VIJAYAN

THE NEW PRODUCTS and channel programs that IBM announced at last week's PartnerWorld show in New Orleans build on the company's unfolding efforts to deliver on-demand computing services for users.

They're also aimed at expanding IBM's presence in the fast-growing small and medium-size business market, which last year accounted for nearly 23% of the company's sales.

IBM last week announced several programs designed to enable its network of 90,000 business partners to deliver on-demand computing services. The initiatives are part of a $100 million channel investment by IBM that's intended to garner greater reseller participation as IBM delivers its on-demand strategy, said Michael Borman, general manager of global business partners.

Getting Partners Involved

Increasingly, IBM will also work with partners to deliver hosted on-demand services, said Dev Mukherjee, a vice president in IBM's on-demand business group.

One example is the company's partnership with Ketera Technologies Inc., a Mountain View, Calif.-based provider of procurement management software that was founded by American Express Co. Under the arrangement, IBM is hosting and managing Ketera's services on its hardware infrastructure.

CNF Inc., a $4.8 billion supply chain and logistics services company in Palo Alto, Calif., recently signed up for the IBM-hosted Ketera service. CNF will use Ketera's Web-based service to purchase all of its maintenance, repair and operations materials, along with all office supplies. The hosted arrangement allows CNF to significantly reduce the costs associated with buying and managing the software it would need to deliver the same kind of functionality on its own, according to Mitch Plaat, director of contract services at CNF.

"We were looking for something that was affordable and quick to deploy, where we did not have to pay for software upgrades and for maintenance," Plaat said.

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Show Concrete Examples

If its on-demand computing initiative is to gain broad-based acceptance, IBM must continue showing other concrete examples of the services and technologies it will deliver, said Janet Waxman, an analyst at Framingham, Mass.-based IDC.

"It looks like they are moving in the right direction," Waxman said. "But it's important that they do a good job of communicating to people what on-demand is all about."

Meanwhile, in a fresh attempt to broaden its presence in the small and medium-size business market, IBM last week rolled out Express editions of popular products such as its DB2 relational database, Lotus Domino collaboration software and Tivoli management applications (see box).

IBM's Express products are packaged and priced specifically for customers at smaller businesses. The products for the most part are configured by IBM's channel partners and are aimed at reducing costs, complexity and implementation time.

"IBM has made it very, very clear that the channel is their route to the [small and medium-size business] market," said Tony Madden, a vice president at Avnet Hall-Mark, a large IBM distributor in Tempe, Ariz.

But IBM's growing aspirations in that space raise the potential for channel conflict, Madden said. "There are some concerns as it relates to IBM's Global Services strategy," especially in the medium-size business market, he said.

App Dev, z/OS Migration Top Share's Dallas Agenda

BY JAIKUMAR VIJAYAN

Share Inc., an IBM large-system user group, will hold its biannual user conference in Dallas this week. Established in 1955, Chicago-based Share is the longest-standing computer user group in existence, with 5,000 active members from 2,000 companies.

In an interview last week, Share President **Ken Ebbe** *spoke about how the organization has shifted from being a largely mainframe-centric user group to one that is more broadly focused in response to changing member needs.*

What are the key issues you expect to be raised at this year's Share event? Application development is a hot item for Share attendees and well covered at our event. Middleware deployment, including the increasing need for security and privacy, remains a major priority for the enterprise and our members. At the Dallas event, we're featuring "Getting to z/OS 1.4," because IBM is strongly encouraging customers to migrate to z/OS 1.4 to take advantage of [future] middleware.

Are you noticing any change in the kind of topics that are discussed at the show? Most of the issues Share addresses revolve around longtime IT fundamentals. Share is an IBM user group, but the reality of today's enterprise involves integrating diverse applications and systems on various platforms. The amount of interest in Linux and storage solutions continues to grow.

Our software asset management track, started a few years ago, has gained significantly in popularity. On the horizon is grid computing and what it means to the data center.

The demise of the mainframe is a perennial topic of discussion. Do you see that happening? The industry certainly lost a couple of companies in Amdahl and Hitachi, and that probably says something about the market in general. But it is still a big market overall, and a steady market. People that have invested in mainframes will continue to invest in them.

How has Share as an organization evolved? Share's original objectives and purpose remain largely unchanged since its founding. Share is an independent, volunteer-run user community providing IBM customers with user-defined education, professional networking and a forum to influence the information technology industry. The need to develop, debug, test and produce solid products remains a fundamental requirement. System uptime is more critical than ever, and while we have more tools, we also have more complexity and more demands.

What impact has the economy had on attendance for this year's show? Until Sept. 11, Share's conference attendance was growing. After Sept. 11, Share took a small hit at our following conference in March and [since] then has remained steady. Discussions with our customers indicate that the slowdown in the economy, particularly spending on IT, is the major reason. That is consistent with what we're seeing industrywide.

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Internal IT Marketing Is Scarce, Survey Finds

CIOs say IT cuts could be minimized by reaching out to business managers

BY THOMAS HOFFMAN

WHAT WE HAVE here is a failure to communicate. According to a soon-to-be released survey of 277 CIOs and IT directors, nearly three-quarters of the respondents said they have had to cut their budgets by more than 15% over the past two years and that they think more effective communication with senior management about the value IT generates could have reduced those cutbacks by half.

The e-mail survey, conducted during last year's fourth quarter by Stamford, Conn.-based Meta Group Inc. and Creative IT Marketing, a New York-based consulting firm, is expected to be released this week. One of the survey's findings is that few IT departments — just 17% of the respondents — have established formal marketing or communications programs for reaching out to business users.

Among the 83% that lack such programs, IT budget cuts ranged from 5% to 25% during the past two years, according to Meta and Creative IT Marketing. Meanwhile, most of the respondents with IT marketing programs in place said their budgets remained flat.

Perception Problem

Several IT managers acknowledged that communication with business executives can be a big problem.

"Unfortunately, I do believe that many IT executives do a poor job of communicating and marketing the value of IT," said Malcolm C. Fields, CIO at HON Industries Inc., a Muscatine, Iowa-based maker of office furniture and fireplaces. Trying to change the perception of IT's value after the threat of budget cuts arises "is very difficult because most organizations become skeptical in times of austerity," said Fields. That's why it's essential for IT managers to communicate effectively during boom times, he added.

IT departments that fail to communicate the value of technology investments to senior management "do absorb larger budget cuts," said Mark Endry, CIO at software vendor J.D. Edwards & Co. in Denver. That doesn't mean IT organizations with internal marketing programs will be immune to the budget ax, Endry said. But business managers who understand the impact that IT has on their companies can make more informed decisions about cuts, he added.

Glenn Palmiere, CIO at G. Pierce Wood Memorial Hospital in Arcadia, Fla., said that when times are tough, some IT projects will fall prey to budget cuts no matter how mission-critical they may appear to be.

Palmiere said his group "continually cost-justifies every dollar we spend" based on the value that IT can provide to end users at the hospital. Without the internal marketing that the IT department has done, "the cuts would have been more severe than they have been," he said.

Amy Courter, vice president of IT at Valassis Communications Inc., a marketing services firm in Livonia, Mich., said she has found that through one-on-one communication with business executives, she "can often achieve the results that I need — with a lot of work."

But for some IT managers, "it's a matter of them not having any structure," said Patricia Jaramillo, president of Creative IT Marketing. "There are a lot of them who send out e-mail updates [to senior management] that are very technology-focused and don't express the business side." ▶

Showing IT's Value

Meta Group and Creative IT Marketing offered the following advice for better communicating the value of IT to business executives:

ASSIGN specific IT workers to handle internal marketing and communications duties.

CREATE a product and services catalog that makes it clear what your IT department does for end users.

SET UP quarterly performance and progress reviews with individual business units.

SEND OUT newsletters and hold user briefings or "town hall" meetings with business managers on a regular basis.

FIND OUT what users value and how they measure IT success.

Retiring Microsoft Official Urges Open-Source Embrace

Vendor must move past PCs, says farewell note

BY JORIS EVERS

Microsoft Corp. must embrace the diversity of open-source software or face oblivion, David Stutz, a departing Microsoft manager, wrote in a farewell letter to the company.

Stutz, a respected technical thinker at Microsoft, sees networked software as the future of computing. Open-source software is already there, but Microsoft still has to move past its PC-centric roots, he wrote. "If Microsoft is unable to innovate quickly enough, or to adapt to embrace network-based integration, the threat that it faces is the erosion of the economic value of software being caused by the open source software movement," Stutz wrote in the letter that he posted on his Web site, *www.synthesist.net/writing*.

"Useful software written above the level of the single device will command high margins for a long time to come. Stop looking over your shoulder and invent something!" he wrote to Microsoft. "If the PC is all that the future holds, then growth prospects are bleak." Stutz left Microsoft earlier this month. He held several key positions there, including chief architect for Visual Basic and, most recently, group program manager for Microsoft's Shared Source program, the company's answer to open source.

Microsoft said it isn't uncommon for its recently retired employees to write open letters. "David Stutz has been an important contributor to Microsoft's open-source thinking, and Microsoft agrees with much of the vision Dave has for the future," the company said. However, the statement added that "breakthrough innovations will come mostly from commercial software companies such as Microsoft."

> **"Microsoft cannot prosper during the open source wave as an island, with defenses built out of litigation and proprietary protocols."**
>
> **DAVID STUTZ**, FORMER PROGRAM MANAGER, MICROSOFT

Stutz said he worries that efforts to recover from perceptions of the company as "politically inept" and that a focus on being the lowest-cost commodity software producer will empower managers and accountants at Microsoft rather than the visionaries.

Microsoft's "denial" when it comes to networked computing is understandable, because the company built its empire on the notion of the PC as the natural point for hardware and application integration, Stutz said. However, he added, "network protocols have turned out to be a far better fit for this middleman role."

"Microsoft still builds the world's best client software, but the biggest opportunity is no longer the client. It still commands the biggest margin, but networked software will eventually eclipse client-only software," Stutz wrote.

Microsoft products due out later this year, such as Windows Server 2003 and the successor to Office XP, will offer more networked features than the previous versions, the company has said.

The greatest threat to Microsoft isn't the Linux operating system, but applications, Stutz said. As the quality of open-source software improves, there will no longer be a need for Microsoft Office's one-size-fits-all suite of applications, he explained.

"Open source software is as large and powerful a wave as the Internet was," he wrote. "Microsoft cannot prosper during the open source wave as an island, with defenses built out of litigation and proprietary protocols."

Steven Milunovich, a vice president at Merrill Lynch & Co. in New York, agreed that Microsoft needs to innovate more. "Microsoft must notch up the innovation component to do well in new areas," he stated in a report last week. ▶

Evers is a reporter for the IDG News Service.

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Reducing Software Flaws Key to Security, Users Say

Focus on vulnerabilities seen as most important part of national strategy

BY DAN VERTON

Of the five main priorities set forth in the National Strategy to Secure Cyberspace, users and security experts pointed to the goal of working to reduce software and Internet vulnerabilities as the one that could actually make a difference in the near term.

Released Feb. 14 as part of the Bush administration's multipronged effort to develop a program for reducing cyberspace security threats and vulnerabilities, the national strategy calls for a concerted effort across four major components of cyberspace: the key Internet protocols; digital control systems, such as those that manage the flow of electricity; software and hardware components; and physical infrastructure interdependencies.

Many users and security experts acknowledged the need to improve critical protocols, such as the Domain Name System (DNS); the Border Gateway Protocol (BGP), which enables routing information to be exchanged between networks; and the current version of the Internet Protocol, which is now being migrated from IPv4 to IPv6 for improved security. But the majority of users who spoke with *Computerworld* last week remain convinced that the most pressing challenge is improving software security.

Software Comes First

"It doesn't matter how well we secure DNS, IPv6 [and BGP]," said a security administrator at the Virginia Polytechnic Institute and State University in Blacksburg who requested anonymity. "If we fail to address the vendor-induced vulnerabilities of client machines, then everything else will be compromised."

Last July, the university started requiring software vendors to prove that their products aren't susceptible to the top 20 vulnerabilities listed by the FBI and the SANS Institute.

"Every major attack on the Internet since 1986 has involved at least one of two factors: weak configurations or software flaws," said Jeff Shawgo, a former security administrator at a major health care company who is now an independent consultant.

"Our software economy pushes time to market above all else," he said, adding that software vendors must be held to a specific time requirement for sending fixes to users.

But getting software patches quickly isn't the only issue, said Susan Bradley, a security manager at Tamiyasu, Smith, Horn and Braun Accountancy Corp., a law firm in Fresno, Calif. Security patches designed to fix vulnerabilities often end up "breaking" other applications, she said.

"We must [then] determine whether the vulnerability exposed by not patching is worth the risk of patching," she explained. This process has left Bradley and her staff "shellshocked" from having to decide if a vulnerability warrants a patch that will almost certainly impact the firm's productivity, she said.

Vendor Action Required

Clint Kreitner, president and CEO of the Center for Internet Security in Hershey, Pa., said operating system vendors need to start shipping products with at least a baseline level of security settings in place as the factory default.

Application vendors also need to stop using practices such as requiring root-level access for software installs, since that activates certain services that, if left on, could send user names and passwords in clear text; using random port numbers that can't be filtered properly; and allowing ephemeral network connections from outside the user organization's network, Kreitner said.

Other users said all of this will require more than good intentions on behalf of the government. To be effective, the national strategy will require incentives and negative repercussions and possibly regulation — something that remains on the table, according to Bob Stephan, special assistant to Secretary of Homeland Security Tom Ridge for information analysis.

"If the DHS [U.S. Department of Homeland Security] is serious about creating real security real fast, it should do what government does best: create incentives that make what is best for homeland security best for the organizations that provide and use networked computing devices," said Gerald L. Jenkins, head of the IT group at Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. in Chicago.

But in the end, "the federal government may be forced to confront the hated 'R word' — regulation," said Jenkins. And a package of incentives that contains both "carrots and sticks" need not be heavy-handed or burdensome; it can be "precisely tailored," he said.

Plan of Attack

The National Strategy to Secure Cyberspace calls for:

IMPROVING key Internet protocols, such as DNS, BGP and IP; promoting improved routing through address verification and out-of-band management – separate control networks used to counter distributed denial-of-service attacks.

FOSTERING development of trusted digital control systems for critical industries, such as energy and telecommunications.

REDUCING software vulnerabilities by improving patch distribution and encouraging software developers to promote out-of-the-box secure installation.

UNDERSTANDING infrastructure interdependencies and improving physical security for cyberinfrastructures.

WORKING with service providers to develop a code of conduct for network management.

OASIS Ratifies Access-Control Standard

Only a small piece of Web services puzzle, analyst says

BY CAROL SLIWA

A major standards body last week announced the ratification of a standard that could benefit companies that need to control user access to Web services or secured information over the Internet.

The Extensible Access Control Markup Language (XACML) is an XML specification that can be used to describe authorization policies in an open, interoperable way.

But it's unclear how great an impact XACML will have in the community of vendors supporting Web services, since the newly anointed standard from the Organization for the Advancement of Structured Information Standards (OASIS) is only one small piece of the Web services security puzzle, said Jason Bloomberg, an analyst at ZapThink LLC in Waltham, Mass.

Bloomberg said he wouldn't be surprised to see XACML merge with another Web services standard, such as Web Services Policy (WS-Policy).

Kevin Cronin, chief enterprise architect for financial services at Boston-based Niteo Partners Inc., said he's a bit worried about overlapping standards at this early stage, since no one wants to do work that might later have to be discarded if another standard becomes the accepted one.

Cronin added that he thinks the issue XACML addresses is "very real" and needs to be dealt with in order to ensure more efficient and more secure policy management, enforcement and auditing.

Sun Microsystems Inc. announced last week the release of an XACML implementation under an open-source license. The company claimed that it will help developers build secure Web services and applications because they will no longer have to concern themselves with the patchwork of proprietary access-control policy languages.

But it's unclear when or whether other vendors will build to the standard. Paul Patrick, chief security architect at BEA Systems Inc. in San Jose, said that even though BEA served on the standard's technical committee, it currently has no plans to support XACML in products. Patrick said authorization providers are more likely candidates.

A spokesman for Microsoft Corp. said the company has no plans to support XACML either. He added that Microsoft considers WS-Policy and WS-Security to be the more complete framework for addressing needs in this area.

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BRIEFS

Lucent CEO Adds Chairman's Job

Lucent Technologies Inc. named Patricia Russo, its president and CEO for the past 13 months, to the additional position of chairman. Russo, 50, takes over the job from Henry Schacht, who will remain on the networking equipment vendor's board as an outside director. Schacht, 68, had been chairman of beleaguered Murray Hills, N.J.-based Lucent since October 2000.

Alcatel Builds SIP Into Comm Server

Paris-based Alcatel this week plans to release an IP-based voice and data communications server that supports the Session Initiation Protocol (SIP), which governs how IP sessions start and stop. Alcatel said OmniPCX Enterprise will be accompanied by Linux-based communications management software and several other products, including a SIP-compliant phone terminal.

Staples Upgrades Procurement Site

Staples Inc., a Framingham, Mass.-based office supplies retailer, said it's using IBM's WebSphere Commerce Business Edition software to power an upgraded version of its business-to-business procurement Web site for corporate customers. StaplesLink 4.0 includes navigational changes and new features such as the ability to track orders placed online or by phone or fax.

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Continued from page 1

HIPAA Rules

The data security rules required by the Health Insurance Portability and Accountability Act (HIPAA) became law last week with their publication in the Federal Register. But they won't take effect until April 21, 2005, according to the Centers for Medicare & Medicaid Services (CMS), which are part of the U.S. Department of Health and Human Services.

Nonetheless, the standards are expected to become the de facto security guidelines for HIPAA data-privacy rules that become effective this April, said Mary Henderson, vice president of IT compliance and director of the national HIPAA program at Kaiser Permanente Health Plan Inc. The security rules were supposed to have been developed first but are five years behind schedule.

The Baltimore-based CMS spelled out what the health care industry should strive to do on data security (see box). But it dropped many proposed technology requirements that were in an earlier version of the security rules and made them optional for companies.

Karen Trudel, deputy director of the HIPAA standards office at the CMS, said the new rules were crafted to be "technology-neutral" and to give companies wide latitude in developing their information security systems and procedures. For example, encryption of health data transmitted over the Internet is no longer mandated and can be based on risk assessments by companies.

If a doctor sends an e-mail to another physician about a patient consultation, encryption may not be necessary, Trudel noted. But if "you're a large [health care] organization sending a bunch of transactions, then you would want to encrypt," she said.

Jim Klein, an analyst at Gartner Inc., said the new flexibility should reduce the total cost of complying with the HIPAA security rules by at least 50%. He wouldn't disclose specific cost estimates, but Gartner in October released survey results that estimated average compliance costs of about $3.7 million for insurers and $2 million for providers.

But the flexibility also puts the onus on companies to carefully weigh the risks attached to their IT compliance plans, said Jeff Fusile, a consultant at New York-based PricewaterhouseCoopers. The lack of mandated technologies and procedures requires health care organizations "to think about and determine what is reasonable," he noted.

Oakland, Calif.-based Kaiser is already starting that process, according to Henderson. She said the two years before the security rules take effect will go by "awfully fast" for an organization as large as Kaiser, which has 8.4 million members. Henderson said Kaiser officials don't yet know how much it will cost the company to comply with the rules.

Richard Marks, a lawyer at Seattle-based law firm Davis Wright Tremaine LLP, said the combination of the HIPAA data privacy rules and the open-to-interpretation security standards could become a honey pot for law firms that specialize in class-action suits. Such firms believe HIPAA could be as lucrative as "asbestos and breast-implant litigation combined," Marks said.

Concerns about litigation could also affect the use of technologies such as wireless LANs in hospitals, he added.

Marne Gordon, director of regulatory affairs at TruSecure Corp., a Herndon, Va., consulting firm, said litigation-wary companies also may stick with paper-based approaches instead of rolling out automated medical records and physician order-entry systems. ▶

MORE RULES

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Telecommuters

too many phone lines and broadband connections. A business may "end up with costs that are higher per person than if there is a standardized program," said Gil Gordon, a telecommuting consultant in Monmouth Junction, N.J.

Moreover, the absence of policies for securing data — covering everything from firewalls in home offices to the shredding of confidential faxes — could expose a firm to problems, security experts said.

But even if all the policies and procedures are in place, as they were for Providence Health Plan in Beaverton, Ore., technology problems can create complications. The multistate health care system put in a Citrix System Inc. server-based remote access system that uses a virtual private network (VPN).

"We did a lot of hard work on making sure [the telecommuting policy] was crafted correctly," said Chris Apgar, an IT security officer at Providence. "Where it fell apart is we hadn't tested our Citrix VPN connections well enough," he said, though it was a problem with the VPN rather than Citrix.

The VPN didn't work well in part because it was new technology for employees, and it didn't mesh well with Providence's legacy applications. Apgar's advice to any company "is to test the heck out of it" before implementing the technology component of a telecommuting program.

Mattress Giant is using another method for connecting remote employees. Workers connect to its systems via remote access servers operated by Expertcity Inc. in Santa Barbara, Calif. That system, which provides an encrypted connection, didn't require extensive training, said Williams.

About one in five workers, or 28 million employees, participates in some form of telecommuting, according to a telephone survey of 1,170 randomly selected U.S. households that was conducted in 2001 by the International Telework Association & Council (ITAC) in Wakefield, Mass. That figure is expected to rise by millions when the 2002 survey is released next month, said Tim Kane, president of ITAC and CEO of Kinetic Workplace Inc., a telecommuting consultancy in Pittsburgh.

"Telework took a huge spike" with last week's storm, said Kane, much of it on an ad hoc basis by employees at companies without formal programs. The storm also may have reinforced to employees and employers that they need to do telecommuting — or simply that they *can* do it, he said. ▶

HOW TO SET UP

PLAN: Avoid an ad hoc telecommuting program, which could increase costs and security risks.

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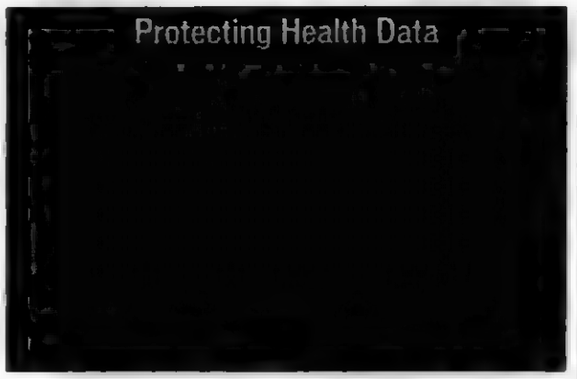

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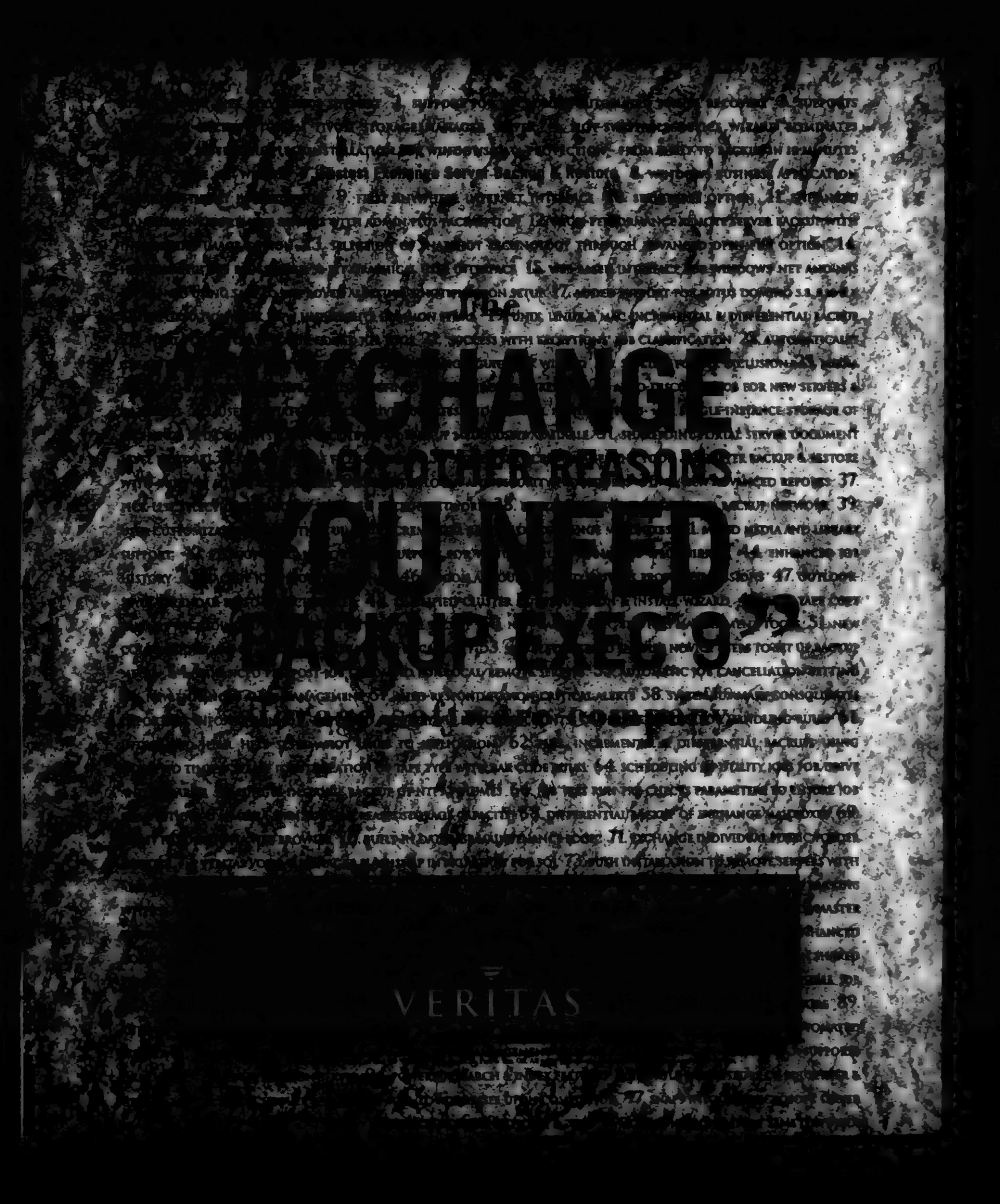

Users Tap Energy Management Systems to Reduce Power Costs

Analysts: Skyrocketing energy prices fuel increased interest in technology

BY THOMAS HOFFMAN

THE ENERGY CRISIS that hit California starting in 1999 drove companies such as Bank of America Corp. to install energy management systems designed to make their facilities more power-efficient. Now the 50%-plus jumps in energy costs in the Northeast and other areas this winter are expected to have the same effect.

Jill Feblowitz, an analyst at AMR Research Inc. in Boston, said catapulting prices for heating oil and other forms of energy give users more incentive to foot the bill for energy management software, which can cost $150,000 to $450,000 for an average installation.

Businesses that make use of such systems should be able to achieve modest cost savings, especially during peak energy demand periods, when utilities charge customers premium prices, noted Zarko Sumic, a Meta Group Inc. analyst based in Bellevue, Wash.

For Bank of America, that kind of promise was enough to justify an investment last year in a neural network-based energy management system developed by WebGen Systems Inc. in Cambridge, Mass. The Charlotte, N.C.-based bank is using the software to monitor and control energy consumption at 78 office buildings in California, where it has a substantial presence.

In the wake of the California energy crisis, bank executives wanted to reduce energy usage at the facilities and get a better understanding of how much power they consume, said Larry Larson, a senior vice president at Bank of America's San Francisco office.

Larson said the WebGen software interfaces with the bank's building management systems, letting facilities managers "float" heating or air conditioning to different temperatures in order to pare energy costs without making the offices uncomfortable for the buildings' occupants.

When it bought the software, Bank of America made a "very, very conservative estimate" that it could reduce energy consumption at the California buildings by 5% last year, Larson said. The bank surpassed that estimate and got a one-year payback on the software, he said, although he wouldn't disclose what it spent on the technology. Bank officials are now looking to use the system to help manage other buildings around the country, Larson added.

The California Department of General Services is another WebGen user. When the state's energy crisis began, "we were facing energy blackouts, and nobody knew what was going on," said Randy Ferguson, chief of energy management at the Sacramento-based agency. Reducing power loads was the top priority for state officials, Ferguson added. "Saving money was secondary at that point," he said.

But since the department began installing the energy management software at 65 state-owned buildings in August 2001 as part of a conservation program, power costs have been cut by up to 20% in many of those facilities, Ferguson said. He added, however, that it's tough to pinpoint how much of the savings is directly attributable to the software.

Meta's Sumic said other vendors that sell energy management software include The Trane Co., Honeywell International Inc. and Silicon Energy Corp., an Alameda, Calif.-based company that last month agreed to be acquired by Spokane, Wash.-based Itron Inc. [QuickLink 36314].

Energy Tools Head to the Classroom

After installing WebGen's software in late 2000 to help lower electricity usage, the University of Miami is now looking to take the technology to another level.

Victor Atherton, associate vice president for facilities administration at the Coral Gables, Fla.-based university, said the school is working to integrate the software with its classroom scheduling system and an application that automatically locks unoccupied rooms.

For example, intelligent agents in WebGen's software could scan the scheduling system to identify blocks of classrooms that aren't due to be used for an extended period, Atherton said. The software could then turn off the air conditioning in those rooms and restart it when classes resume.

Atherton said he hopes to have some level of integration in place within six months. School officials expect both energy and staffing savings. "Logic tells us that there's gold in them thar hills," he noted.

–Thomas Hoffman

ROI Report Urges Wary Approach to CRM Projects

BY THOMAS HOFFMAN

As IT managers consider which technologies to invest in this year, they should exercise caution with customer relationship management (CRM) projects but expect high returns on investments in business intelligence software.

That's the upshot of a report issued last week by Wellesley, Mass.-based Nucleus Research Inc. on the best and worst technologies for ROI this year. The report was based on a mix of user case studies and product road maps set by technology vendors, the firm said.

CRM software in particular was cited as a potential source of ROI danger, as it was in an earlier report that the market research firm released in September [QuickLink 32707].

The chances for companies to overspend "are greater with CRM" than with many other types of IT projects, said Ian Campbell, president and CEO at Nucleus. "Think of CRM as the Big Dig of the technology world — you can go way over your head," Campbell added, referring to a highway construction project in Boston that's years past deadline and billions of dollars over budget.

To avoid that scenario, Nucleus analyst Rebecca Wettemann suggested two rules of thumb when planning CRM projects: never spend more than twice what you paid for the software on consulting, and be sure to set project milestones that can be achieved within six months.

ROI Potential

While she's not convinced about the validity of those rules of thumb, Cathie Kozik, CIO at Tellabs Inc. in Naperville, Ill., said she agrees that IT managers should be cautious about CRM projects.

"I've yet to find a company that will acknowledge that they've achieved their expected ROI on any large CRM investment," Kozik said. "The most successful seem to have focused on delivering CRM functionality in meaningful pieces rather than going for a full-blown implementation."

For its part, Tellabs, a communications equipment maker, opted to take a step-by-step approach to CRM "after looking at wins and losses at other companies," she added.

Wettemann said there's strong ROI potential with business intelligence tools, especially as pressure mounts on data analysis software vendors to improve the usability of their products in anticipation of Microsoft Corp. making a bigger splash in that market.

There are also solid ROI opportunities for high-volume manufacturers that are considering using supply chain technologies like radio-frequency identification (RFID) tags to help manage product inventories and shipments more effectively, Campbell said.

But RFID costs are still high, Campbell added. As a result, it might be wiser for small manufacturers to invest in other tools "with an eye toward RFID in the future," he said.

Ron Fijalkowski, CIO at Strategic Distribution Inc. in Bensalem, Pa., said he thinks supply chain management technology in general "offers the best ROI given our current economic constraints, since it focuses on an issue with clear, measurable costs."

Strategic Distribution, a $300 million supplier of manufacturing maintenance and repair parts, is working to automate tasks such as the preparation of purchase orders, invoices and advance shipping notices, Fijalkowski said. But he declined to specify the software that it's using.

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Cell Carriers to Add Push-to-Talk Services

BY BOB BREWIN

The four top operators of national cellular networks in the U.S. last week all said they will offer push-to-talk services that make cell phones work like walkie-talkies, although their plans to do so remain unsettled.

Currently, Nextel Communications Inc. is the only U.S. carrier that supports push-to-talk technology, which lets cell phone users connect to one another by pushing a single button. AT&T Wireless Services Inc., Cingular Wireless, Sprint PCS Group and Verizon Wireless each disclosed plans to add similar services.

Spokesmen for Overland Park, Kan.-based Sprint PCS and Bedminster, N.J.-based Verizon Wireless said the two companies this year plan to introduce push-to-talk services on their networks, which are built around Code Division Multiple Access standards. But neither would specify a start date or identify the technology that will be used to make the services possible.

AT&T Wireless in Redmond, Wash., and Cingular Wireless in Atlanta indicated that they intend to support push-to-talk functionality via IP-based technology that's being jointly developed by Nokia Corp., LM Ericsson Telephone Co. and Siemens AG.

Group Effort

Nokia, Siemens, and Ericsson announced at last week's 3GSM World Congress conference in Cannes, France, that they're working together to define specifications for push-to-talk capabilities on Global System for Mobile Communications (GSM) networks.

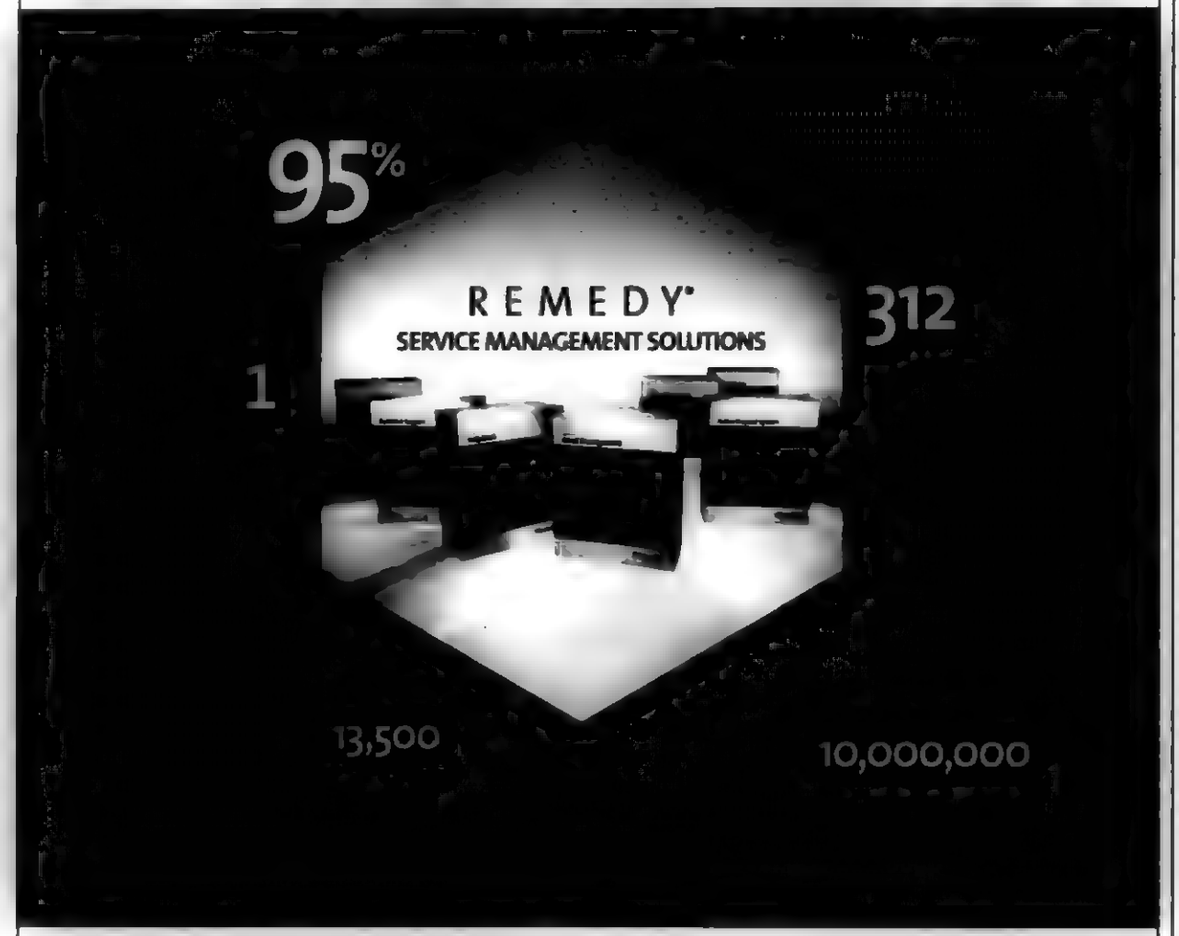
The three companies said they will use an IP multimedia subsystem created by the Third Generation Partnership Project mobile standards group for delivering integrated voice and data over GSM networks with General Packet Radio Service (GPRS) extensions. Push-to-talk users will be given IP addresses for their phones and must then program in the addresses of the users with whom they want to connect.

Trials of the GPRS push-to-talk service are due to start in the second half of the year, according to the three cell phone makers. But neither AT&T Wireless nor Cingular would say when they expect to start offering the service to their customers.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., called push-to-talk technology "a phenomenon like instant messaging that will drive wireless sales" to both consumers and corporate users. ■

Joris Evers of the IDG News Service contributed to this report.

Strength in Numbers.



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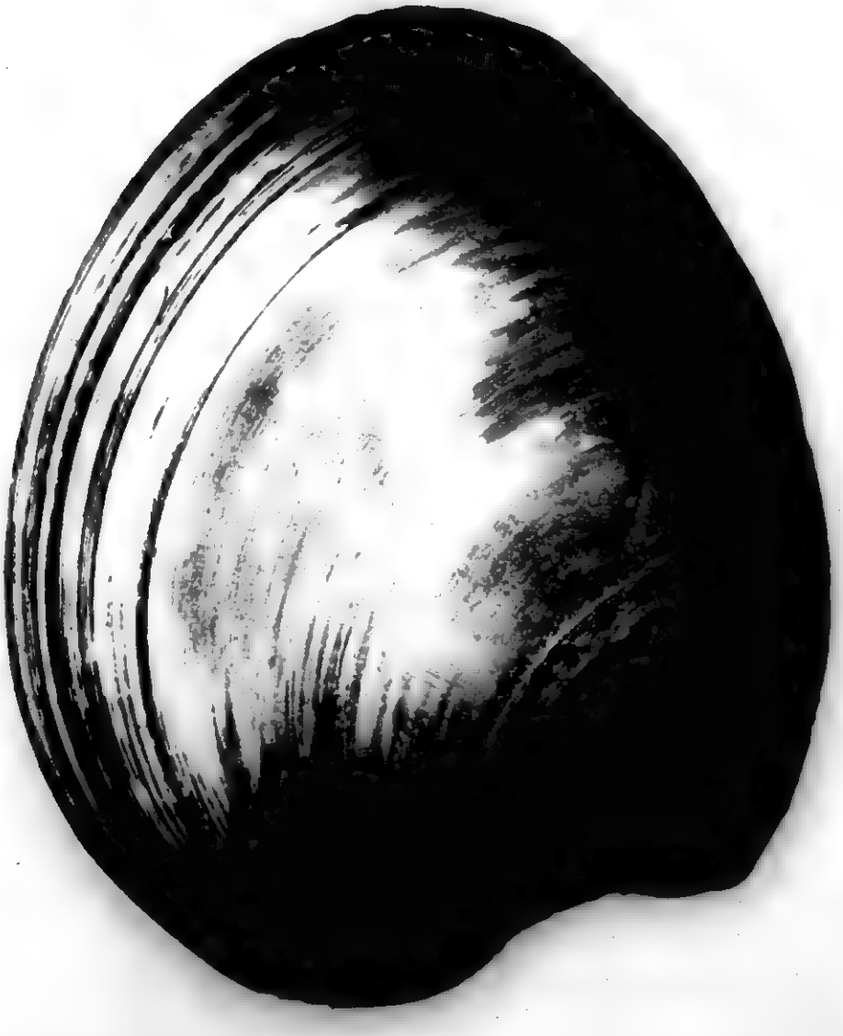
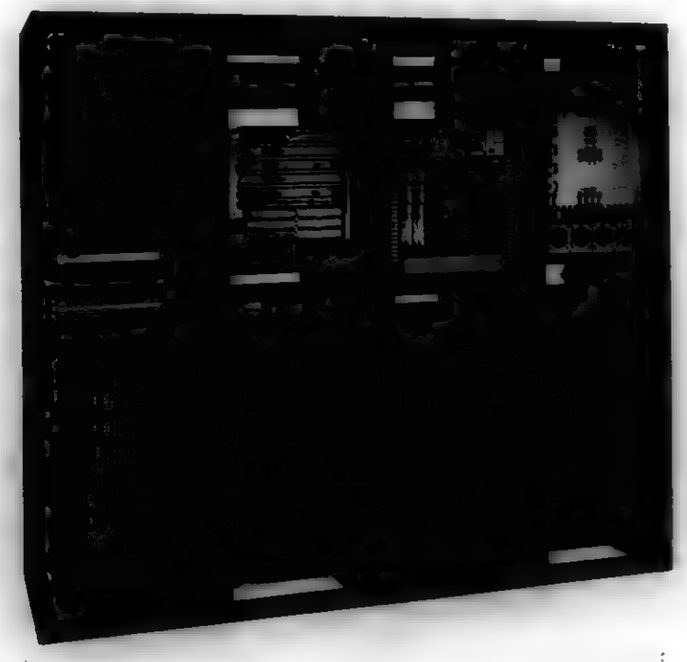


I AM A NETWORK.

I CAN TURN SHELLS INTO MEDICINE. I HAVE THE POWER TO MOVE CLINICAL TRIALS ONLINE SO NEW DRUGS GET TO MARKET FASTER. I HAVE THE POWER TO PROTECT A PATIENT'S PRIVACY. I CAN USE THE POWER OF E-LEARNING TO LET DOCTORS SHARE RESEARCH WITH OTHER DOCTORS. I THINK SHARING IS CARING. I AM MORE THAN A NETWORK.



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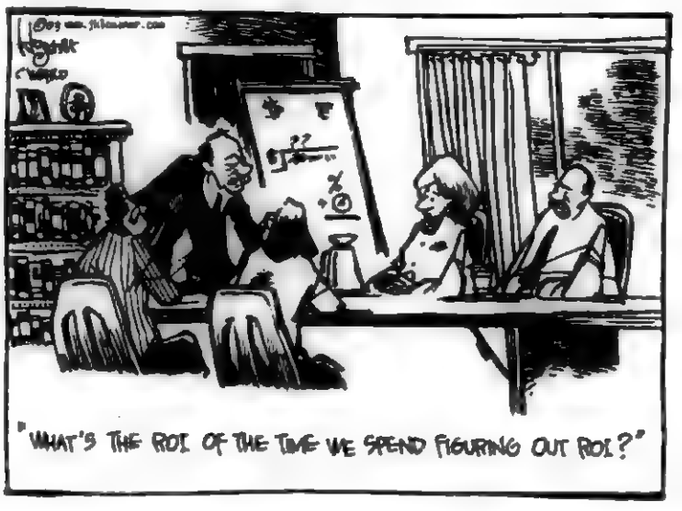

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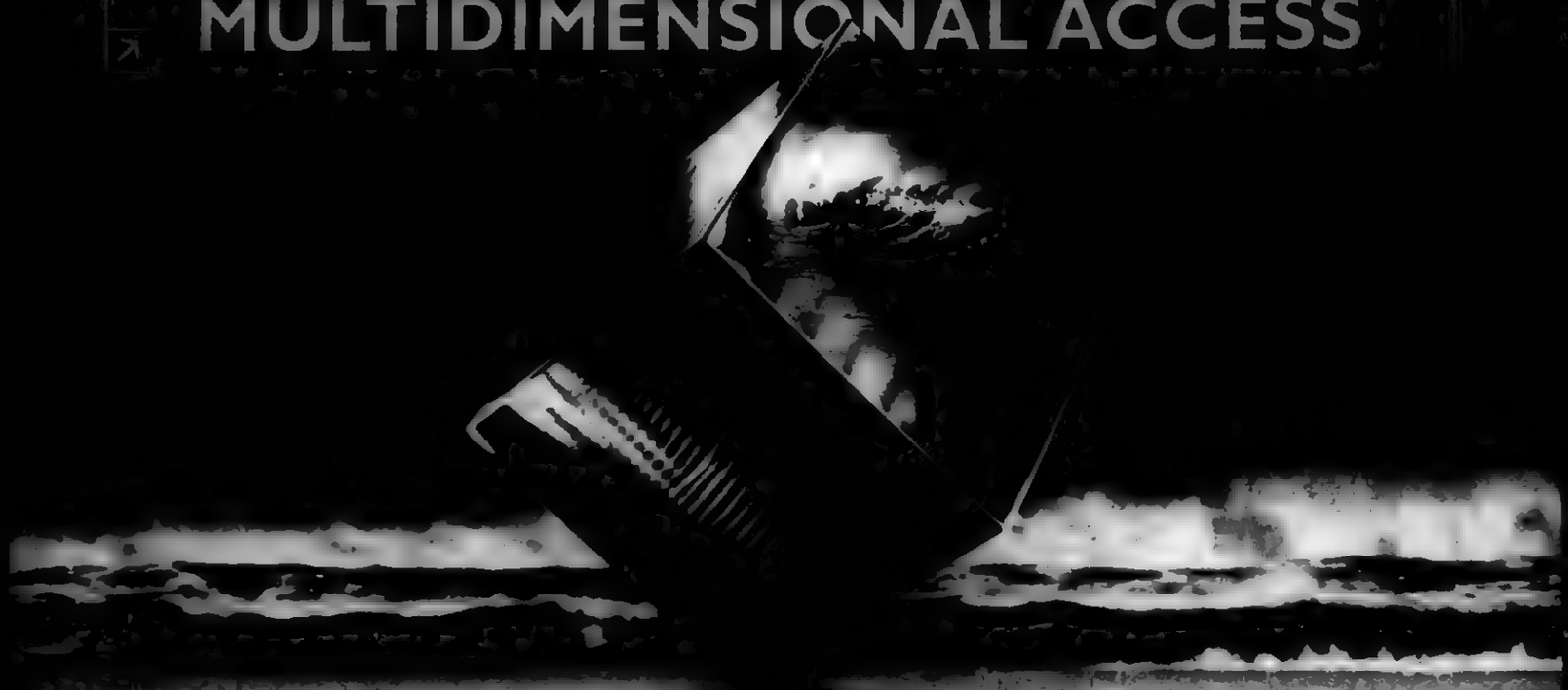

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Security Manager's Journal
A corporate merger forces Vince Tuesday to rearrange the IT security furniture as he struggles to integrate two different security environments — and rectify divergent security approaches. **Page 36**

Opinion
Tommy Peterson says a few small security steps by corporations can do more than grandiose government plans when it comes to reducing threats to the nation's Internet infrastructure. **Page 40**

QUOTE OF THE WEEK

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COLIN JOHNSON

Taming TEMP COSTS

Temporary-workforce management software and service offerings can cut the hassles and costs of managing contract staff. By Gary H. Anthes

DESPITE SPENDING $25 million a year on temporary workers, Carlson Companies Inc. was coming up short.

The hotel, travel and marketing company was working with a large number of staffing firms in hopes of maximizing choice and competition among suppliers. That didn't work out.

"Our spending was out of control, and we didn't consistently use processes that would allow us to know what we were using or where," says Gary Anderson, manager of enterprise supplier management at the Minneapolis-based company.

The $8 billion firm had 160 staffing companies on its vendor list, and it managed them and associated temporary workers through a hodgepodge of spreadsheets, e-mail and paper. "It was terribly labor-intensive and inconsistent," Anderson says. "The whole process left a lot of gaps."

Perhaps the biggest gap was in performance monitoring and management reporting. Carlson had no systematic or timely way to track the performance

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Taming TEMP COSTS

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of suppliers and to use those performance measures to negotiate better services and lower rates.

Servicing the Problem

Anderson found a better way, using a relatively new breed of software for contingent-workforce management. Packages vary in scope, but most combine procurement, human resources and analytic functions. In some cases, vendors sell the software itself, but more often they offer it as a service that includes features such as validating and paying vendor invoices.

Vendors and analysts say these tools can trim total outlays for contingent workers by 10% to 15%. Savings come from better rates and better services that the systems help users negotiate, as well as volume discounts through consolidated spending, tighter controls over procurement practices and reductions in administrative labor. In addition, the systems speed up procurement and improve the quality of the temporary workers coming in, some users report.

Carlson selected the clickXG service from Peopleclick Inc. in Raleigh, N.C. Peopleclick's "vendor management" product performs functions in the areas of job requisition processing, candidate tracking and management, time and expense tracking, vendor invoice processing, and reporting and analysis.

Carlson now monitors and manages its vendors with a rigor that would have been impossible before, Anderson says. The company has reduced its suppliers from 160 to nine and uses clickXG to review the suppliers and their account managers in 34 categories every six months. It also reviews all temporary workers every 90 days.

Anderson says the system is saving Carlson $1.5 million annually through rate reductions, volume discounts and incentives, and another $1.5 million in areas harder to quantify, such as training and testing tools that it used to pay for but now gets for free from staffing vendors. The savings amount to just over 10% of the company's budget for temporary workers.

Some of the basic features of temporary-workforce management systems, such as purchasing, time and expense reporting, and accounts payable, already exist in other enterprise applications.

TOOL TRADE-OFFS
Giga analyst Andrew Bartels sorts through the choices:
QuickLink 35861
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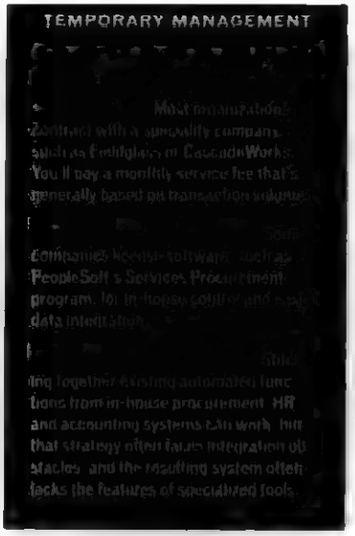
Luther Harris, professional and HR services procurement manager at Texas Instruments Inc., says an HR group at TI considered cobbling together existing in-house systems in order to manage more than $100 million a year in contract workers. But the company decided instead to go with the Clarity services procurement software from CascadeWorks Inc. in San Francisco.

"The HR approach would have been costly and wouldn't have had nearly the functionality we have with [Clarity]," he says. "It would have handled the HR side of contract labor, but it wouldn't have improved the procurement process."

Harris says Clarity is saving TI 5% to 8% annually on its contract labor costs by making it possible to gain tighter control over "maverick" procurements, negotiate bigger supplier discounts and channel requisitions to preferred vendors.



TI uses Clarity on a remote services basis, but a one-time investment is necessary to set that up, Harris says. His IT staff had to develop software to construct the data feeds that go to CascadeWorks, to build in internal security features and to build interfaces to internal systems such as TI's accounts payable system. But all that required only a three-month effort, he adds.

While Harris advises against having in-house systems do double duty for both contract and permanent employees, Health First Inc. in Melbourne, Fla., does exactly that. It uses Workforce Central time and attendance software and the Visionware productivity tracking system, both from Kronos Inc. in Chelmsford, Mass., to track permanent and contract nurses. Its procurement functions are mostly manual.

For some contract workers, such as clerical staff, Health First gets time and accounting data directly from the staffing agency. But the contract nurses are assigned employee badges and log in and out on Workforce Central. All resulting data — time, labor expenses and productivity — flows through the same systems as the data for the permanently employed nurses.

Finance staff at Health First use the Visionware product to monitor the productivity of both kinds of workers, says Cynthia Summers, senior HR information systems administrator. Being able to look at and compare metrics such as patient-to-nurse ratios for both types of worker, and doing so on a timely basis, is an important capability, she says.

Mixing Old and New

Two years ago, Verizon Wireless in Bedminster, N.J., selected the InSite "flexible workforce management" system from Fieldglass Inc. in Chicago. Verizon Wireless, which spends more than $100 million annually on contingent labor, is a PeopleSoft Inc. user, but PeopleSoft had no comprehensive product for temporary-worker procurement at the time, says Cheryl Rowden, director of IT finance.

InSite replaces inefficient and error-prone procedures driven by e-mail, phone calls and paper. It creates worker requisitions for hiring managers, circulates them for approval and then sends them to staffing companies. It routes the resulting bids — there must be at least three — and résumés back to the appropriate departments at Verizon Wireless. When the selected workers arrive, they are issued passwords so they can enter their time into InSite.

Verizon managers approve the resulting electronic time sheets and InSite sends them back to suppliers, who use them for billing. The electronic billing is routed for approval, before being uploaded to the PeopleSoft accounts payable system. Just the automation of the invoice payment process — for some 500 invoices a month — is a tremendous benefit, Rowden says.

The system saved Verizon Wireless some $6 million last year by eliminating overbilling, reducing overtime and unauthorized spending, and making bidding more competitive, she says. Those savings don't include efficiency gains that resulted from "replacing a whole lot of people and a whole lot of paper," Rowden adds.

The Temp Management Toolbox

Many vendors have introduced comprehensive contingent-workforce management systems for procuring, managing, analyzing and paying temporary workers.

Prominent vendors include the Chilnes subsidiary of Computer Horizons Corp., White Amber Inc., CascadeWorks, Peopleclick, Elance Inc., RWInterglobe Inc., Volt Information Sciences Inc., Evolve Software Inc., WorldwideLogic Inc., and The WorkCard Co.

But the features and capabilities differ greatly. Some include HR functions that go beyond those needed for temporary workers, and some support procurement of services besides contract staffing. Products also differ in the kinds of contract arrangements supported. The simplest are geared to time-based charges, but some also support fee- or deliverable-based billings.

Among mainstream enterprise resource planning (ERP) vendors, PeopleSoft and Oracle Corp. offer software designed for contingent workers, but the tools lack many features of the specialized packages.

Ariba Inc., Commerce One Inc. and a few other ERP vendors have products for purchasing, but they're geared more to the procurement of physical goods and are less suitable for managing contracts and workers over time. Ariba, however, has a reseller agreement with CascadeWorks for its Clarity software for services procurement.

According to Andrew Bartels, an analyst at Giga Information Group Inc., the vendors with the most comprehensive offerings generally are the smaller, newer and potentially less stable ones. "At present, companies that want the most comprehensive solutions may have to accept some risk around vendor viability," he says.

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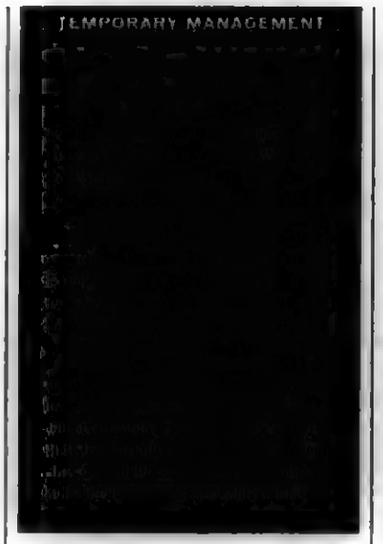

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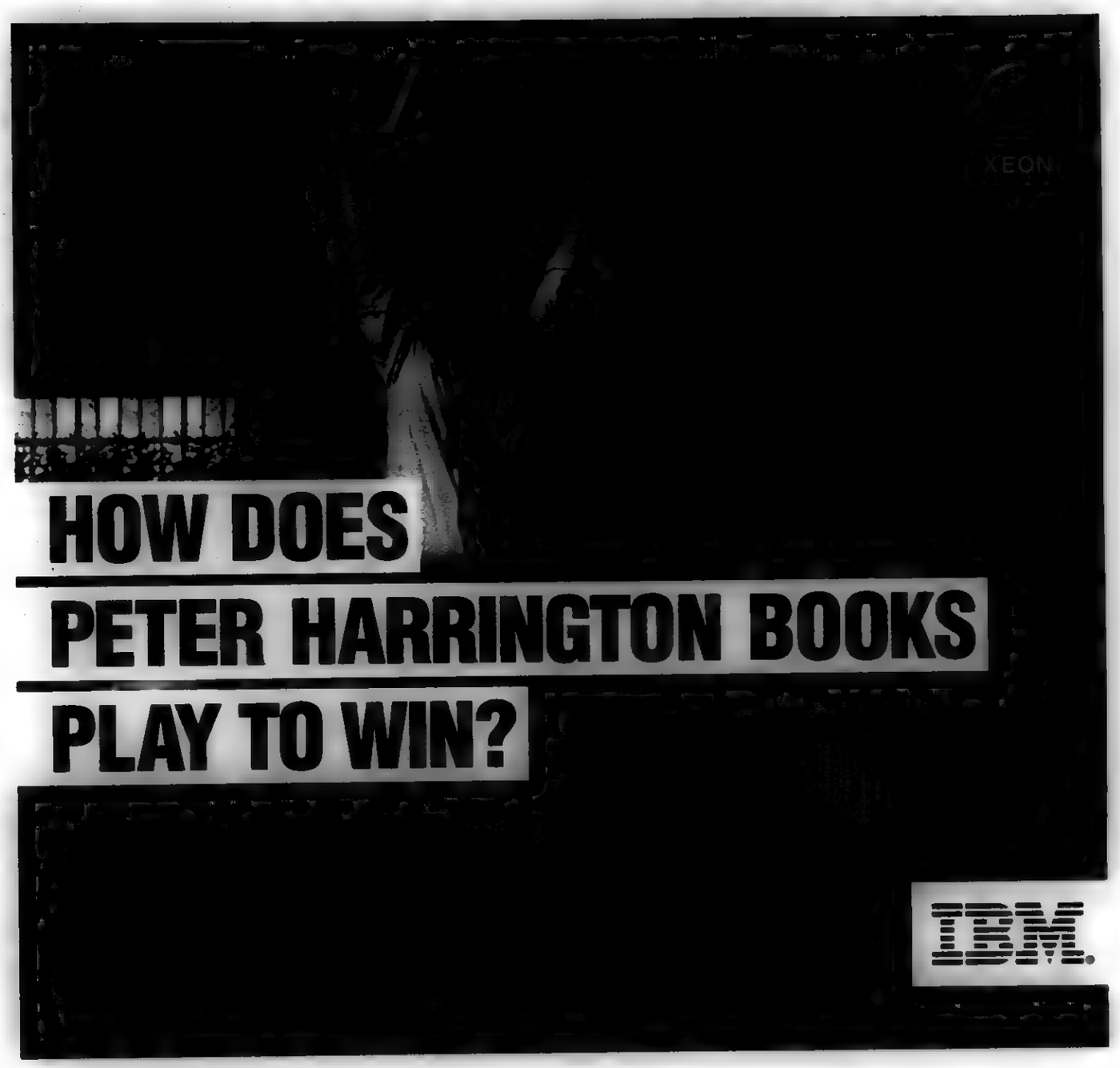

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THE DATA BUILDS THE PRODUCTS

Product life-cycle management tools can speed development times and cut costs, but deployments are by no means easy. By Jaikumar Vijayan

ITT FLUID TECHNOLOGY has been working on a project to support the global sharing of design, engineering, manufacturing and other product-related information among its various operations. The initiative, part of a wider effort to implement a "design anywhere, build anywhere" capability, should also let the manufacturer sell, service and integrate its parts everywhere, says global products and data manager Ron Watson.

The White Plains, N.Y.-based subsidiary of $4.7 billion engineering conglomerate ITT Industries Inc. is one of many manufacturers turning to product life-cycle management (PLM) tools to improve manufacturing efficiency, product quality and time to market.

The systems let different groups exchange and collaborate on product-related images and data in real time, both internally and with outside suppliers and customers. To do this, the systems must gather and integrate data from sources ranging from design and engineering systems to manufacturing and field operations.

A wide variety of collaborative products fall under the PLM umbrella, including product data management technologies that integrate data from bill of material, computer-aided design (CAD), change management and enterprise resource planning (ERP) systems; configuration management systems that validate product configurations and link product specifications with engineering modules; and maintenance, repair and overhaul modules that link field services systems with change management and engineering.

While the benefits of linking such systems can be enormous, organizations that have launched PLM projects caution others to prepare for process and procedural changes, cultural issues and implementation challenges.

> **PLM software can be buggy, it could require extensive programming to deliver, and it may not enable compliance with government requirements.**
>
> ERICA RUGULLIES, ANALYST, GIGA INFORMATION GROUP INC.

Because PLM systems are cross-functional in scope, installing one is often more difficult than companies anticipate, says Erica Rugullies, an analyst at Giga Information Group Inc. in Cambridge, Mass. The integration work involved in tying together disparate systems is substantial, she says.

"Companies can go about this in a few ways," Rugullies says. "They can look upon this as a huge project that requires extensive integration, software dollars and a number of players in different roles, or they can go after a specific business problem, such as finding a new way to effectively share digital data." But in either case, users should fully understand the issues involved in planning and deploying a PLM system, users and analysts say.

Upfront Issues

First and foremost, PLM products are still maturing, so the risk is that the software won't always live up to expectations. "PLM software can be buggy, it could require extensive programming to deliver the needed functionality, and it may not enable compliance with government requirements," Rugullies says. She recommends conducting a proof of concept before purchasing a PLM tool and budgeting time for troubleshooting and implementing fixes.

In addition, a full-fledged PLM project can be nearly as complex as rolling out an ERP system, so knowing upfront what value you want to get out of it is vital, says Marc Hendrickson, a Detroit Lakes, Minn.-based design documentation manager at Team Industries Inc., a manufacturer of powertrain and chassis components. Only then is it possible to know what information in a product's life cycle needs to be captured, how to manage it and what kind of workflow and decision-making processes need to be implemented. Team Industries uses Parametric Technology Corp.'s (PTC) Pro/Engineer CAD and Pro/Intralink data management software to tie data from its parts-development process to shop-floor data. In doing so, Hendrickson says he hopes to improve quality, parts reuse and time to market.

Setting the right scope is important, says Jim Heppleman, chief technology officer at PTC, a Waltham, Mass.-based vendor of PLM software. For instance, if the business goal is to reduce time to market, the project emphasis should be on enabling capabilities such as rapid digital prototyping

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GIVEN THE COMPLEXITY of the typical product life-cycle management (PLM) project, selecting the right product is key, say users and analysts.

Tim Behr, manager of technical development at New Balance Athletic Shoe, says that when his company started investigating PLM, it had no idea where to begin. So Behr and his associates visited eight companies that were implementing PLM technology and spent hours speaking with their peers about implementation issues and product options.

After narrowing the field to two, Behr's team attended each vendor's introductory training session to get a feel for the technology before making a final selection.

This kind of extensive assessment is especially important given that a slew of vendors are rushing products to market. The more well-known players include PTC, Electronic Data Systems Corp., IBM, MatrixOne, Agile Software Corp. and Eigner. ERP vendors such as SAP AG are also extending their technologies with PLM features.

There is no "right" PLM product that fits the bill for all users, says Ron Watson, global products and data manager at ITT Fluid Technology. Rather, product choice should be dictated by your current environment and needs. "It's easy to make a wrong choice," he says.

In ITT's case, Watson ultimately decided to go with Parametric Technology Corp. (PTC) because his company was already using PTC's Pro/Engineer software for its design work. That choice avoided interoperability problems, he says.

In the end, a product that is compatible to your processes is ideal, adds Erica Rugullies, an analyst at Giga Information Group. Otherwise, users could end up spending a lot of time customizing their software to make it fit in their environments, she explains.

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THE DATA BUILDS THE PRODUCTS

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and product bill-of-material management, Heppleman says. Similarly, if the goal is to increase product standardization, the focus might be on improving configuration management or on design reuse, he adds.

It also helps to have standard tools and interfaces when creating and sharing a single view of enterprise product data, says ITT's Watson. ITT is linking and integrating product design and engineering data across several manufacturing operations. To facilitate the process, ITT standardized on PTC's Pro/Engineer software for creating product design data and on Pro/Intralink to share data between sites.

Using a common software platform reduces the complex integration and data translation issues that are otherwise involved, he says. Using standardized tools can also result in better design integrity and reuse and lead to better sourcing and material management processes, Watson adds.

Taking Small Bites

When planning a deployment, don't bite off more than you can chew, warns Hendrickson. "In a small organization where resources are limited, it might make the best sense to take a phased approach," he says.

His company adopted a three-phase approach to implementing PLM. In the first phase, he "nailed down" the company's parts-development process in order to determine what type of data he needed to capture and when. (Team Industries has identified 50 separate data points as a result of this exercise.)

Team Industries is now in the second phase: tying the data to information generated on the manufacturing floor. In the third phase, it will integrate that data into the company's manufacturing resource planning system.

Customizing packaged software to fit specific business needs can also be a problem. New Balance Athletic Shoe Inc. in Boston is using PLM products from MatrixOne Inc. in Westford, Mass., to improve the effectiveness of its product development and procurement process and to make collaboration with international partners easier.

But New Balance has had to customize the software "a little more than we wanted to," says Bill Armelin, the shoe company's business systems project leader. For example, some procurement forms that the PLM system generated were different from what internal teams were used to, even though users input the same data. Similarly, what internal design teams refer to as a "specification sheet" appears as a bill of materials function in the PLM suite.

Be prepared to tweak your processes to avoid software customization, says Hendrickson. Team Industries changed its parts-numbering process and revisioning scheme to better use the capabilities of the PLM suite it's rolling out.

Getting users to adopt PLM systems can also be a challenge. "One of the things we noticed is that if you try to do too much right out of the box with a system like this, it is too much of a culture shock," says Tim Bahr, manager of technical development at New Balance.

Getting nonengineering people to use PLM systems can be especially challenging, so it's important to spend time explaining and demonstrating the value a PLM system can bring to the different business units, adds Watson.

His group conducted road shows at several ITT manufacturing facilities to demonstrate the value of the PLM system. But even with those efforts, Watson says that "only a very small percentage of people . . . really believe they need this stuff."

Equally important is the need to get user feedback and include that in the requirements-gathering process, says Rugullies. Putting PLM training groups in the middle of the units that are most reluctant to adopt PLM may also pay off, she suggests.

Ultimately, getting PLM right is as much about setting the right expectations as it is about the implementation, says Frank Azzolino, president of Waltham, Mass.-based PLM vendor Eigner. "This is an industry that has historically overpromised but underdelivered," he says.

EXTENDED INFLUENCE

Industry forces are driving PLM well beyond the engineering department:

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ITT'S SINGLE-POINT PRODUCT DATA VISION

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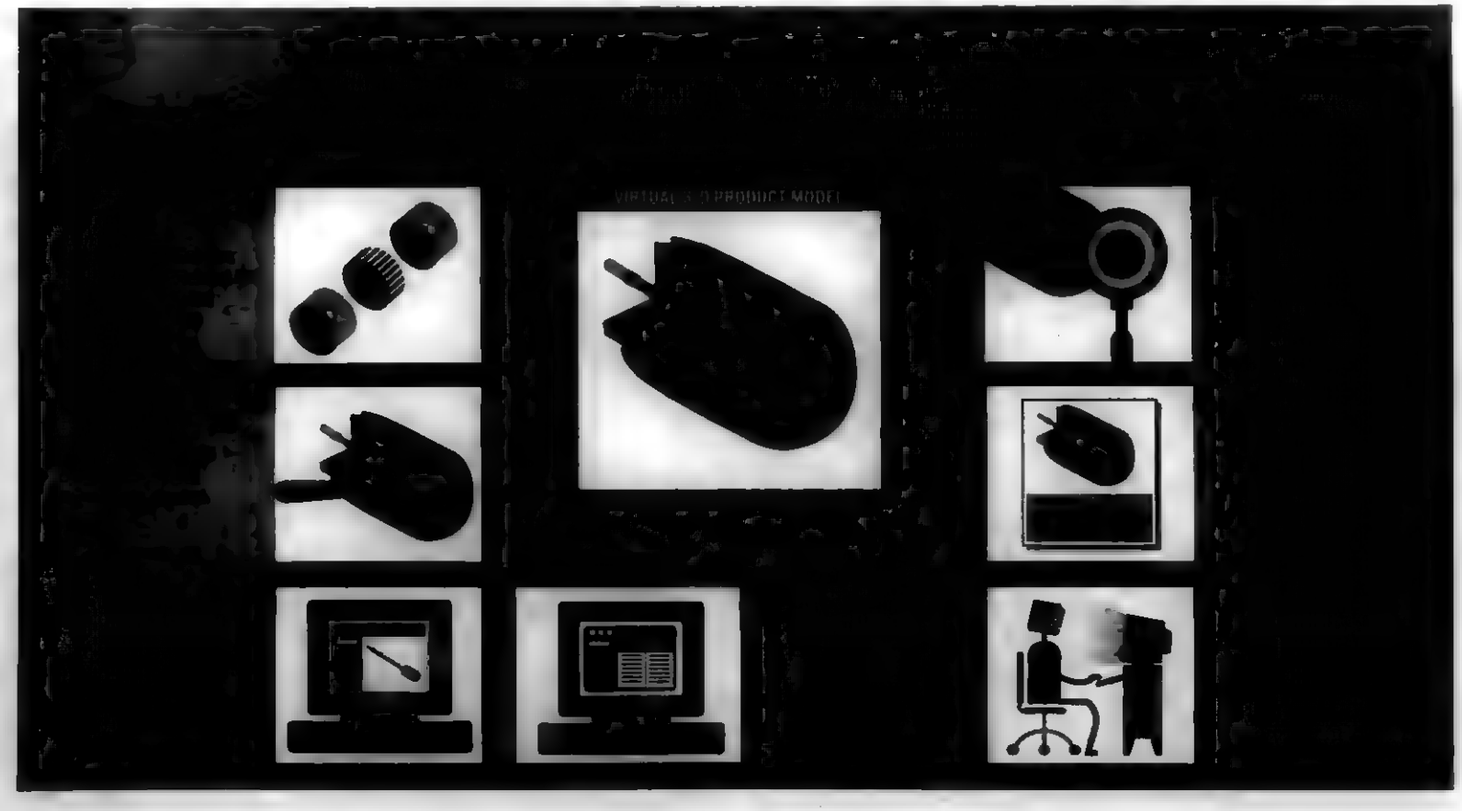

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Corporate Addition Means Reduction in IT Security

A merger blurs security objectives as culture, policies and systems begin to be assimilated. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

MY COMPANY recently merged with another financial services firm, and now the boundaries we worked so hard to build have to be torn down and rebuilt. We're under significant management pressure to quickly enable communication and information-sharing between the organizations. But we must also maintain the integrity of our IT security infrastructure, all the while merging two cultures with different IT security priorities.

We can't even decide where to build the walls, let alone how high they should be. We need to have all the normal working systems linked together.

The initial Phase 1 priority is e-mail, followed by file sharing. In Phase 2, we'll replace these linked systems with new companywide systems.

Given that our companies have different approaches to IT security, what should the newly formed organization incorporate as its new methods? And how much time and money should we spend protecting the links between systems if in Phase 2 we'll just throw away those links, along with the systems they connect?

Coordinated Response

To clarify my team's response, I spent a day with my other half, the acquiring company's head of security, whom I'll call Joe. He has no staff — his organization outsources everything to a large managed-services provider.

My team acts as the services company to our business groups. Joe is a business-oriented customer of the outsourcer. My security group has an informal relationship with the business teams that are our customers, but we also have a clear responsibility to be flexible to their needs. Joe's firm has a formal service-level agreement (SLA) with the services company.

Unfortunately for Joe, security isn't a detailed part of the SLA, and he doesn't receive data or reports about security events. His costs are much lower, but he can't be sure of the service he receives. This sounds bad to me. Then again, perhaps I'm a control freak who enjoys the depth of data I have at my fingertips, giving me the ability to track our company's security posture. But at least his SLA covers patch deployments. Some outsourcing contracts I've heard about don't.

Joe is new to security. His background is in commercial management and general IT team leading. I come from a technical security background, so I have nearly 10 years of experience with the nuts and bolts.

> **I must balance the need to avoid compromising our protection against leaving our new insiders feeling as though they are untrusted.**

Our reporting lines also differ. Joe has a nominally more senior position in his company, but with no budget and no staff, he feels somewhat ineffectual. He has requested that we help him apply some of the facets of our resolutely practical approach.

As the merger proceeds, we are organizing into three business units. My company is one of these, and my team will continue to protect that unit. I'd like to make a bid to bring security services in-house for the other business units, but now is not the time.

There's also the risk that the new, larger company will standardize on outsourced service for security. But they don't seem happy with the quality of the service they've been getting, so my team has a good opportunity to prove itself.

Redrawing the Borders

For now, we communicate between business units using a new set of e-mail addresses. We all still have our old e-mail addresses, however. When we use our new ones, the e-mails are routed to a central point and then fan out to the correct company server. That sounds fine, but it means that if I want to send a confidential e-mail to the person sitting next to me and I use their new address, it travels over the Internet to the other company, which holds the master list, and then back to our company. Not only is this slow, but it also exposes e-mails to the threat of interception in transit or while waiting on the Internet service provider's e-mail servers.

The fix is to directly connect our networks and link e-mail servers within the company, but that takes time. In the meantime we could deploy a virtual private network, but we would face extra costs and interconnection issues. Instead we have turned to the perfect feature within e-mail servers: transport layer security (TLS) and the Simple Mail Transport Protocol (SMTP).

These Internet e-mail standards are simple but secure extensions that provide for the integrity and confidentiality of e-mail messages in transit. SMTP and TLS support is included in all major e-mail transport products, including sendmail and Exim, both of which are freeware. With just a few lines of configuration changes, all of our e-mail transfers between e-mail servers in the organizations are protected. There's no required change to client software and no cost involved.

This can also work with other e-mail servers outside our company. If any other e-mail server on the Internet is configured to turn on TLS, then all the e-mails we send to them will also be protected.

So why doesn't everyone use this feature? Why not indeed! I recommend asking your e-mail team whether they have enabled it.

Next I'm going to work on linking our systems. I must balance the need to avoid compromising our protection against leaving our new insiders feeling as though they are untrusted.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum.

QuickLink: a1090

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

A look at [illegible] by Paul [illegible] and Richard [illegible]

[illegible] comprehensive security reports on a variety of the key issues for successful businesses. It covers the basics of law, offers tips about the best way to approach this kind of work, and includes reports by technical experts.

I found this book an enjoyable and informative read. Even if you don't need to prepare to give expert testimony, the skills taught in these pages can be helpful if you have to present information in any high-pressure environment, such as a meeting of your board of directors.

—Vince Tuesday

Aegelin VPN Upgrade

Aegelin Ltd. in Boston has announced availability of Version 3.0 of its Aegelin Everywhere Secure Socket Layer virtual private network software. The software supports access to Web, Windows Terminal Service and Unix terminal sessions and uses network security by user and location. Pricing starts at $49,995.

NAI Launches Forensics Tool

[illegible], a [illegible] security software firm in Dallas, [illegible] unit of Network Associates Inc., has released [illegible] software that [illegible] and [illegible] computer forensics and [illegible] security problems. The software [illegible] tools for [illegible] and [illegible] a PC hard disk drive or [illegible] network, according to NAI. Pricing for [illegible], which ships in the third quarter, starts at $995.

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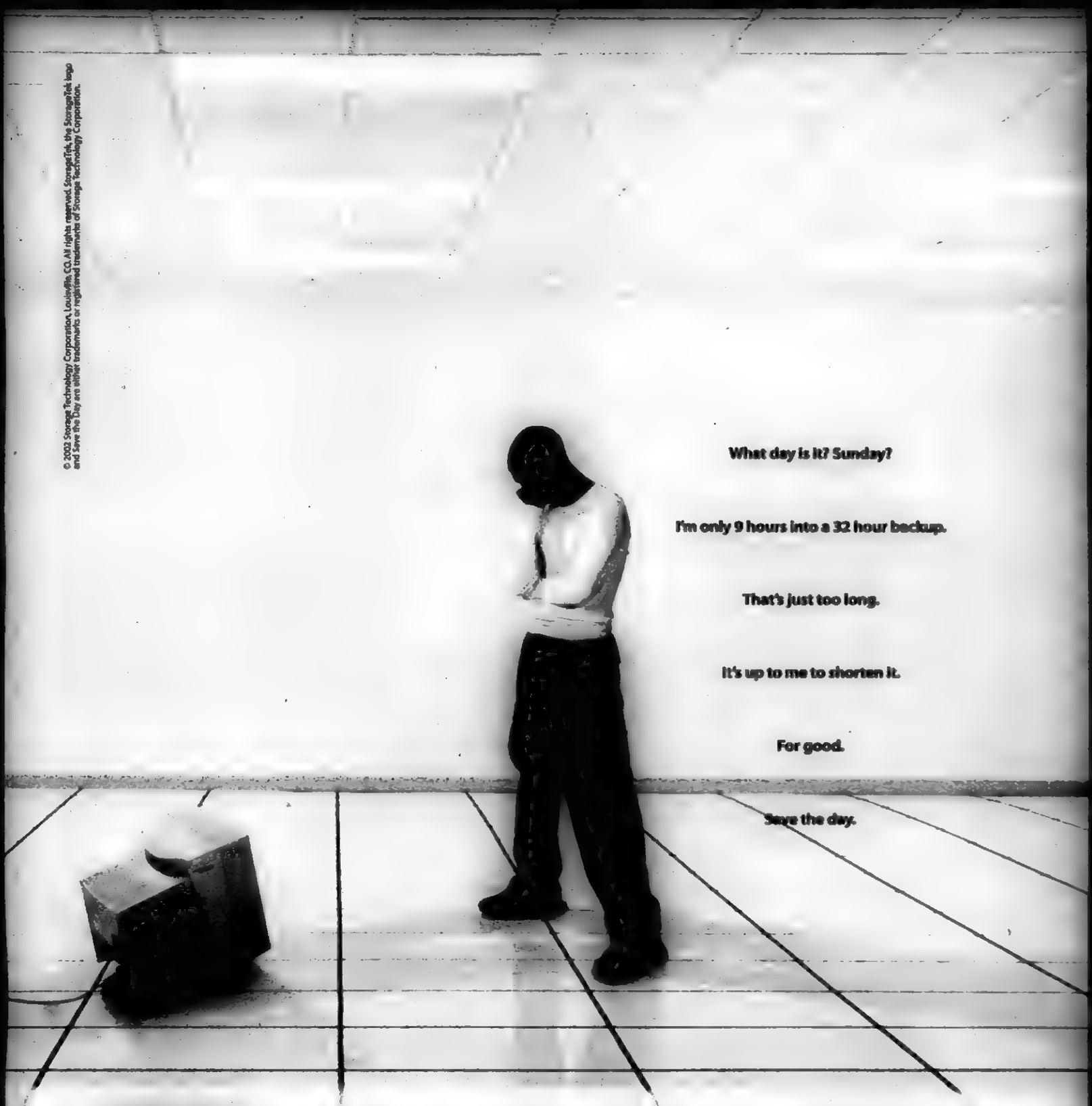

What day is it? Sunday?

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That's just too long.

It's up to me to shorten it.

For good.

Save the day.

BladeStore

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Tivoli GM Explains IBM Unit's Move to J2EE

BY SAMI LAIS

Robert LeBlanc *was named general manager of IBM's Tivoli Software unit in June 2001. In the past 18 months, Tivoli has reduced its products from 150 to 50, and it's currently rewriting the architecture of its flagship Tivoli Enterprise framework in Java 2 Enterprise Edition (J2EE). LeBlanc recently talked with* Computerworld *about Austin, Texas-based Tivoli's future.*

What's happening with research and development? We have a major effort going on, rebuilding our architecture based on J2EE. The storage products are being built on J2EE now, and we'll be moving our more traditional products onto it over time. We haven't announced it yet, but we have an internal road map we're sharing with some customers. We want to be sure there won't be problems with it.

The biggest customer concern is going to be migration: Will they have to? Will they be able to get help? Will it cause problems for them? We're working to ensure there won't be problems; we have a customer architecture board to be sure we get their input.

Is Tivoli's change to a J2EE architecture being made in order to fit in better with IBM's Web services push? It's the right thing for Tivoli. We get a leading-edge technology and a more flexible architecture. It's Web-enabled and will improve performance. And [IBM's] WebSphere is in 50,000 shops. That's a strong presence, and it's been around for awhile, so it's pretty robust. And it means that we can take advantage of that rather than have an architecture built for Tivoli by Tivoli.

Where does Tivoli fit in IBM's storage strategy? What we're focused on is managing storage as a resource — monitoring performance, allocation of resources across heterogeneous storage devices. We acquired TrelliSoft to automate procedures and policy. For example, you may have a policy of no MP3 on corporate storage. You can automatically remove those files.

By knowing the details of your utilization, you can maybe migrate onto cheaper off-line storage or eliminate some storage entirely. ▸

Lais is a Computerworld *contributing writer. Contact her at sami_lais@computerworld.com.*

TIVOLI'S FUTURE
To read the full interview with Robert LeBlanc, visit our Web site.
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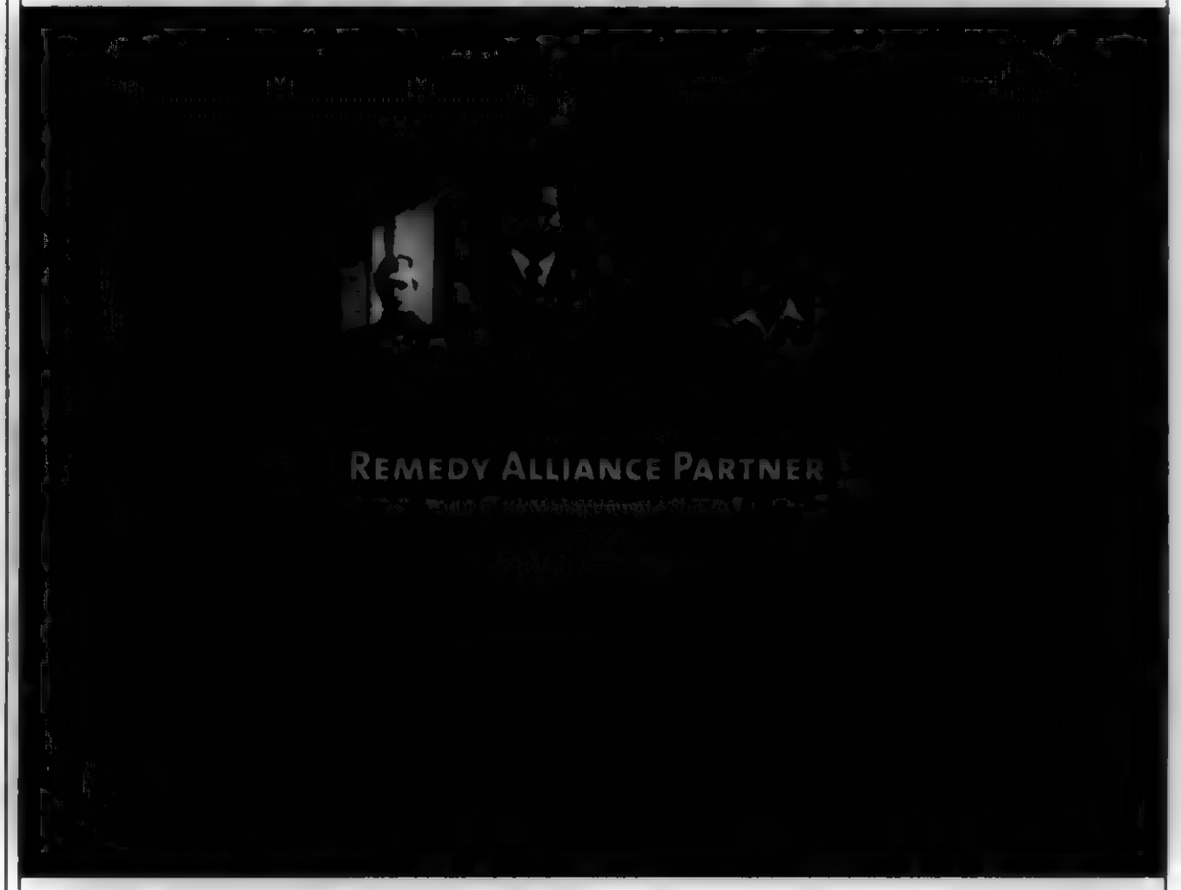

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BRIEFS

Appliance Boosts WAN Capacity

ITWorx Inc. in Burlington, Mass., has begun shipping NetCelera, a WAN capacity-expansion appliance that uses compression to provide up to a tenfold increase in network capacity. It operates on connections from 64K to 45M bit/sec. over private lines, frame relay, Asynchronous Transfer Mode or satellite links, and it works with virtual private networks. Application pricing starts at $2,500 per site.

XML Development Tools Launched

Swingtide Inc. in Portsmouth, N.H., has released software and services designed to help developers with XML standards interoperability issues. QoS Assistant is a knowledge base and XML project planning tool that sells for $14,995. Swingtide also offers three-day technology sessions that leverage its tool.

GIPS VoiceEngine Gets Upgrade

Global IP Sound AB has released GIPS VoiceEngine 1.1, a new version of a software plug-in with an application programming interface intended to improve sound in voice-over-IP applications. In addition, VoiceEngine 1.1 supports integration of encryption algorithms, includes a statistics generator for network management, and features improved port handling.

Messaging Suite Migrates to AIX

U.K.-based Gordano Ltd. has announced a version of its Global Messaging Suite for the AIX operating system. The new release includes e-mail, instant messaging, Short Messaging Service, shared calendars, antispam and antivirus capabilities and database-driven mass-mailing facilities. Pricing starts at $835.

TOMMY PETERSON

Making a Federal Case Out of IT Security

WHEN THE BUSH ADMINISTRATION a few weeks ago raised the country's terrorism alert status to Code Orange and prescribed that citizens gather supplies for a potential emergency, most of us armed ourselves with jokes about plastic sheeting and duct tape rather than addressing the problem. For people who, like me, are old enough to be children of the Cold War, the warnings were a little too reminiscent of fallout shelters and "duck-and-cover" drills to be taken entirely seriously.

In my high school, those civil defense posters bore a final, hand-scrawled direction right after the instructions to get under your desk and put your head between your knees. It read: "And kiss your butt goodbye." Youthful sang-froid aside, it's not that we weren't jittery then; we were, just as we are now. But gallows humor seems to be the only sane response to earnest survival advice that's obviously inadequate for the threatened catastrophe.

Not so humorous but only a little more reassuring is the strategy for protecting cyber-based critical infrastructure that was recently released by the Department of Homeland Security (DHS).

The DHS report delineates the need for a "panoramic vantage point" of the Internet to create a "synoptic or holistic" view of cyberspace. The aim is to locate that vantage point within the sphere of the DHS, the better for the agency to protect us all.

The impulse is understandable, but I wouldn't count on it happening anytime soon. Corporate IT users are struggling mightily to get views of the circumscribed landscape of their own networks. And there's no shortage of vendors that claim to offer some variety of end-to-end monitoring or management function to their customers, suggesting that the need, and therefore the market, for such capabilities is real. Why do I sense that it's going to be even tougher for a gargantuan government bureaucracy, with considerable but uncoordinated resources, to achieve a panoramic view of a global network of largely unrelated nodes?

To complicate matters further, Howard Schmidt, acting chairman of the President's Critical Infrastructure Protection Board, says the DHS will encourage the private sector to use diverse networking architectures and service providers as a way to limit the risk of a massive, debilitating cyberattack.

The size and complexity of the DHS's mission undermine confidence that it can keep the critical infrastructure secure — as does the suspicion that the agency won't be nimble enough to stop the inventive freelance crackers out there, let alone committed lunatics who are out to do more than mischief.

But the DHS could help by using its bully pulpit to persuade corporate managers to get more aggressive with their own IT security. The federal government has thus far been hesitant to force private companies to improve security, and it's clear that the carrot of tax breaks will be considered before the stick of regulation is raised.

What's hard to figure out, given the stakes, is why companies don't do more without any urging. It's not as though bolstering the security of their networks would be an altruistic gesture — corporations lose billions of dollars each year because of security breaches.

And it's not a matter of waiting for technology that works or figuring out what to do. One frustrated IT manager I talked to recently, who asked not to be identified for obvious reasons, said he thinks he could make his company 80% to 90% more secure with the tools already in place if he had the authority to enforce policies that already exist.

Here are a few steps — you've heard them all before — that should be taken at every company now:

- Track vulnerabilities and install available patches promptly. Security vendor Symantec said recently that the number of reported vulnerabilities among its customers was up 81% in 2002 over the previous year.
- Insist on strong user authentication and access-control policies and technologies.
- Use up-to-date antivirus software.
- Install and maintain properly configured firewalls.
- Deploy intrusion-detection software that allows you to define the rules for alerts.
- Monitor activity logs carefully and consistently.
- Protect the data center by establishing programming policies to minimize those old bugaboos, buffer overflows and format string errors.

If companies took these obvious steps, they would make themselves and the economy more secure and provide building blocks for an overarching cybersecurity strategy. By themselves, these steps won't make our critical infrastructure safe, but they're a start. And getting them done would beat the heck out of stashing duct tape, plastic sheeting and a few cans of Dinty Moore in the basement.

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MANAGEMENT

02.24.03

Into Thin Errors
Cardinal Health Inc. moved its warehouse from a paper-based to an automated system, achieving 10% productivity gains while also reducing order entry errors. **Page 44**

Speeding Check-in
Delta Air Lines installed hundreds of self-service, check-in kiosks at airports across the country to reduce the amount of time travelers spend waiting in line. **Page 48**

QUOTE OF THE WEEK

"We built a unique application development framework that comes as close to the developers' Holy Grail as possible."

– Alan Boehme, former e-technology CIO at GE Power Systems. Page 51

EDITOR'S NOTE

WILLIAM RIEBEN

USER BUY-IN. It's the factor that decides project success above all other measures. And it's something our Best in Class leaders know plenty about.

At Celanese Chemicals, a sales force "addicted to e-mail" didn't get excited about a new mobile platform until William L. Schmitt integrated their e-mail (page 47). At Office Depot, David Guzman tapped into users' competitiveness by using a new data warehouse to generate a report showing the sales performances of stores and employees. He knew the project had succeeded when he saw the report tacked up in an employee break room (page 46).

These projects had many success factors, including fresh ideas and solid business goals. But their *x* factor was the IT leaders' ability to get users excited about the technology.

For the second year, *Computerworld* honors such leaders and their companies with the Best in Class awards, culled from the projects of our 2003 Premier 100 IT Leaders.

Special thanks to our judges: Charlie Feld, founder, CEO and president, The Feld Group; Cathy Hotka, principal, Cathy Hotka & Associates; Priscilla Tate, executive director, Technology Managers Forum; Thornton A. May, futurist; and Bart Perkins, co-founder, Leverage Partners Inc.

We hope tips from these 10 award-winners will help you succeed with your own IT projects.

— Ellen Fanning

BEST IN CLASS

COMPUTERWORLD PREMIER 100 IT LEADERS 2003

BEST IN CLASS

COMPUTERWORLD PREMIER 100 IT LEADERS 2003

AUTOMATED WAREHOUSE REDUCES ORDER ERRORS

BY PATRICK THIBODEAU

CARDINAL HEALTH INC.'S warehouse automation project was big, but then, so is the company.

Dublin, Ohio-based Cardinal employs more than 50,000 people and has revenue of more than $44 billion, and its catalogs have hundreds of thousands of products. The company supplies medical equipment to hospitals and doctors worldwide through the warehouses operated by its Medical Products and Services group.

Before the automation project began in 1997, customer order accuracy was estimated to be 99% — a solid figure. But that level of accuracy still meant that there could be as many as 10,000 errors per million shipments. The company's paper-based system didn't allow precise measures. "There weren't a lot of ways to measure defects, productivity," says Richard Gius, Cardinal's senior vice president for IT.

That changed with the Automated Inventory Management System (AIMS) project, part of a $100 million redesign of systems throughout Cardinal. A key goal was flexibility.

"We wanted the architecture to be designed in a way that would allow us to continually upgrade the code," says Larry Linden, vice president of distribution and research and development at Cardinal. The plan was to create a "living system" that would help the company avoid having to do a massive upgrade in 10 years or so.

CARDINAL HEALTH INC.

Location: **Dublin, Ohio**
Web: **www.cardinal.com**
Project leader: **Richard Gius**
Business: **Distributor of pharmaceuticals and other medical supplies and equipment**
2002 sales: **$51.1 billion**
Size of IT department: **500**

The distributed system, which cost $2.4 million in software, used applica-

IT CONSOLIDATION HELPS SLASH OPERATION COSTS

BY THOMAS HOFFMAN

NOW THAT COST IS KING, the consolidation of servers and data centers — and even entire offices — has become de rigueur for many IT leaders.

Still, it's rare when an IT/business project comes in under budget and ahead of schedule. But that's just what happened at Corning Life Sciences, a division of Corning Inc., when it consolidated its European business operations between 1999 and 2000.

The company's IT organization led the effort to merge offices and associated inventory from Germany, France, Italy and the U.K. into a central location in the Netherlands. The project was supposed to take 13 months and cost about $1.5 million. Instead, it was completed in 10 months at 75% of the estimated cost, says Howard Piggee Jr., director of IT and CIO at Corning Life Sciences in Acton, Mass.

Howard Piggee Jr.: Workers accepted consolidation

"Given the time and money spent, the project exceeded our expectations," says Piggee. But another pleasant surprise was how accepting the affected office workers were in handling the changes that occurred, Piggee says.

Compared with workers in the U.S., where telecommuting is standard practice, Europeans have been slower to shift to work-at-home environments. Demonstrating how successful projects require equal emphasis on people, processes and technology, Corning Life Sciences worked hard to communicate the importance of the consolidation effort to its staffers, most of whom now work from home, says Piggee.

tion systems developed with contractor Witron Integrated Logistics Corp. in Arlington Heights, Ill.

The system flexibility is achieved through a design that allows the addition of modules, such as a proof-of-delivery electronic signature system, to be added after installation. The system tracks products at every point, and even manages the "footsteps" of warehouse employees to maximize their effort. With radio-connected handheld units and bar code scanners, managers can know the precise status of orders.

Productivity improved by 10%, and errors at some warehouses dropped down to a few hundred (in some cases, to none) for periods of several months. Cardinal uses AIMS in 57 warehouses and will continue to deploy it as new facilities are added.

Matt Bilodeau, an analyst at AMR Research Inc. in Boston, says the error-rate reduction achieved by Cardinal is impressive. Cardinal is using some robotic automation in a few warehouses. But Bilodeau and Steve Banker, an analyst at ARC Advisory Group Inc. in Dedham, Mass., warn that some companies that automate their warehouse systems may not necessarily get good returns on their investments.

Gius, Linden and Ed Michalski, Cardinal's IT director, are happy with what they've achieved, but they say some of the credit should go to the company's IT leaders of years past. The Medical Products and Services group that oversaw this project was once American Hospital Supply Corp., a forward-looking company that developed the precursors of the company's current e-commerce systems, says Gius. He credits the work of his predecessors for inspiring Cardinal's efforts. "In many respects, we are stewards of this legacy," he says.

WEB SITE ADDS INVENTORY CONTROL AND FORECASTING

BY STEVE ALEXANDER

JOSEPH LACIK JR. doesn't try to measure the return on investment of his company's marketing Web site. The fact that Dallas-based Aviall Inc. was saved from financial disaster by a controversial multimillion-dollar IT project that included developing the Web site as one key element is all the return he needs to see.

That investment, in the words of Larry DeBoever, chief strategy officer at IT consulting firm Experio Solutions Corp. in Dallas, "turned Aviall from a catalog business into a full-scale logistics business" that hundreds of aviation parts manufacturers and airlines large and small depend on for ordering, inventory control and demand forecasting. He says the new approach ties Aviall more tightly to customers such as Rolls-Royce PLC.

"Aviall is now the logistics back end for the aviation firms," says DeBoever, whose company was retained to help with portions of Aviall's systems integration work. "And they did it even though the airline industry shrank over the last three years."

In early 2000, with quarterly sales dropping and Aviall on the ropes, "we invested $30 million to $40 million to build this infrastructure," says Lacik, vice president of information services at Aviall Services, a unit of Aviall. "Our competitors thought we were insane. Some investors asked for my resignation."

AVIALL INC.

Location: **Dallas**
Web: **www.aviall.com**
Project leader: **Joseph Lacik Jr.**
Business: **Distributor of commercial and general aftermarket aviation parts**
2002 sales: **$506.2 million**
Size of IT department: **47**

The results of the project have been extremely successful. Publicly owned Aviall reported that in the quarter that ended in September, earnings from continuing operations rose 229% year-to-year to $6.9 million, and net sales rose 74% to $222 million. That represented a huge comeback from Aviall's problems, which sprang from a failed enterprise resource planning implementation that resulted in inventory getting out of control.

When Lacik joined the company in early 2000, "you couldn't properly order or ship things. My job was to bring back operational stability," he says. To do so, he implemented the CEO's vision of transforming Aviall into a provider of supply chain management services through the integration of a BroadVision Inc. online purchasing system, Siebel Systems Inc. sales force automation and order entry software, a Lawson Software financial system, a Catalyst Manufacturing Services inventory control and warehouse management system, and Xelus Inc. product allocation, inventory management and purchasing forecasting software.

Aviall chose Sybase Inc. middleware because it was judged to be vendor-neutral. But even with planning, some of the systems integration was more difficult than expected. And the combined system had to deal with customized pricing charts for 17,000 customers who receive various types of discounts and with an inventory of 380,000 different aerospace parts.

The development of Aviall.com was one of the least expensive parts of the project, at a cost of about $3 million, Lacik says. But it provides big benefits. Web ordering costs the company about 39 cents per order, compared with $9 per transaction if an Aviall employee takes the order over the phone, Lacik says.

New supply chain functions are also possible, such as the ability for customers to transfer their orders from an Excel spreadsheet directly to the Web site. Customers can also receive price and availability information on aerospace parts in less than five seconds — a real-time feature that hadn't been available before the BroadVision system was installed, Lacik says.

The process also frees the company's sales force from routine order-taking and follow-up, thus allowing them to spend more time developing relationships with customers. What's more, the Web site helps Aviall build relationships with suppliers by providing them with customer ordering data that enables them to better match production with demand.

The Web site now generates $60 million of the company's $800 million in annual revenue, or 7.5%, up from less than 2% a year ago. "Over the next three to five years, it could become more than 30%," Lacik says.

Alexander is a freelance writer in Edina, Minn. Contact him at Sorion99@yahoo.com.

"The only thing we might have done differently was to accelerate the closing of one of our offices in the U.K.," where the deadline was extended to accommodate staffers who were accustomed to working out of an office, says Piggee.

"No matter how politicized or complex your environment is, consolidation efforts will typically drive the highest cost savings," says Jeremy Grigg, an analyst at Gartner Inc. in New York. For example, he notes that occupancy costs typically make up 11% of an organization's operating costs.

Prior to the consolidation effort,

CORNING LIFE SCIENCES

Location: **Acton, Mass.**
Web: **www.corning.com**
Project leader: **Howard Piggee Jr.**
Business: **Manufactures products for scientific, semiconductor and environmental markets**
2002 sales: **$6.3 billion**
Size of IT department: **100**

Corning Life Sciences' offices in Europe each ran unique software applications across a potpourri of PCs, client/server systems and IBM AS/400 machines. Now the offices run on a single instance of PeopleSoft 7.53 running on Windows NT 4.0 on Windows 2000 clients housed in Corning Life Sciences' European data center in the U.K. The company now leans on a single multilingual customer service group in Holland as well as one warehouse there.

The IT group at Corning Life Sciences learned a few things along the way. "We discovered that we could do this with a smaller, focused group of people," says Piggee. For instance, the European consolidation effort was orchestrated by four full-time workers and one part-timer, including two technical and process consultants.

Given its success, Corning Life Sciences plans to use a small-team approach in moving its North American business operations to a single version of PeopleSoft this spring, says Piggee. "We'll use this approach going forward as a way to reduce costs in getting IT projects accomplished."

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BEST IN CLASS

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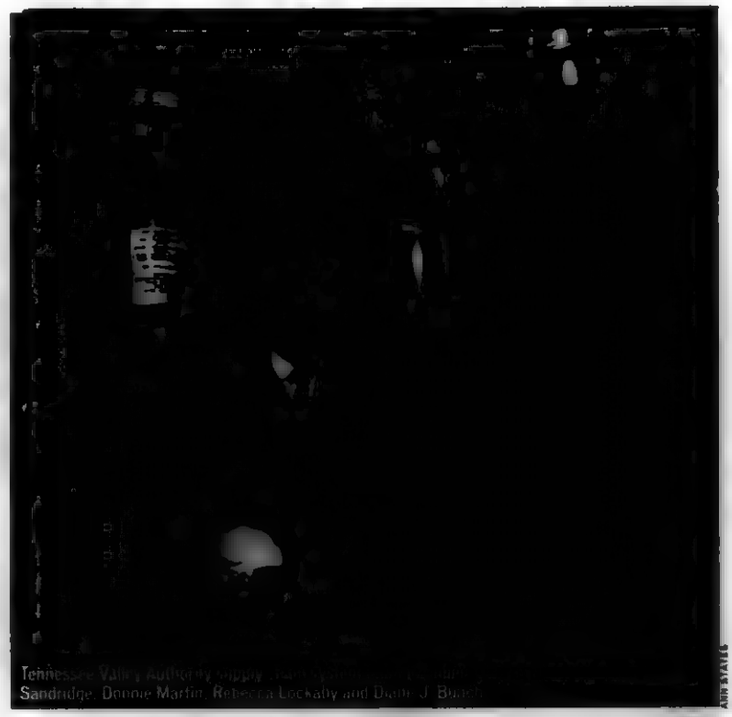
SUPPLY CHAIN RE-ENGINEERING DRIVES DOWN COST OF POWER

BY MARC L. SONGINI

THE DESIRE to boost efficiency, standardize processes and cut costs in its supply chain led the Tennessee Valley Authority (TVA) to launch its largest IT project to date — and the return-on-investment results are already exceeding expectations.

The power generator's supply chain re-engineering project began in 1996, with the hope that cost reductions would mean cheaper power for end users. Since going live after a weeklong big-bang implementation in July 2001, TVA has reaped $23.5 million in savings, putting it a year ahead of schedule in its plan to cut $54 million in costs in five years. Central to the system are applications from Indus International Inc., an Atlanta-based enterprise asset management software vendor.



Tennessee Valley Authority supply [illegible] Sandridge, Donnie Martin, Rebecca Lockaby and Diane J. Bunch

ANN STATES

"From the sheer magnitude, it was the largest undertaking in the agency's history," said Diane J. Bunch, senior vice president of information systems at TVA, a nonprofit federal government corporation. The project required the agency to work closely with its customers to decide on the best implementation approach, which they eventually agreed should be a fast rollout. "This meant getting everything going at the same time," Bunch says.

The big-bang approach was "very scary," says Paul Lapointe, senior vice president of procurement at TVA. But what made it successful was the continual involvement of business experts at each of TVA's locations, who took responsibility for the project's success. End users were also key. "We tried to leave no one out," Lapointe says.

In the process, TVA was able to elim-

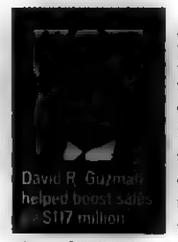
TENNESSEE VALLEY AUTHORITY

Location: **Knoxville, Tenn.**
Web: **www.tva.gov**
Project leader: **Diane J. Bunch**
Business: **Largest government-owned U.S. power producer**
2001 sales: **$6.9 billion**
Size of IT department: **741**

DATA WAREHOUSE BOOSTS PROFITS BY EMPOWERING SALES FORCE

BY GARY H. ANTHES

VETERAN IT LEADER David R. Guzman wants his management to say, "Ah, got it!" And executives at Office Depot Inc. definitely did get it when Guzman and a team of his colleagues, in the first application of a new data warehouse, boosted annual sales by $117 million. Guzman, senior vice president for systems development at the time, says he was the "catalyst" for the project, which involved measuring sales clerks' and stores' success at cross-selling certain items, such as encouraging printer buyers to purchase a cable and paper.



David R. Guzman helped boost sales $117 million

The concept was pretty simple, but measuring the results for each of 60,000 employees in more than 1,000 stores called for data warehouse technology from the Teradata division of NCR Corp., Guzman says. The warehouse spit out a key report that showed the percentage of cross-selling opportunities that were successful, broken out by employee and store.

The purpose of the report, in addition to providing measurements, was to tap into the natural competitiveness among Office Depot store personnel, Guzman says. "I knew it was successful when I went to a store in New York and another in Paducah, Ky., and found the . . . report on the wall of the employee break room."

"The visibility is what drove the stores' acceptance," says Gene Alvarez, an analyst at Meta Group Inc. in Stamford, Conn. "Sometimes data warehousing can be ignored by the stores unless it provides direct metrics on

inate 20 legacy homegrown and third-party applications, integrate 32 others and create an enterprisewide system that works in near real time. Instead of once-a-day updates generated from the nightly batch processes, users can now see TVA's inventory across all its locations anytime.

The new system enables TVA to make companywide volume purchases and to cut the price of maintaining multiple older systems. It will also allow the pruning of 89 positions through attrition. Additionally, TVA installed logistics software from Manugistics Inc. in Rockville, Md., that has centralized its freighting operation and reduced mileage for its truck fleet.

Lapointe says there was extensive communication between the IT project staff and users throughout the process. The final rollout was kicked off during the week of July 4, when TVA's activity was at its lowest.

In the new architecture, TVA runs a centralized version of Indus' PassPort supply chain software, which connects to 17 copies of Indus' Enterprise Maintenance Planning and Control (EMPAC) asset management software. An integration module built around IBM's MQSeries middleware lets the two sets of applications communicate.

The project required loading 400,000 catalog items at each EMPAC site, and it engaged 5,000 end users, but "overall, from the operating side of the company, we felt very little pain," says Lapointe.

"User buy-in is a critical success factor," says Gartner Inc. analyst Karen Peterson. "That means going beyond the project team to every person who touches the applications being rolled out. Project teams that ignore this critical component will most likely fail." ◗

WIRELESS WEB BROWSER TIES SHIPPING DATA, E-MAIL

BY BOB BREWIN

NEW TECHNOLOGY, when deployed in the field, sometimes doesn't succeed until users find a simple but powerful reason to embrace it. That's what William L. Schmitt, director of business enablement at the Dallas-based Celanese Chemicals Ltd. unit of Celanese AG, discovered last year.

Schmitt developed a mobile Web interface for the company's Hewlett-Packard Co. Pocket PCs that would help its 25 U.S.-based field salespeople — each of whom is responsible for about $100 million in annual sales and is usually on the road — access shipping and billing data on back-end systems from SAP AG.

With the help of Clarkston Consulting in Durham, N.C., Schmitt developed an easy-to-use, text-based Web browser to access the SAP data. To provide "always-on" and relatively fast data access, Schmitt equipped the Pocket PCs with wireless data cards hooked up to Sprint PCS Group's nationwide Code Division Multiple Access 1XRTT data network, which offers average data speeds of 40K to 60K bit/sec. He also outfitted the browser with built-in links designed to make any road warrior's life more comfortable, including a hotel and restaurant guide and mapping software.

Despite the utility of the new applications on the Celanese platform, called Mobile Chem VIP, Schmitt says the sales force didn't completely buy in until he devised a way to hook the workers into the company's Microsoft Exchange mail system using e-mail synchronization software from Synchrologic Inc. in Alpharetta, Ga. The sales force "is addicted to e-mail," he says, and relishes the ability to check messages throughout the day on the Pocket PCs.

Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md., says the Celanese project demonstrates that for many mobile workers, e-mail is an essential tool. Companies looking to equip field workers with mobile devices should start with e-mail because "it's easy to do and enormously useful, and everyone knows how to do it," Reiter says.

But once a company has experienced the power of wireless e-mail, Reiter adds, it should move on to other applications that further empower mobile workers. Schmitt says that's exactly what Mobile Chem VIP does for the sales force. For example, it allows a salesperson to quickly locate for a customer a railroad tank car with a shipment of chemicals.

And access to billing information helps the sales force speed up payments, Schmitt says. Mobile Chem VIP allows them to call up and review disputed bills during a sales call and fix errors on the spot, cutting down the payment cycle time.

Twenty-five Celanese nonsales executives in the Dallas office now use Pocket PCs to access their e-mail while on the road, Schmitt says.

He says development costs for Mobile Chem VIP were relatively low — about $30,000, plus $1,100 each for the Pocket PCs. Schmitt says he can't put an exact payback figure on the project, but he says the system has already paid for itself "with just one incremental order for a tank car [of chemicals]." ◗

CELANESE CHEMICALS LTD.

Location: **Dallas**
Web: **www.celanesechemicals.us**
Project leader: **William L. Schmitt**
Business: **Producer of commodity chemical products; a subsidiary of Celanese AG**
2002 sales: **$3 billion**
Size of IT department: **75**

how the store is performing."

With any major new IT endeavor, it's important to quickly spot and pick some low-hanging fruit, Guzman says. "With success comes freedom," he says. "Data warehouses are kind of an amorphous concept to the business leader. But if you can say, 'Do you remember that project we did with cross-selling opportunities?' Then they can say, 'Ah, got it.'"

The cross-selling project paved the way for Guzman and his team to tackle more difficult projects in customer relationship management, he says.

"This is an excellent example of the old keep-it-simple adage," Alvarez says. "It was very specific, very measurable and something that could be put in at a predictable cost."

Guzman is now CIO at Owens & Minor Inc., a Richmond, Va.-based medical supplies distributor, and he says he is applying the systems and team-building skills learned at Office Depot in his new job. Owens & Minor is implementing the next generation of its data warehouse technology, Wisdom, by linking supply chain information with clinical information.

Guzman gives his colleagues equal credit for his accomplishments. At Office Depot, for example, he says the project couldn't have succeeded without leadership from the executive vice president for distribution, who brought discipline and focus; the marketing vice president, who provided sponsorship; and the executive vice president for stores, who enabled its execution.

Guzman says the Office Depot project taught him a key lesson in how to make an IT project successful: "Make it simple; make it fun; make it measurable; make it happen." ◗

Best in Class continues, page 48

OFFICE DEPOT INC.

Location: **Atlanta**
Web: **www.officedepot.com**
Project leader: **David R. Guzman**
Business: **Seller of office products, with 1,020 retail stores operating in 10 countries**
2001 sales: **$11.2 billion**
Size of IT department: **300**

BEST IN CLASS

COMPUTERWORLD PREMIER 100 IT LEADERS 2003

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SELF-SERVICE CHECK-IN KIOSKS GIVE TRAVELERS MORE CONTROL

BY LINDA ROSENCRANCE

FOR TRAVELERS, the best trips are fast and hassle-free, with limited time spent at the airport.

That's why Atlanta-based Delta Air Lines Inc. teamed up with its technology subsidiary, Delta Technology Inc., to deploy hundreds of self-service check-in kiosks at airports across the country, with a goal of speeding travelers to their destinations.

Mike Childress, senior vice president of development at Delta Technology and the project's leader, says there are now 449 kiosks installed at airports in 81 U.S. cities. The kiosks had been part of Delta's multiyear business plan, but when airports increased security in the wake of the Sept. 11 terrorist attacks — and the amount of time customers spent waiting in line grew longer — the airline decided to accelerate the project. Delta acknowledges that it had been trailing some other carriers' kiosk initiatives before Sept. 11.

Mike Childress kiosks showed the

ANN STAYER

Rob Maruster, Delta Air Lines' director of airport strategy and service, says the kiosks help customers shave five to 15 minutes off the time they have to stand in line. Passengers can use the kiosks to check in for their flights, get boarding passes for originating or connecting flights, select or change seats, request to stand by for an upgrade, check baggage, change flights and initiate multiparty check-in.

This year, Delta plans to add more than 400 kiosks and enhance functionality to include international check-in and fee collection. With this change,

DELTA TECHNOLOGY INC.

Location: **Atlanta**
Web: **www.deltadt.com**
Project leader: **Mike Childress**
Business: **The technology subsidiary of Delta Air Lines**
2002 sales (for Delta Air Lines): **$13.3 billion**
Size of IT department: **2,100**

SECURITY SETUP IDENTIFIES ATTACKS WITH MINIMAL DRAG

BY STEVE ULFELDER

AS DIRECTOR of global information security at Pershing LLC, Warren Axelrod is acutely concerned with risk. Pershing acts as a securities-trading clearinghouse for more than 850 financial institutions; on any given trading day, it handles 5% of the New York Stock Exchange's transactions.

When Axelrod's team decided to add an intrusion-detection system (IDS) to its security portfolio last year, several familiar challenges cropped up. First, the investment would have to be justified to senior management. The IT unit would then have to evaluate IDS products in a young, fast-changing field. And once a product was chosen, it would have to be installed in a pressure-packed, high-volume environment that left little room for error.

Warren Axelrod installed a nig agent IDS

Axelrod succeeded on all fronts with a project that lasted eight months.

When studying the available IDS offerings, Pershing placed a high priority on minimizing drag on network performance. That was a critical factor in sifting through the different types of systems. For example, network-based systems, usually composed of either a stand-alone appliance or software on a dedicated server, scale well and have little effect on performance "because they're just a bump on the wire," says Pete Lindstrom, a security analyst at Spire Security LLC in Malvern, Pa.

A host-based IDS is likely to use an agent — an active program on a host that monitors activity on a particular port. Internal testing at Pershing found

Delta will offer customers more than 800 kiosks in airports nationwide.

"From the business side, the kiosks are the cornerstone of a broader airport strategy to offer customers more control," Maruster says.

Since the project was launched in November 2001, the airline has spent $5 million to $7 million on customer-service initiatives, including the kiosks, he says. Maruster says the payback has been enormous, but he declines to give financial details.

Delta checked in approximately 1 million travelers via the kiosks in October and 1.4 million in January. "For 2002, our goal was to check in 5 million customers, but we actually checked in 7.4 million, and we're on track to check in 13 million to 14 million people this year," Maruster says.

Delta Technology purchased its kiosks from Kinetics USA in Lake Mary, Fla. Childress says an internal application-development team integrated the kiosk functionality with Delta's Digital Nervous System, the network that communicates with every part of the Delta organization.

"Last year we deployed over 300 kiosks in 81 cities," Childress says. "From start to finish, it took six months, and we were checking in half a million people per month. We wouldn't have been able to do it without the infrastructure."

Childress says he learned how important it is to have the application and business teams work together. "Having a team that knows what they want to achieve from a strategy and business perspective enables the technology team to drive a solution as soon as possible," he says.

"It's a good option for customers," says Lorraine Sileo, an analyst at PhoCusWright Inc. in Sherman, Conn. "Passengers can wait in line if they want to, but now they don't have to."

PALM ROLLOUT GETS STUDENTS ORGANIZED

BY MATT HAMBLEN

A TWO-YEAR ROLLOUT of 2,500 Palm Inc. handheld devices to students at the University of South Dakota in Vermillion has been a learning experience all around — for students, administrators and the IT staff.

The project was launched in the fall of 2001, with 1,500 freshmen and first-year medical and law students participating. The students were required to pay $125, or about one-third of the Palm's cost, for either an m500 or m505 model. The program resumed last fall for the same classes, with the addition of more server software that allows students to quickly synchronize to course information via infrared ports at 45 points on campus.

CIO Roberta Ambur, who led the project, puts ongoing costs at more than $100,000. That figure doesn't include the hardware, which was partly funded through a foundation grant. While Ambur says it's too early to judge the return on investment, the project's goals were to help retain students through graduation and aid them in becoming more organized and engaged. The university has won national attention in academic circles for the project.

"It certainly has raised our profile," says Don Dahlin, vice president of academic affairs.

But while the Palm-based applications have been valuable to first-year medical and law students, the rollout hasn't been a hit with many freshmen, who in their first year on campus are taxed enough with finding the quickest way to class, university officials say. Many see a handheld as an added burden.

UNIVERSITY OF SOUTH DAKOTA

Location: **Vermillion, S.D.**
Web: **www.usd.edu**
Project leader: **Roberta Ambur**
Business: **Founded in 1862 by the Dakota Territorial Legislature, USD is the state's oldest university. It offers more than 100 academic programs in its eight schools and colleges.**
Size of IT department: **85**

Dahlin concedes that the school may have rolled out the program "a little too boldly," especially to freshmen. But he adds, "It is sometimes the job of an academic institution to do some bold things."

"We're all somewhat skeptical still about the overall value of the program," adds Ambur. She and others have been disappointed by the lack of off-the-shelf academic programs that can be loaded onto the Palm devices, even though the handheld maker and analysts say that there are many tools available related to academia.

Ambur and other school officials want to budget for an on-campus programmer to write software that would expand the devices' use well beyond their function as personal organizers.

One area of programming that has encouraging possibilities has been developed by Doug Peterson, an assistant professor of psychology. He has used freeware called QuizApp to enable students to quiz themselves on topics that will appear on upcoming Psychology 101 tests.

Peterson says that he has noted a small increase in test achievement by students who have studied using QuizApp but that it's too soon to know whether overall learning is significantly improved through use of the devices. "I was overly optimistic [about] how quickly freshmen students would buy in," he says. "It scared half of them, and others said it wasn't worth their time."

In addition to hiring a programmer, Dahlin says, he wants the university to institute some simple applications for use in required freshman classes to "make the students more dependent on the devices."

One student, Aaron Roseland, has used his Palm for checking course syllabuses, taking notes, keeping appointments and getting alarms one week before a big test. He says he expects the rollout to improve with the addition of more course-specific programs, and he blames Midwestern skepticism as one reason for the slow adoption by freshmen.

Administrators say the medical students have had a better experience because there is more handheld use in the health care field in general, and more widely used software, such as a drug interaction guide.

A number of schools nationwide have instituted handheld rollouts, and the most successful deployments relate course material directly to a program that runs on the device, says Todd Kort, an analyst at Gartner Inc. in Stamford, Conn. "If you have a computer science course and the professor has developed courseware directly using the PDA, then you see some real value," he says.

that systems using agents increased latency, so the firm narrowed its candidates to nonagent IDSs. "That was a logical way for us to start organizing our choices," says Michael Gergel, a Pershing IT vice president.

Axelrod won't say which IDS was selected or confirm that the system is host-based. That's a sound approach to security, says Lindstrom, because "each system has its own vulnerabilities, and enterprises don't want to advertise where their weak points may be."

Pershing does say that it uses Network Security Manager 4.0 from Intelitactics Inc. in Bethesda, Md., as an iibermonitor of its IDS. One of a new class of tools often referred to as security event managers, the product "receives intrusion data and alerts from our network intrusion-detection system components running on the network and system logs directly from the host servers, and interprets the messages based on a previously entered set of rules," Axelrod says. "[It] looks for patterns, which it displays graphically, making for easier and quicker determination of problems."

PERSHING LLC

Location: **Jersey City, N.J.**
Web: **www.pershing.com**
Project leader: **Warren Axelrod**
Business: **Provides investment-related products to more than 850 clients worldwide**
2002 customer assets: **$400 billion**
Size of IT department: **1,700**

When asked how many man-hours the new IDS saves Pershing, Axelrod pauses and then says, "It's not a matter of saving people; it's a matter of better using the people you have. This system puts together patterns rapidly in a way the average human mind can't and shows it in a graphical way." That's invaluable in today's intrusion-detection environment, where the toughest challenge isn't sensing data, but making sense of it.

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@yahoo.com.

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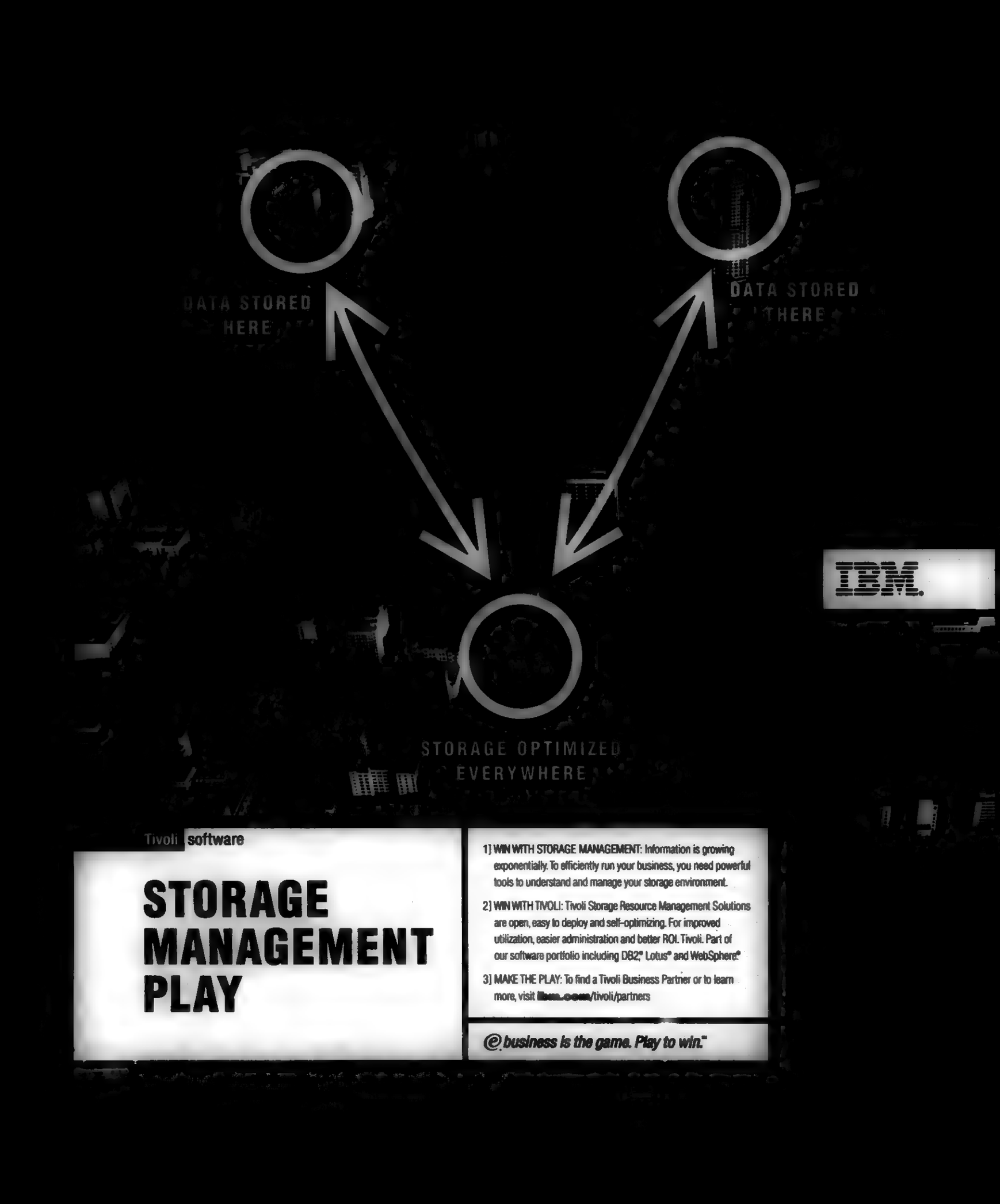
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GE POWER SYSTEMS

Location: **Schenectady, N.Y.**
Web: **www.gepower.com**
Project leader: **Alan Boehme**
Business: **Designs, manufactures, installs and maintains gas, nuclear and steam-driven power-generation plants**
2002 sales: **$20.2 billion**
Size of IT department: **1,200**

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> **ALAN BOEHME, FORMER E-TECHNOLOGY CIO, GE POWER SYSTEMS**

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APPLICATION FRAMEWORK ALLOWS EASY PORTAL ACCESS

BY JAIKUMAR VIJAYAN

GE POWER SYSTEMS' Parts Edge portal site is an online resource that lets GE Power's customers purchase parts from the company while giving them a single interface to its many business units and partners.

One of the biggest challenges the Schenectady, N.Y.-based company faced when building the portal was finding a way to share data across disparate legacy systems, enterprise resource planning (ERP) software and Web-based applications.

The company, a subsidiary of General Electric Co., "had systems that had been built in silos that were not communicating" with one another, recalls Alan Boehme, former e-technology CIO at GE Power and now CIO at Best Software Inc.

"The objective was to provide a seamless method for the selection of parts and service, with information being able to come into the system through multiple means, such as Web browsers, EDI [electronic data interchange], XML exchanges or an ERP system," he says.

To address the issue, GE Power decided to build Parts Edge on a Web-services-enabled application framework based on Java 2 Enterprise Edition (J2EE). The framework lets GE developers use a slew of Java extensions and XML to promote interoperability and integration among the various third-party applications that form the core of Parts Edge.

Using the J2EE framework also ensured that Parts Edge could be accessed through various means, including business-to-business connections, EDI and browser interfaces. And it allowed GE Power to more easily tie Parts Edge back to the company's core Oracle ERP system as well as other legacy applications.

Parts Edge is the largest of 60 or so applications that are supported by GE's J2EE-based application development framework, which is known internally as Casper. Developed to prevent vendor lock-in and preserve existing legacy investments, Casper has delivered several benefits for GE developers, Boehme says.

Among them are increased portability of applications across multiple operating systems, application servers and hardware; reusable business, application and legacy system business logic; a common presentation layer for disparate systems; and reduced costs and cycle times for development and upgrades. For instance, an application that normally would have taken 11 developers 14 weeks to finish was completed by 11 developers in six weeks using an updated version of Casper.

Reuse of source code and of components such as Java classes and Enterprise JavaBeans has also reduced development time and effort. For instance, by adding only 691 lines of extra code, GE Power was able to spin out a new application with functionality similar to that of another application that had taken 72 man-weeks to complete, Boehme says.

When putting together such a framework, don't underestimate the time it takes to do the functional analysis, Boehme says. "You need to spend the right amount of time to analyze the business processes and the interfaces to do the technical design," he says.

Application architectures built around the concepts of service, design and component reuse, such as GE Power's, can yield benefits that extend for several years, says Daryl Plummer, an analyst at Gartner Inc.

"But the technology and culture that go with it are both difficult to deal with," Plummer cautions. "It generally takes more planning, more discipline and more technology skill" to implement such service-oriented application frameworks.

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Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC1602 or it will be rejected.

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Technical Support Specialist. 40 hr per wk 8a.m.-5p.m. $24.01/per hr. No OT Provides technical support, makes recommendations for improvements in computer system, reviews & tests programs, modifies, tests, & corrects existing programs. Evaluates & tests software. Enters commands into & tests computer systems, prioritizes importance of components & writes recommendations. Trains others in use of hardware. Writes project reports & documentation for new hardware. Creates, develops, & modifies internet web pages. 2 yrs exp n/a outbound. Applicants must show proof of legal authority to work in the U.S. Send resume to Illinois Department of Employment Security, 401 S. State St. – 7 North, Chicago, IL 60605, Att: Joanne Breaux, Ref # 34049 An employer paid ad. NO CALLS – SEND 2 COPIES OF BOTH RESUME & COVER LETTER.

Software Engineers

Job#1) Lead development/Programming in Oracle Applications. Customize, Convert, Map, Interface Oracle Apps & SAP/Legacy Systems. Provide End-User Training.

Job#2) Design, dvlp, implmt & support multi-tier WWW applications using MS SQL Server, COM, MTS, IIS,Interdev & Delphi.
2 Years experience on the job with a BS in Engg/Science/Math or equivalent. $88K To. Shree Systems 705 Mermaid Dr 308 Deerfield Bch FL 33441.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with ClearBasic programming also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sbi George, FedEx Corporate Services, 1600 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Systems Analyst (New York, NY): Design/implement enterprise wide network monitoring solution; maintain system/network performance baselines; create conformity standardization of data center equip; maintain systems to protect against known security concerns; troubleshoot Global network connectivity & design secure infrastructure; configure & maintain multi-site help desk application; analyze current environments to forecast future capacity needs; conduct training sessions amongst I/T members to transfer knowledge. Bachelor's or equiv. in comp. sci., comp. engin. or comp information systems or applications plus one year exp. in job offered. Experience must include design & configuration of enterprise wide monitoring solutions and network infrastructure as well as building, upgrading, and maintaining multi-site exchange environments. Send resume to: Human Resources, Weightwatchers.com, Inc. 888 Seventh Ave., 6th Fl., NY, NY 10106.

Engineering Manager. Analyze and define technical requirements/software specifications based on business requirements from Product Marketing group, work with engineering teams to build and manage the project plan for development and productization of requirements, provide a comprehensive view to management on status of product development and their milestones, and provide project management for associated activities such as new feed/content integration. Must have Bachelor's degree in Computer Science, Engineering or equivalent, two years experience, including one year experience in database design and project management. Must have knowledge of Software Engineering models including Waterfall, Iterative and Evolutionary; ISO 9001; Object Oriented design and implementation and internet based application development on Windows and Linux. 40 hrs/wk, $76,000/yr. Must have proof of legal authority to work in the United States. Send your resume to Iowa Workforce Center, 1700 South 1st Ave., Suite 118, Iowa City, Iowa 52244-2360 Please refer to Job Order IA1101697 Employer paid advertisement.

Programmer/Analyst / Software Art Corp., a software-consulting firm, requires software professionals with demonstrated hands-on experience in the following Unix System Admins: Sun/HP Client Server: MS VB .NET, ASP .NET C#/C++/Oracle PL/SQL/Sybase/Windows/Unix I nternet Computing: JAVA/ CORBA/XML, JAVA Websphere/ Weblogic OOP/QA Testers: Manual/Automated, JD Edwards, SAS Programmers, Technical Recruiter local to NJ. Send resume to: recruiter@softwareart.com

S/W Engineers to lead teams to analyze, design, develop S/W appls using SAP R/3, ABAP/4, Java, JScript, JDBC, MS Access, Oracle, Weblogic, Java Web server, etc. on Windows, UNIX, LINUX envir; develop interfaces, conversions, reports and forms using ABAP for SAP implementation, evaluate, train users/members. Require: M.S. in CS/Engg(any branch) with 3 yrs of exp or BS or foreign equiv. in any of the above field with 5 yrs of relevant progressive exp. High salary. Travel involved. F/T. Resume to: HR, Saltwell Cyberfab Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Prog/Analysts to analyze, design, develop, appls using Java, C++/C, COBOL, JSP, Servlets, HTML, XML, VB, VBScript, Jscript, Jbuilder, Oracle, SQL, Sybase, etc. on UNIX, Windows OS; conduct feasibility study; perform unit/integration testing, performance tuning, query optimization; provide documentation & debugging. Require: BS or foreign equiv in CS/Engg (any branch) & 2 yrs of exp. High salary, F/T Travel involved. Resumes to Compsoft Technology Solutions Group, Inc., 11 N Roselle Road, Schaumburg, IL 60194.

Systems Admins to plan, implement, maintain and troubleshoot LAN/WAN installations, install, maintain, administer IIS Web Servers, SQL Server, Windows, UNIX, LINUX, design, develop systems for transmission of voice/image data within multiple network environments; install, upgrade network computer hardware/software. Require: B.S. or foreign equiv in CS/Engg. (any branch) with 2 yrs exp in sys. administration. High salary. F/T position Travel involved. Resumes to: HR, ACT, 3355 Breckinridge Blvd. Suite 128, Duluth GA 30096

Web Dev/Programmer. Program courses, create internet/intranet/LAN products. AA in Comp. Sci., Systems Engr. related field plus 3 yrs in job offered or as Systems Analyst or similar duties. 3 yrs exp. w/cold fusion plus 2 yrs exp. w/SPECTRA, SCORM, AICC, SQL Server, JavaScript, HTML, NT environ. Contact Robin Salsberry, 4600 Westown Pkwy, #301, WDM, IA 50266.

Synova Inc is seeking professionals with following skills: Programmer/System Analysts, Engineers in Mainframe, Web Tech, Technical/functional (SAP & Peoplesoft), Java, Rational/ RUP, UML, J2EE, Unix DBA, Oracle, SQL DBAs. Respond to ede@synovainc.com

Programmers/System Analysts wanted by GalaxyPlus, leader in tech products to credit unions. Qualified candidates must have BS. Exp of XML, VB, ASP, C#, SQL, IBM AIX, Socket/TCP, C++, OO SQL. DHTML is plus. Apply at GalaxyPlus at 5800 Crooks Rd. Troy, MI 48098. EOE.

Computer Security Coordinator. 8a-5p. 40 hrs/wk. Plan, dvlp, implmt & co-ordinate system security features for wireless applics using comp systms security, network mgmt, network security, user interface dsgn & distributed computing skills. Masters or equiv in Comp Sci, Information Systms, Electrical, Electronics or related field of Engg, in lieu of Masters, Bach in specified majors & 5 yrs of progressive work exp as Systems/Prgmr Analyst or Systms/Network Admin using above skills accepted. Resume: Air2Web, Inc., Promenade II, 1230 Peachtree St., 12th Fl, Atlanta, GA 30309.

Programmer/Analysts needed at client sites w/exp dvlpg Mainframe, Internet applics &/or Datawarehousing using one or more of foll tools such as DB2, SQL, IMS, JCL, SPUFI, COBOL, Oracle, PL/SQL, Dvlpr 2000, Unix, Java, JSP, WebLogic, Servlets, Applets, JavaScript, JDBC, HTML, XML, Perl, Brio, Crystal Reports, Bus Objects, Informatica, LDAP &/or VB. Send resume to: S. Ajjarapu, HR/PA, Global Information Tech. 15310 Amberly Dr #165, Tampa, FL 33647.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree in computer science, MIS, engineering, math or related field plus 5 years of experience in systems/applications development. Experience with Unix (Sun Solaris), C++ and RDBMS also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sbi George, FedEx Corporate Services, 1600 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Sr. Software Developer for challenging eSales and AI projects. Design software solutions using Java, C++, Oracle, MSSQL, HTML, JavaScript, & XML. Implement software systems & relational database schemes in a client/server environment utilizing Windows NT/ UNIX severs over LAN and Internet. Perform 3-tier client/server application development. Structured analysis & design using Rational Unified Process. MS in Computer Science or equivalent + 1 yr. exp. in software design, development and implementation. Apply to Core Concept, Inc., 1050 Crown Pointe Parkway, Suite 1460, Atlanta, GA 30338 with proof of permanent work authorization.

Systems Analysts to analyze, design appls using Cobol/400, RPG/400, OS/400, Java, JDBC, IBM Websphere under Windows, AS/400 envir; responsible for project planning, time/cost schedules, quality of deliverables; study and evaluate new technologies/methodologies; provide technical/business guidance for complex user problems; Require: M.S. or foreign equiv with conc. in CS/Engg(any branch)/Business Admin. High Salary. F/T. Travel involved. Resume to: HR, Salem Associates, Inc., 405, 6th Ave., Ste 102, Des Moines, IA 50309.

F/T Computer Support Specialist. Responsible for scoping, planning, implementing legacy application extension projects and training customer personnel in tool use 100% travel. Requires in-depth knowledge of J Walk, GUI/400, WinJs and TTT. Requires 3 yrs. of exp. Work background must include providing technical support services to software and/or network end users and supporting J Walk, GUI/400 & TTT customers across a variety of industries. Salary: Competitive. Send resume to: HR - Ref# TS, SEAGULL, 3340 Peachtree Rd, Atlanta, GA 30326. Reference this ad. No phone calls please.

Programmer Analyst: Develops and modifies programs to facilitate the internet and extranet web based transfer of, and access to, organizational business data in the insurance and health care industries. Must have M.S. in Computer Science and one year's experience in job offered. Send resume, to Paradigm Technology Solutions, Inc. 7332 International Drive, Orlando, Fl 32819, attn: K. Shah.

Prog/Analysts to analyze, design, test datawarehousing/ datamart, software applns and ETL using tools like Informatica, Cognos, Oracle, MS SQL Server, CICS, DB2, HTML, Java, C++ on UNIX, Windows Os; gather, document reqs from user community, test, troubleshoot project applns code accor. to system objectives. Require: BS or foreign equiv. with Conc. in CS / Engg. (any branch)/related field & 2 yrs exp in IT. Competitive salary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071

Oracle Application Developer needed w/exp to implement & customize Oracle Applications (ERP) including Oracle HRMS, Financials, Accounts Payables, Accounts Receivables. Development & conversion of Unix based Paybill Application using APPGEN to Oracle HRMS. Integrate w/the ERP implementation using Oracle, PL/SQL & Developer 2000. Send resume to: Vedior North America LLC, 60 Harvard Mills Square, Wakefield, MA 01880.

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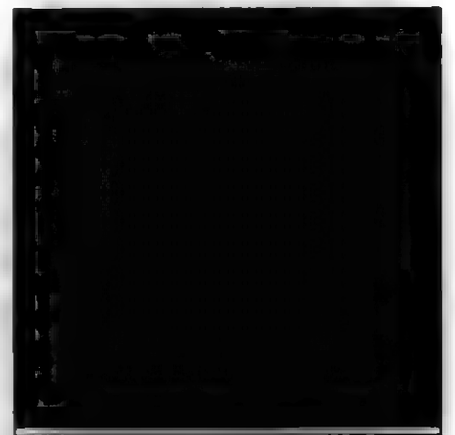

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Developer. Will develop, test, implement and support business systems of low to medium complexity on multiple platforms including client server, mid-range and mainframe for marketing applications. Will act as system administrator for Coresma application used to deliver specific offers to customers at the Point of Sale. Will utilize COBOL, SQL and Easytrieve Plus languages. Will work on multiple assignments simultaneously and perform trouble shooting, problem solving, and analysis. Will interact with Project Managers, Systems Analysts, Developers, Vendors, DBA's and various Technical Support personnel as required to support new and existing applications. Minimum requirements (education, training, experience): Bachelor's Degree (or foreign equiv) in Computer Science or closely related field and two years progressive experience in job offered or related occupation as software developer or programmer/analyst. Also, must possess (1) demonstrated expertise working on large mainframe platforms; (2) demonstrated knowledge of operating; and (3) network systems such as UNIX or Windows NT and relational database management systems such as DB2 and Access. Offered salary is $61,518/year (40hrs/wk). Std Company Benefits. Send resumes in duplicate to: Labor Exchange Office, Case #200115043, 19 Stamford Street, 1st fl., Boston, MA 02114.

Intellysis Technology is a fast growing Chicago based IT consulting group with clients all over the USA in leading edge areas such as eCommerce, ERP, Automated Testing and Client Server Multi/Tier Systems. Intellysis is looking for Programmer Analysts, Software Developers and Project Managers with experience in one or more of the following skills:

C++, C, VC++,
Java/Java Web Server, Java Script
VB, VB Script, ASP, ActiveX, COM, DCOM
CGI, Servlets, CORBA, Perl
V/++
HTML, DHTML, XML
JAVA APPLETS
COLD FUSION, HTTP
SEGUE/RADVIEW TOOLS
Large Scale System Design/Architecture Testing Experience

All jobs require a minimum of a Bachelors Degree in Computer Science or related field or its equivalent in education and/or experience.

Project Managers require a Masters in Business Administration or its equivalent in education and/or experience.

If you are interested in our company, please mail, fax or e-mail your resume including reference number CW0103 to: INTELLISYS TECHNOLOGY, LLC, 801 N. Cass Ave., Westmont, IL 60559; fax: (630) 455-1333
e-mail: recruit@7hillsye.com

TechNation Software Consulting, Inc, a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals.

Sr. Software Engineers: BS in CS, or equivalent with more than 5 years of recent programming experience or MS in CS with more than 3 years of such experience. Duties entail programming, gathering user requirements and customization of software in either of: a) Database Systems which involves database design, data modeling working in both front end as well as backend applications on Unix and Windows platforms. Or in b) systems side programming in Unix, C, C++ which involves product development, working on telecom protocols or development of device drivers.
Both positions require knowledge of allied Internet technologies like Java, JSP, XML, J2EE and ASP.

Unix Systems administrators: BS in Computer Sciences or equivalent with atleast five years of experience in an enterprise environment. (i.e. more than 500 users) Duties include extensive use of Network implementation and Administration, System Integration, Backup and recoveries, shell scripting and System Securities. Experience in Management of Enterprise Network Storage devices (SAN or NAS), HP and Solaris Servers, switches, HUBs and the Veritas NetBackup systems.
TechNation provides onsite consulting services to clients across the United States and hence a key requirement for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.
Send resumes to Madhukar Gangadi, 300 N. Dakota Ave. Suite #506-B, Sioux Falls, SD 57104 or email to madhukar@tnsclnc.com. Fax: 530-733-2775

INFORMATION SECURITY

Chief Information Systems Security Officer

The Congressional Research Service (CRS) seeks a senior Information Technology Specialist to serve as its Chief Information Systems Security Officer. The incumbent will lead the implementation of all CRS security programs and will ensure that those programs are integrated with the information security programs of the Library of Congress and the United States Congress.

The specialist will develop and ensure compliance with information security policies, standards, and guidelines, and provide regular IT security training to CRS managers and staff. The specialist will also be responsible for evaluating and monitoring the work of IT security vendors and contractors, and providing expert analysis and advice on a wide range of issues and problems related to information systems security.

Position is being offered at the GS-15 level ($94,914-$123,388).

To apply online (preferred), visit www.loc.gov/crsinfo or call 202/707-5627 to request an applicant job kit. Please refer to vacancy #030022 in all correspondence. Applications must be received by March 5, 2003. As the public policy research arm of the U.S. Congress, CRS is fully committed to workforce diversity.

Congressional Research Service

Lead Oracle/Internet Developer sought by pharmaceutical R&D Co. in Princeton, NJ. Candidate must have a Master's degree or equiv in Comp Sci & at least 5 yrs of exp in IT, specifically applications development. The following skills are required: 1+ years in pharmaceutical industry; exp w/business development environment and Strategic Intelligence function; min. 3 yrs. exp in web development using Java/JSP/Servlets/Oracle (versions 7-9i; Oracle Application Server 9iAS); Oracle DBA certification; exp w/ Documentum, WDK 4.2.4; Documentum Web Development Kit; exp w/ data modeling using ERWIN & Visio; exp in full life cycle software development of IT projects & applications including design, development, testing and delivery. Ability to lead a small team; manage vendor responsibilities on projects; possess excellent verbal/written communication skills in order to provide technical options to business users. Send resume to: Strategic Staffing, BMS, M/S E14-12, Route 206 & Provinceline Road, Princeton, NJ 08540 Job Code: INS-788.

A position is available for a Senior Business Analyst, Consulting with an Atlanta-based technology solutions company. The company architects and designs next generation software for point-of-sale and internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.
The Senior Business Analyst, Consulting will be primarily responsible for providing consulting services to analyze business processes and define best practices for the implementation of complex software applications for the company's clients.
Candidates for this position should possess a Bachelor's degree in a computer field whose degree program must include analysis and redesign of business processes; analyzing, designing, and managing database systems; creating user guides; and training other users. Job requires demonstrated knowledge of operating systems and software applications including Windows, Macintosh, UNIX, MS Project, and MS Vision; and C++, Visual Basic, and SQL.
Apply by mail to:
Christie LoCurto
Radiore Systems, Inc.
3825 Brookside Parkway
Alpharetta, Georgia 30022

VA Based consulting co. with clients located on the East Coast has multiple openings for IT professionals. Looking for the following skill sets:

-Oracle and Progress developers
-client server developers C, C++, VB, VC++
-J2EE
-web based developers Java, HTML, ASP
-Forte
-Technical writers
-multiple OS Windows, NT and UNIX
-multiple Rdbms Oracle, SQL Server, Informix
-Legacy systems esp. for conversion projects
-Auto and manual testers

Mid-level and Sr. positions available. All positions require Bachelors degrees. Salary competitive. Re-location for short term assignments with costs covered. Send cover letter and resume with salary requirement to jobs@tnsclnc.com

TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has a position for a software professional whose duties will involve gathering requirements, doing business analysis and proposing solutions for IT needs of healthcare and pharmaceutical industry. The individual will build and lead a team to develop solutions for software dealing with clinical trials for the pharmaceutical industry.

Job Requirements: Bachelors degree with a concentration in computer science or equivalent with additional coursework in Medicine or pharmacology. Should have knowledge of clinical trials along with a minimum of 3 years experience in software programming. Analysis and three years experience in business development.

TechNation provides onsite consulting services to clients across the United States and hence a key requirement for this position is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Navdeep Patyal, 300 N. Dakota Ave. Suite #506B, Sioux Falls, SD 57104 or email Nava@tnsclnc.com

Possons are available for Product Consultants in Atlanta and Boston and a Systems Support Engineer in Atlanta with an e-business technology company. The company provides solutions that enable corporations and software providers to leverage emerging technologies to more effectively compete in the global market.
Product Consultants are responsible for planning, developing and implementing custom software applications at customer sites. They gather and analyze requirements of end users and prepare feasibility analysis including requirements.

Candidates for the Product Consultant positions should possess a Bachelor's degree in a Computer field and at least two years experience in software design and development implementing middleware technology for web enabling and database technologies, including XHTML and XML or JAVA, and demonstrated knowledge of AS400 technology. Must have ability to travel 100% of time.
The Systems Support Engineer is responsible for providing software expertise in developing and producing software systems for three-tier Middleware development and production packages that reside on UNIX and NT servers.
Candidates for the Systems Support Engineer position should possess a Bachelor's degree in Computer Science or a related field and at least one year's experience in systems support for middleware technology using JAVA.
Apply by mail with resume to: Natalie Gow, c/o Jacada Inc., 400 Perimeter Center Terrace, Suite 188, Atlanta, Georgia 30346

IT Professionals

Manager

Responsible for tax and revenue system development including application design, development and implementation. Responsible for the return processing subsystem of a large-scale customized integrated tax system that performs processing, audit, collection and recovery functionalities. Lead Joint Application Design (JAD) sessions with groups of users and compile system requirements for the return processing area. Responsible for every deliverable of the full life cycle from inception to completion. Work with users to design and implement the requirements that incorporate configurability and high performance. Responsible for consolidating return edits and performing cross tax types edits. Supervise every aspect of the design, development and testing of the applications and manage functional and technical staff. Responsibilities include integrating multiple tax types and departments such as processing, audit, and collection as well as conducting design and code reviews and presenting each deliverable to the users. Utilize HTML, Websphere, Java, DB2, JavaScript, Java, and Relational Database.

WAGE: $80,000/year

REQUIREMENTS:
Bachelor's degree in Computer Science, Math, Business Administration, Engineering (any type), or Information Systems + 5 years exp in the job offered or 5 years exp as a Designer & Developer, Team Leader, Manager, or Senior Consultant. Related experience must include at least 3 years of experience in tax and revenue system development including application design, development and implementation. Must have knowledge of (1) integrating multiple tax types and departments such as processing, audit, and collection (2) at least 1 year experience in HTML, Websphere, Java, DB2, JavaScript, JAD, Relational Database.

Please send your resume, referencing Job Order Number 3944 to the PA Career Link/Job Service, Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1384. EOE.

Director ERP Applications

Western New York based manufacturing company seeks top quality candidate. MBA required. Proven ERP major application implementation experience with (Oracle, SAP, JD Edwards or PeopleSoft). Strong manufacturing systems experience essential. Experience building fault tolerant systems. Solid knowledge of Internet technologies and strengths in system development methodologies. Ideal candidate must be a leader with excellent communication/interpersonal skills. Outstanding environment, benefits and compensation with this highly respected organization. Resp and to Personnel Resource, Inc. via email:
prinorth@perresource.com

Manager, Client Facing Systems (Washington, DC) - Consult with clients to plan, design, implement & deploy extranet and web-based technology solutions. Lead multi-vendor integration, tool selection and implementation. Negotiate vendor contract terms. Manage complex extranet development/integration projects, provide end user training, and contribute to group and departmental planning, budgeting & technology architecture design processes. Utilize exp in developing & implementing in-house/extranet in a professional services organization, including exp. in Cold Fusion, SQL Server, JavaScript, Visual Basic, VBA, MS Exchange & SMTP. Requires M.S. in Comp Sci./Engineering/MIS or related plus 1 yr. related exp. Please send resume & cover letter to Alan Gump Strauss Hauer & Feld LLP at astrauss@acquiring@stangump.com or fax to (202) 452-4907. EOE.

SW Eng'rs: Rsrch, dsgn, dev'lp, test Oracle DBA/Oracle Applic'n DBA w/ High Availa'y Servers, & Parallel Servers on Unix/Win; dsgn, dev'p interfaces w/ above systems in Developer 2000, PowerBuilder, VB, C/C++, SQL-Anywhere, 8-i, BS in eng'g or business rel'ted field, 1-yr wk exp w/ Oracle DBA & VB. Resume to S. V. Mohan, Frontier Solutions Inc. at 10160 Bella Rive Blvd., #2108, Jacksonville, FL 32256 or at fsi@frontiersolutions.com

Associate Director, Relationship Management. Columbus, GA. Direct the work unit that performs daily servicing, system/product development, requirements definition, system options, conversions, start-ups, and de-conversion activities on the International Services Department ("ISD") Cardholder platform for clients in 17 countries using 9 currencies. Provide client service for the total Cardholder processing on a complete computer platform and recognize and manage cultural differences in business styles and government requirements for 17 countries.
Competitive Salary. Must have three (3) years of managerial experience within credit card and banking industry using T81 international Platform systems and written & oral fluency in Spanish to work with clients in 17 countries. Must have legal authority to work in the U.S. Please send resume demonstrating all minimum requirements to: Total Systems Services, Inc., Attn: Pam Tolbert, 1600 - 9th Ave., Columbus, GA 31901

LLEORNA Enterprises, a provider of software consulting services, seeks:

Senior Systems Integration Engineer. BS or equivalent in Computer Sci, Engineering or related + 8 yrs exp in SW engrng, programming or related. Also 2 yrs exp in Windows & Unix systems admin, knowledge/backgrnd in: RDBMS; CGI; and Perl, C++ or Java; backgrnd in power utilities/energy industry. Mail resume to: 2243 Shannon Dr., South San Francisco, CA 94080.

Consultant
Westminster, CO

Who we are GE Power Systems is the world's leading supplier of power systems equipment and services, servicing a global market with annual sales of over $10 billion. A thriving technology driven organization, our innovative spirit and progressive challenges have made GE Power Systems a hotbed for exceptional opportunities. As we continue to move forward, we have a number of excellent opportunities available for engineering professionals.

Who we seek The Consultant gathers user requirements and performs system and application design based on the analysis of those requirements to improve the client's existing GIS system; confers with the client to analyze current operational procedures, identify problems and provide geographical information system technical support; develops custom GIS applications using Magik or other relevant application development languages; develops application using industry-standard programming languages such as C++, Java, or others as dictated by specific project requirements; develops or assists in the development of interfaces to external systems such as database management systems.

The Consultant must possess a bachelor's degree in Computer Science, GIS, Engineering or other related field and a minimum of 3 years experience as part of a complex information systems project; familiarity with GIS and/or object-oriented design and programming education/experience; good problem solving and analytical skills; and excellent oral and written communication skills and the ability to discuss complex technology in a clear and concise manner.

How to apply We offer a competitive salary, an outstanding benefits package and the professional advantages of an environment that supports your development and recognizes your achievements. To apply, please send your resume, referencing code GEPS/296779/ANI090, to: opportunities@gecareers.com. We are an Equal Opportunity Employer.

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INFOTECH CONSULTING, INC.
Computer Programmers, Software Engineers, Database Administrators

A multi-million dollar consulting firm seeks well-qualified technical professionals for analysis, design, development, implementation and maintenance of software applications in one or more of the following:
• Java, EJB, Severlets, JSP, PL/SQL, Application Server, UNIX (Solaris), HTML & JavaScript
• C++, PL/SQL, Application Server(s) Oracle/IBM/BEA
• Microsoft Technologies
• a) DNA, COM/DCOM/COM+/MS
• b) DotNET, C#, VB.NET, ADO.NET, XML, assemblies, Remoting
• c) XML with MS SQL Server
• d) Version Control, VSS Integration, Configuration Management
• VB, ASP
• XML (DOM, SAP) DotNET, Java & C++ Parser
• DOPS, CORBA, ORDBMS, Design Patterns, MOM Concepts
• Object and Database Modeling - CASE Tools (ERWIN, Designer, Cool:GEN) UML (Enterprise Architect, Rational Rose)
• SAP, Peoplesoft ERP, ABAP, Oracle Applications (Financials)
• ORACLE database Developer, Designer, Actuate Web Reporting
• UNISYS Mapper/COBOL, PowerBuilder
• IBM Mainframe, MQSeries and Related Technologies
• DBA- Oracle, DB2, SQL server

Computer Programmers should have bachelor's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+yrs relevant experience. Software Engineers should have master's degree (or its functional equivalent) in Computer Science/quantitative disciplines & 2+yrs relevant experience or bachelor's degree (or its functional equivalent) in Computer Science/ quantitative disciplines & 5+yrs relevant experience. DBAs should have bachelor's or master's degrees (or functional equivalents) and 2 + years relevant experience. Candidates must be willing to travel & relocate. Send resume to: Recruitment CWW, Infotech Consulting, Inc., 4780 Dellbrook Rd., Ste 201, Mechanicsburg, PA 17050; Fax: 717-731-9867; Email: hsingh@infotechpa.com. Visit our website at http://www.infotechpa.com.

NEWS MEDIA MANAGER - WABC Eyewitness News has an immediate opening for a News Media Manager. Responsibilities include: managing media ingest, output and traffic flow for multiple newscasts including digital playback, supervising news editors, news editing, and managing digital servers and archives.

The successful candidate will have a minimum of 3 years television news editing experience, and multiple years experience working in a TV newsroom exercising editorial judgment. Must be proficient in non-linear editing techniques, computer literate, comfortable working with Microsoft Office and Windows NT, as well as experience with one or more newsroom systems such as AP ENPS.

This individual must be highly organized and used to working under tight deadlines while working on multiple, overlapping projects. The News Media Manager will work closely with News Producers and Management to ensure the timely and accurate production of newscasts, special reports and special segments. Prior supervisory experience preferred.

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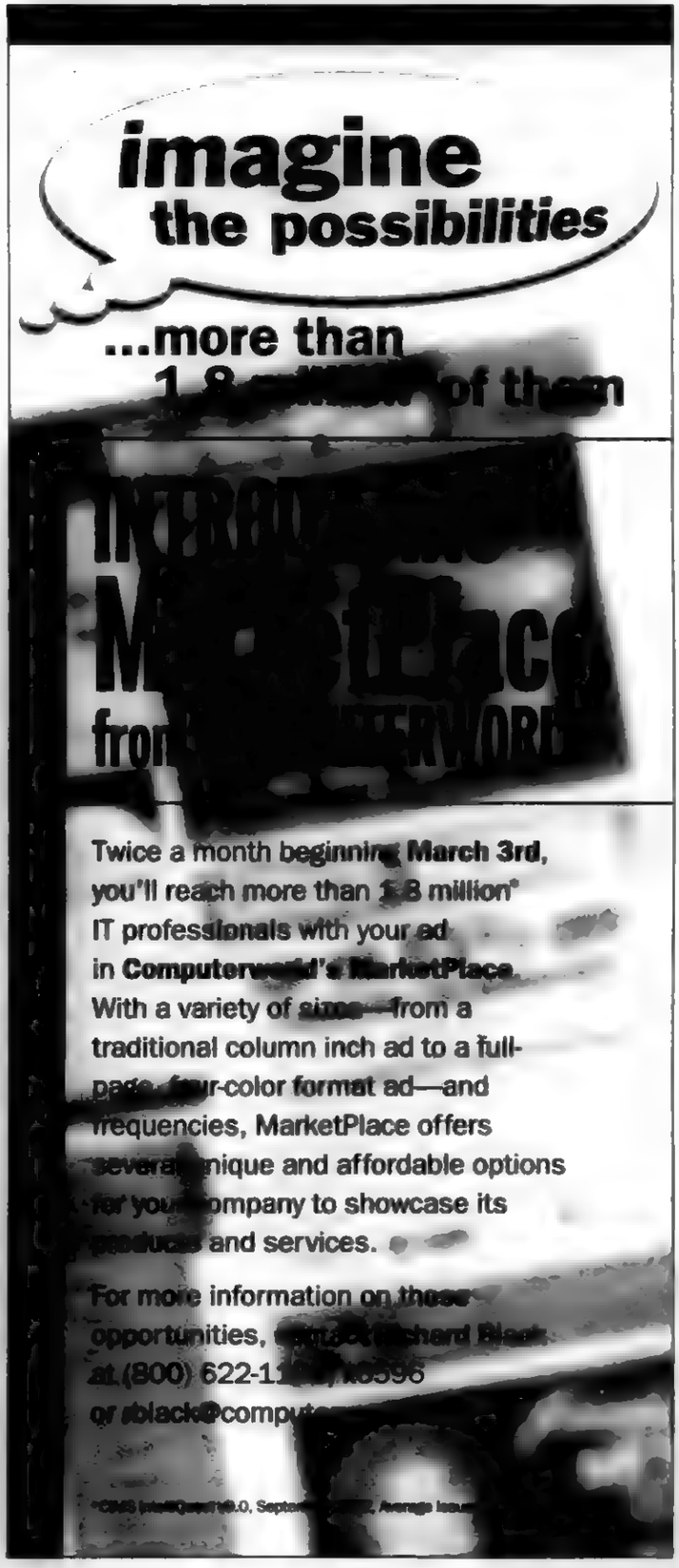

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Virtualization

to wait until next January to get off of NT.

"If they came out tomorrow with it, I'd buy it and evaluate it right away, because it solves my problem of trying to at least consolidate testing environments," Pane said.

Diane Greene, CEO of VMware, acknowledged that Microsoft had approached her company and that there were some discussions, but they didn't come to an agreement. She said VMware already has thousands of customers, adding that Microsoft's acquisition of Connectix "just amplifies our focus on delivering and continuing with our innovation and quality and providing full choice for our customers."

"It's a pretty large market," Greene said.

Tony Adams, a technology analyst at J.R. Simplot Co. in Boise, Idaho, said his company pared 30 physical servers to five boxes running VMware's GSX software during the past eight months. That move helped the company reduce the time needed to purchase, configure and deploy a server from two weeks to a couple of hours, according to Adams.

The company was so happy with the consolidation project that it's now planning to deploy 15 to 20 physical servers running VMware software for new applications.

Adams has seen Connectix, but he said Microsoft "would really have to do a much better job to win us over," since VMware has been a great fit. Plus, Adams said, he runs VMware's GSX software on Linux — something he wouldn't be able to do with the new Microsoft product.

Alejandro Bombaci, CIO at Empresas Polar, a consumer goods manufacturer and distributor in Caracas, Venezuela, said he would prefer to see hardware makers or third parties provide the virtual machine functionality, "so there will be more independence on the support for each operating system under the partitioning software."

Despite those sentiments, some analysts said they anticipate that many users will be more comfortable going with Microsoft's virtual machine software.

"You really want one vendor to deal with when you're dealing with operating systems," said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Plus, Enderle said, he expects Microsoft to eventually build the virtual machine software into its operating system "to the point where they're almost giving the stuff away."

Hebert said that over time, the product might be included with the operating system. Virtualization software has become an increasingly popular consideration for Microsoft users coping with the problem of Windows server sprawl, since the software can help them reduce hardware expenses and operating costs.

"We were hearing from customers that getting a supportable virtual machine solution from Microsoft would be an attractive thing," Hebert said.

NT Server users often run a single application on each of their Windows servers, either because software vendors require it or because they worry that problems with or changes to an application will cause others to crash.

Hebert noted that as a result, much of the hardware running Windows NT Server 4.0 has gone underutilized. Yet because the hardware is nearing the end of depreciation schedules, some customers want to replace it, he said.

Rather than moving Windows NT applications onto new hardware that will be even more severely underutilized, the user can move it to new, faster hardware running the Virtual Server product, Hebert said. That would let several Windows NT servers be consolidated on a single box.

And there's an added benefit for Microsoft. Hebert noted that the Virtual Server software requires its own underlying operating system, and Microsoft hopes customers will choose to run the Virtual Server software on Windows Server 2003, due in April.

But not every company will be rushing to do Windows server consolidation. Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said companies pay a premium for the larger servers. Plus, he said he would rather have less functionality off-line if a server crashes or needs to be taken down for an application upgrade.

Rick Stiegler, chief technology officer at Lending Tree Inc. in Charlotte, N.C., said his company's applications perform better on two-way servers than larger four-CPU boxes, so consolidation isn't in his company's plans. ▶

Shopping List

Microsoft last week acquired three software products from Connectix, in addition to its engineering and support teams.

Virtual Server: Native Windows-based server application that enables users to run a broad range of operating systems in virtual machines – including Windows, Linux, Unix and OS/2 – concurrently on a single physical Intel server. Product is currently in beta-testing phase.

Virtual PC for Windows: Client software that allows users to run multiple PC-based operating systems – including Linux, NetWare, OS/2, Solaris and Windows – and applications simultaneously on a single workstation.

Virtual PC for Mac: Client software that lets Macintoshes run Windows applications, access PC networks and share files with PC-based users. Product provides functionality and compatibility of a Pentium PC through software emulation of the standard Intel chip set and other hardware components.

Acquisition Gives Microsoft New Client Apps, Employees

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Virtualization

to wait until next January to get off of NT.

"If they came out tomorrow with it, I'd buy it and evaluate it right away, because it solves my problem of trying to at least consolidate testing environments," Pane said.

Diane Greene, CEO of VMware, acknowledged that Microsoft had approached her company and that there were some discussions, but they didn't come to an agreement. She said VMware already has thousands of customers, adding that Microsoft's acquisition of Connectix "just amplifies our focus on delivering and continuing with our innovation and quality and providing full choice for our customers."

"It's a pretty large market," Greene said.

Tony Adams, a technology analyst at J.R. Simplot Co. in Boise, Idaho, said his company pared 30 physical servers to five boxes running VMware's GSX software during the past eight months. That move helped the company reduce the time needed to purchase, configure and deploy a server from two weeks to a couple of hours, according to Adams.

The company was so happy with the consolidation project that it's now planning to deploy 15 to 20 physical servers running VMware software for new applications.

Adams has seen Connectix, but he said Microsoft "would really have to do a much better job to win us over," since VMware has been a great fit. Plus, Adams said, he runs VMware's GSX software on Linux — something he wouldn't be able to do with the new Microsoft product.

Alejandro Bombaci, CIO at Empresas Polar, a consumer goods manufacturer and distributor in Caracas, Venezuela, said he would prefer to see hardware makers or third parties provide the virtual machine functionality, "so there will be more independence on the support for each operating system under the partitioning software."

Despite those sentiments, some analysts said they anticipate that many users will be more comfortable going with Microsoft's virtual machine software.

"You really want one vendor to deal with when you're dealing with operating systems," said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc. Plus, Enderle said, he expects Microsoft to eventually build the virtual machine software into its operating system "to the point where they're almost giving the stuff away."

Hebert said that over time, the product might be included with the operating system. Virtualization software has become an increasingly popular consideration for Microsoft users coping with the problem of Windows server sprawl, since the software can help them reduce hardware expenses and operating costs.

"We were hearing from customers that getting a supportable virtual machine solution from Microsoft would be an attractive thing," Hebert said.

NT Server users often run a single application on each of their Windows servers, either because software vendors require it or because they worry that problems with or changes to an application will cause others to crash.

Hebert noted that as a result, much of the hardware running Windows NT Server 4.0 has gone underutilized. Yet because the hardware is nearing the end of depreciation schedules, some customers want to replace it, he said.

Rather than moving Windows NT applications onto new hardware that will be even more severely underutilized, the user can move it to new, faster hardware running the Virtual Server product, Hebert said. That would let several Windows NT servers be consolidated on a single box.

And there's an added benefit for Microsoft. Hebert noted that the Virtual Server software requires its own underlying operating system, and Microsoft hopes customers will choose to run the Virtual Server software on Windows Server 2003, due in April.

But not every company will be rushing to do Windows server consolidation. Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said companies pay a premium for the larger servers. Plus, he said he would rather have less functionality off-line if a server crashes or needs to be taken down for an application upgrade.

Rick Stiegler, chief technology officer at Lending Tree Inc. in Charlotte, N.C., said his company's applications perform better on two-way servers than larger four-CPU boxes, so consolidation isn't in his company's plans. ◗

Shopping List

Microsoft last week acquired three software products from Connectix, in addition to its engineering and support teams.

Virtual Server: Native Windows-based server application that enables users to run a broad range of operating systems in virtual machines – including Windows, Linux, Unix and OS/2 – concurrently on a single physical Intel server. Product is currently in beta-testing phase.

Virtual PC for Windows: Client software that allows users to run multiple PC-based operating systems – including Linux, NetWare, OS/2, Solaris and Windows – and applications simultaneously on a single workstation.

Virtual PC for Mac: Client software that lets Macintoshes run Windows applications, access PC networks and share files with PC-based users. Product provides functionality and compatibility of a Pentium PC through software emulation of the standard Intel chip set and other hardware components.

Acquisition Gives Microsoft New Client Apps, Employees

Microsoft last week acquired two established client products from privately held Connectix, in addition to the beta version of the San Mateo, Calif.-based company's Virtual Server software.

The Virtual PC for Windows software lets users run multiple PC-based operating systems and applications simultaneously on a single workstation.

Jim Hebert, general manager of Microsoft's Windows server product management group, said a typical scenario for Virtual PC for Windows might involve a user who has upgraded to Windows XP yet wants to run an older application built for Windows 95 or 98. With the Virtual PC software, the user could run the older application and the older underlying operating system on the new PC, Hebert said.

Connectix's Virtual PC for Mac, through software emulation of the Intel chip set and other hardware components, enables Apple Computer Inc.'s Macintosh computers to run Windows applications, access PC networks and share files with PC users.

Hebert said that in addition to the three Connectix software products, Microsoft also acquired the company's engineering and support teams. He added that Microsoft has no plans to change any of the functionality of the Connectix products. But he did note that the Virtual Server software might eventually be built into the Windows server operating system and that product names might change at some point.

Microsoft will complete final development, testing and certification of Virtual Server and provide support for existing testers of the product. The Connectix beta is closed to new applicants, but Microsoft plans to introduce a Virtual Server preview release on April 15 via its Web site.

Tom Bittman, an analyst at Gartner Inc. in Stamford, Conn., said the Connectix Virtual Server software drove the Microsoft acquisition. But, he said, although Microsoft sees partitioning as a helpful tool for users doing migrations, he thinks Microsoft sees workload management as more important strategically.

Microsoft will ship its Windows Systems Resource Manager (WSRM), which allows users to allocate processing power and memory for applications that run on the same copy of Windows, as a separate CD with Windows Server 2003.

"WSRM is really at the center of their consolidation strategy," Bittman said.

Although analysts said the Connectix server software was the driver for the Microsoft acquisition, the client piece may gain some corporate traction. Diane Greene, CEO of rival VMware, said Merrill Lynch & Co. has more than 20,000 seats of her company's workstation product so that users can run two different flavors of Windows for application compatibility.

– *Carol Sliwa*

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Which Microsoft?

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It's what he didn't quite say.

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So when he says Microsoft "must survive and prosper by learning from the open source software movement and by borrowing from and improving its techniques," that's pretty much guaranteed to grab attention — and it has. (You can read an edited version of Stutz's parting shot on his Web site at *www.synthesist.net*.)

What won't get as much attention are the things he edges around. Stutz doesn't come right out and talk about the state of Microsoft. He puts his concerns in the form of predictions and warnings, which make them sound innocuous enough. After all, they haven't actually happened yet, right?

But we know from experience that an insider's predictions in this industry often aren't predictions — they're thinly veiled descriptions of things that are already going on.

So when Stutz suggests that the next few years could "have the side-effect of changing Microsoft into a place where creative managers and accountants, rather than visionaries, will call the shots," is he predicting — or describing?

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FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

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And if it's *not* the Microsoft we're facing, maybe it's time for someone who's still at Microsoft to come right out and say so. ◗

Next Thursday at the Latest

Manager making a trip overseas wants to take copies of all company resources – manuals, forms, everything available – so the remote office can use them too. On a Friday afternoon, 12 hours before her flight, she asks pilot fish to copy the entire contents of the server to a CD. But that's over 460GB of data, fish says. Blank look, so fish tries again: It would require creating about 900 CDs. "Oh, OK," says manager. "So, by Wednesday then?"

SHARK TANK

Security?

University pilot fish is supposed to install a software package on an Army system as part of a support contract. But it's a secure system – fish can't access it, and the security-cleared people who do have access aren't allowed to copy software from an unsecured system into it. But fish has administrator privileges on a national lab's archive site, which the Army has declared "trustworthy." So fish copies the software to the archive, and the Army IT people copy it back to their secure system. Grumbles fish, "Bureaucracy at its best."

Discrepancy

Database admin pilot fish runs the quarterly sales report as usual. But the assistant to the CEO demands that fish run it again: "The actual sales numbers don't match the projected numbers!"

Convenience

After consultant pilot fish gets a network back up, he tells client he still needs to restore remote access. "Only one user uses that – you!" client snaps. But if there's a problem, I won't have to drive all the way out to the site, fish says. "Oh, I see," client interrupts. "It's only a convenience for you!" Fish sighs. "After I explained that a two-minute problem can be fixed remotely in two minutes and he won't be charged for travel time, he calmed down."

Reality Check

All employees are required to pass an online test on new regulations – but many haven't taken the quiz. Bosses come up with an idea to ensure compliance, which CIO runs past network manager pilot fish: "How easy is it to disable the network log-ons of employees who haven't taken the test?" Not hard, says fish, but how will they take the online test if they can't get on the network? CIO: "Good point."

Never Happened

It's a dumb question this user asks a help desk pilot fish, and she realizes that when fish tells her that the solution is to turn on the printer. "Did you get my memo?" she asks. No, says fish – and user quickly hangs up.

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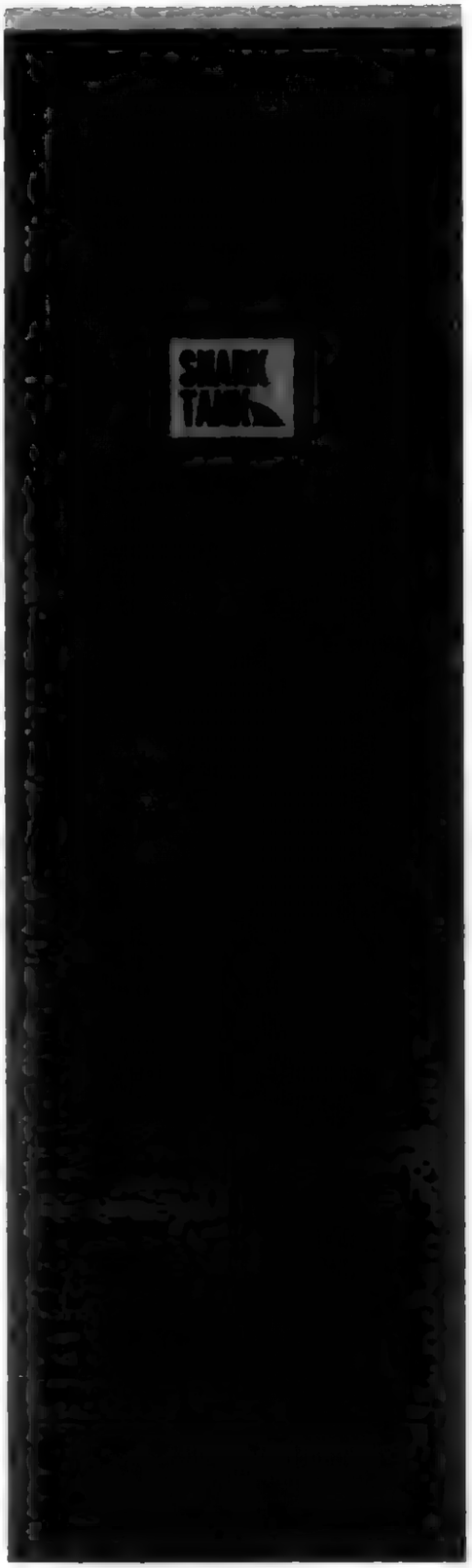

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Upgraded version of WebLogic suite converges integration and building of homegrown apps

BY CAROL BLIWA

To kick off its annual eWorld conference, BEA Systems Inc. today will unveil beta versions of its new suite of WebLogic software products, including its application server, enterprise portal and integration broker technologies.

But analysts predicted that companies will be most interested in the suite's upgraded WebLogic Workshop, since the new tool provides a unified interface for developing to any of the WebLogic products.

"That's the right direction," said Bob Carasik, enterprise architect at the IT arm of Wells Fargo & Co. in San Francisco. "We're glad to see they're adding new layers of functionality on top of the application server. They have to move up the stack, because application servers are going to become a commodity."

The first version of WebLogic Workshop, which shipped last year, was restricted to building Web services. The new version has been extended to let developers build custom applications, create portals, integrate applications and manage business processes and trading partners, said Chet Kapoor, vice president and general manager of San Jose-based BEA's integration group.

WebLogic Workshop has also been expanded with more controls to remove the complexity of building applications that rely on Java 2 Enterprise Edition technologies, Kapoor added.

"This is a very substantial piece of work," said John Rymer, an analyst at Cambridge,

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CRM Analytics Starts to Pay Off for Users

Siebel, other vendors put priority on built-in tools after slow start

BY MARC L. SONSINI

The use of analytical customer relationship management software is still in its infancy. But some companies that have been willing to give the technology a shot say their investments are paying off.

For example, Honeywell Aerospace is already seeing a return on its investment in the analytical CRM applications it installed three months ago to help its sales force manage customer accounts, said Darryl Carroll, director of sales and marketing processes at the Honeywell International Inc. subsidiary.

Phoenix-based Honeywell Aerospace, which makes aircraft parts, is using Siebel Systems Inc.'s CRM tools. Sales personnel can now use a dashboard interface to look at customer data across the company's various business units to identify selling opportunities and proactively address potential problems, such as issues related to specific parts, he said.

Carroll declined to disclose how much the software cost, but he said Honeywell Aerospace has already recouped its investment through productivity gains. Previously, the company's sales force had to

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IBM Defends Pricing Model

Plans to keep, improve mainframe Workload License Charge

BY JAIKUMAR VIJAYAN

IBM remains fully committed to its Workload License Charge mainframe software pricing model and will continue to try to make it easier for users to implement it. That was the message delivered by an IBM executive at the Share large-systems user conference in Dallas last week.

IBM announced WLC in October 2000 along with its 64-bit zSeries mainframes. Under the pricing model, IBM z/OS users pay for software based on the average size of their workloads and not on the overall system capacity.

Despite the promised benefits, users have complained that WLC is hard to implement and understand [QuickLink 32381]. IBM itself has acknowledged that the model isn't for everyone and requires

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BEA Unifies Its Software Development Environment

Upgraded version of WebLogic suite converges integration and building of homegrown apps

BY CAROL SLIWA

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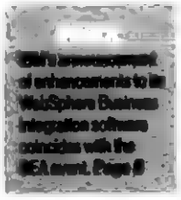

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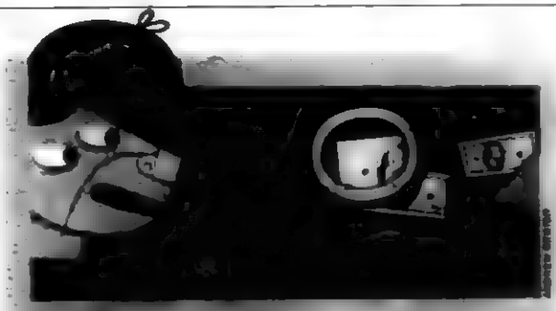

Follow THE Money

Choosing a strategic vendor is far from elementary. It's a long-term commitment that involves a lot more than the technology you buy. Before you tie your company's fortunes to those of a supplier, it's critical to investigate thoroughly and learn as much as you can about your would-be partner's financial history and prospects. We offer 10 ways to assess the financial health of IT vendors. SEE PAGE 36.

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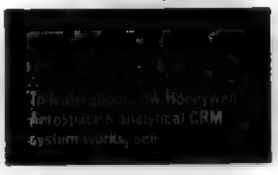

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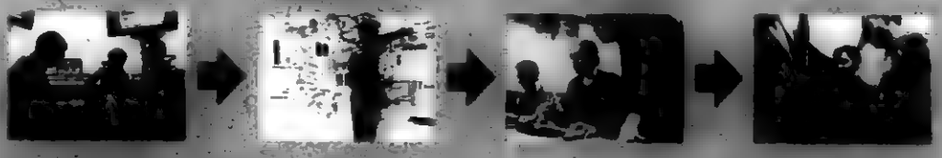

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The Peril Within

MOBILE/WIRELESS: Security begins at home. Many employees build their own wireless LANs, but that can mean big trouble for companies. Henry Feuzi, a managing consultant at New York-based Predictive Systems Inc., says these setups can be open windows for intruders. ● QuickLink 30043

Behavioral Rules vs. Signatures

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AT DEADLINE

IBM Signs $1B IT Services Deal

IBM announced a six-year IT services deal valued at about $1 billion with AXA Group, a Paris-based insurance and financial services firm. The companies said IBM will consolidate AXA's servers, mainframes and storage devices into an "on-demand" computing installation. But they added that AXA will retain full control of its IT infrastructure and workers.

IETF to Research Antispam Measures

The Internet Engineering Task Force (IETF) said it has set up an antispam research group to investigate new ways to help users block unsolicited commercial e-mail. The group will explore the development of a common architecture for detecting spam and enforcing user consent policies. It will also consider possible antispam legislation.

Sun Plans CPUs With Multiple Cores

At a meeting with financial analysts, Sun Microsystems Inc. outlined plans to develop chip multithreading processors, starting with an UltraSPARC IV device due later this year. Sun said it will put multiple CPU cores that can each simultaneously process multiple tasks on a single piece of silicon. IBM last month said it will deliver similar processors next year [QuickLink 36523].

Short Takes

EMC CORP. in Hopkinton, Mass., added Gigabit Ethernet support and new disk drives to its Symmetrix 8000 storage arrays and announced models optimized for use with mainframes. . . . LUCENT TECHNOLOGIES INC. in Murray Hills, N.J., signed an agreement in principle to settle an accounting probe by the Securities and Exchange Commission.

IBM Upgrades Business Integration Technology

WebSphere tools reduce need for Java programming skills

BY MARC L. SONGINI

IBM IS ENHANCING its WebSphere middleware technology in an effort to simplify the task of creating and monitoring data and business-process workflows through corporate systems.

This week, IBM will announce an upgrade of its WebSphere Business Integration software aimed at letting users model business processes that go across different applications without needing to have special Java coding skills. It also plans to roll out improved development tools and increased Web services support (see box).

To widen the modeling and monitoring capabilities in WebSphere Business Integration, IBM is embedding technology it gained in September when it acquired Holosofx Inc., a business integration software vendor in El Segundo, Calif., said Sean Poulley, director of WebSphere business development at IBM.

Previously, the Holosofx applications required a customized link to WebSphere. They will still be sold separately, but Poulley said the Holosofx technology will now be integrated with WebSphere Business Integration Server Version 4.2, which is due later this month.

Closing the Loop

The Business Integration Modeler will let users outside of IT create blueprints of business processes that can be handed off to developers for implementation, IBM said. Companies can also use the modeler with the Web browser-based Business Integration Monitor to develop systems with built-in thresholds and alerts that provide feedback as business processes are executed.

"If I've got the modeling tool integrated with the monitoring tool, I get a closed loop," Poulley said. For instance, he said, a manufacturer could create a workflow process to restock its inventories and let end users know the cost of items as they're being procured.

Robert Catterall, director of strategic technology for the e-commerce division at CheckFree Corp. in Norcross, Ga., said the capabilities being added by IBM could be useful in involving less technically skilled workers in application integration projects.

"There are people who know Java well, and there are people who understand business processes well, and people in one of these groups are very often not found in the other," Catterall said. CheckFree uses IBM's DB2 database and is contemplating a WebSphere installation, he noted.

IBM is making the right moves by starting to combine its various integration products and giving them common tools and user interfaces, said Sharyn Leaver, an analyst at Forrester Research Inc. in Cambridge, Mass. But IBM has yet to standardize on a single runtime engine for its WebSphere application and integration servers, she added.

Doug Brown, director of marketing for WebSphere integration, acknowledged that IBM supports multiple runtime engines within the sprawling WebSphere line. But by year's end, it plans to consolidate on one runtime technology so applications will be reusable, Brown said.

Cisco Builds Rugged Switch To Link Factory, Back Office

BY MATT HAMBLEN

In a move aimed at unifying factory-floor networks with the ones in corporate back offices, Cisco Systems Inc. will unveil today at the National Manufacturing Week show in Chicago a ruggedized line of switches based on IP and Ethernet.

The Catalyst 2955 series is designed for use in factories and in utility, transportation and military settings, where temperatures, humidity, dust and vibrations are more extreme than they are in regular business environments, Cisco officials said. The devices, which are about one-third as big as Cisco's regular switches, are shipping now and are priced from $2,100 to $3,600.

CISCO'S CATALYST 2955 is about one-third the size of its regular switches.

The 2955 series introduces the first rugged Ethernet switches developed by a major networking equipment vendor, said Harry Forbes, an analyst at ARC Advisory Group Inc. in Dedham, Mass. He noted that Cisco is rolling out the switches at a time when factory-floor devices that control production processes, robots and other machines are starting to be equipped with Ethernet interfaces instead of manufacturing-specific technologies.

The biggest supplier of rugged Ethernet switches for factories is Hirschmann Electronics GmbH in Neckartenzlingen, Germany, Forbes said. Switches accounted for about 8% of the 300,000 Ethernet-ready devices sold for factory use last year, ARC said.

For companies that have installed Cisco products and Ethernet technology in their main corporate networks, the 2955 could help extend to the manufacturing realm the quality-of-service features and other capabilities that are built into the Catalyst technology, said Joel Conover, an analyst at Current Analysis Inc. in Sterling, Va.

"You're going to be able to monitor and control manufacturing from the core network," Conover said. He added that many mainstream IT managers will be more willing to accept the 2955 switches than devices from specialty vendors like Hirschmann because Cisco's technology is so widely deployed and accepted.

"I won't have to sell people on the brand of the switch," said Carl Staab, manager of communications technology at Emerson Process Management in Pittsburgh. Emerson has been beta-testing the 2955 series since January and hopes to resell the Cisco switches with process control equipment that it markets to water and sewer utilities, he said.

The 2955 series also has 12 Ethernet ports — twice what the competition offers, Staab said. Another advantage over existing factory-floor switches is the 2955's ability to quickly alert workers to network problems through an external light on the device, he said.

VIDEO VAULT

Cisco upgrades its technology for caching high-bandwidth data at network edges.
QuickLink 36726
www.computerworld.com

Navy's Massive Intranet Rollout OK'd

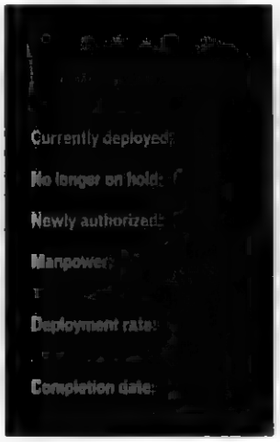
Some users still cite costs, other concerns

BY DAN VERTON

The U.S. Navy confirmed last week that the Pentagon has given it the go-ahead to move as many as 310,000 Navy and Marine Corps IT users to the Navy/Marine Corps Intranet (N/MCI).

The decision comes after months of operational testing that was required by Congress before it would allow the Navy to proceed beyond a 60,000-user cap that it imposed after concerns surfaced about the program's technical feasibility and cost [QuickLink 30106]. However, after the successful completion of the testing phase, the Navy received permission to proceed with all 160,000 of the N/MCI seats that had been previously approved and was authorized to order an additional 150,000 N/MCI seats from its prime contractor, Plano, Texas-based Electronic Data Systems Corp.

N/MCI is an IT outsourcing project, often referred to as seat management, intended to give the Navy and Marine Corps secure, universal access to integrated voice, video and data communications. It's also designed to provide pier-side connectivity to Navy vessels in port and, when completed, will link more than 310,000 desktops across the U.S., Puerto Rico, Japan and Cuba.



Although most of the focus of the N/MCI deployment remains on support units, Vincent Madsen, a 24-year EDS veteran who recently took over as client delivery executive for the N/MCI program, said the potential for military conflict in Iraq does play a role in planning for the future. "We have to work closely with all the units to make sure we're not going to get in the way," he said. "I don't anticipate any delays, but we may move some schedules around."

For now, N/MCI is moving full steam ahead. "The results from four months of testing clearly demonstrated that the N/MCI is ready to move to the next level," Rear Adm. Charles L. Munns, director of the N/MCI project, said in a statement released by the Navy.

"We're now moving at light speed to get all of this deployed as contracted by the end of the year," said Madsen, referring to all 310,000 seats.

EDS has dedicated more than 300 employees to deployment and installation and is relying on Dell Computer Corp. for hardware delivery as well as initial build, configuration and customer support for the N/MCI desktop Windows environment, said Madsen. "We're going to rev up to the point where we'll be able to deploy 1,000 desktops per day across the entire infrastructure at multiple locations," he said.

Hurdles Remain

But some N/MCI users said they continue to struggle to maintain productivity and keep N/MCI costs down.

A San Diego-based Naval IT manager involved in the project said N/MCI seats are costing his customers $3,000 to $6,000 per seat per year. The cost is so high that some Navy organizations can't afford N/MCI workstations for their contractor support personnel, he said. He claimed that using another contractor, he could supply for $570,000 what EDS is charging a Navy unit $2.5 million for.

Another manager from the Naval Region Southwest, which includes 10 bases in California and one in Nevada, said his users continue to deal with "nothing but chaos, poor communication and lack of any deliverables."

One organization has been waiting more than a year to get a critical application shifted to N/MCI, the manager said. There has also been no accountability for missed schedules or critical application or system outages, the manager added.

The Navy and EDS have repeatedly downplayed such problems, characterizing them as natural growing pains and going so far as to accuse some civilian Navy employees of having an agenda to kill the program.

COLLAPSED TALKS

EDS ends negotiations for a multibillion-dollar contract with French firm Alstom

QuickLink 30054
www.computerworld.com

UPS Readies Wireless Upgrade in U.S.

50,000 drivers to get new info terminals

BY BOB BREWIN
LOS ANGELES

United Parcel Service Inc. will deploy higher-speed wireless services to its U.S. delivery fleet this year, starting with retrofitting 4,500 driver data terminals with modems that support AT&T Wireless Services Inc.'s General Packet Radio Service (GPRS) network.

The retrofitting move is a large-scale test of the GPRS mobile data service that will be followed by a rollout of new terminals to UPS's 50,000-plus drivers in the U.S. Tamara Schwartz, the company's director of global network services, said at a wireless IT conference held here last week by Gartner Inc. that UPS next month will detail its plans for deploying the more advanced information terminals.

Schwartz wouldn't disclose any specifics about the new terminals, which will be made by Holtsville, N.Y.-based Symbol Technologies Inc. But a spokeswoman for Atlanta-based UPS said the terminals will be equipped with GPRS modems or with ones that support the rival Code Division Multiple Access (CDMA) wireless network technology.

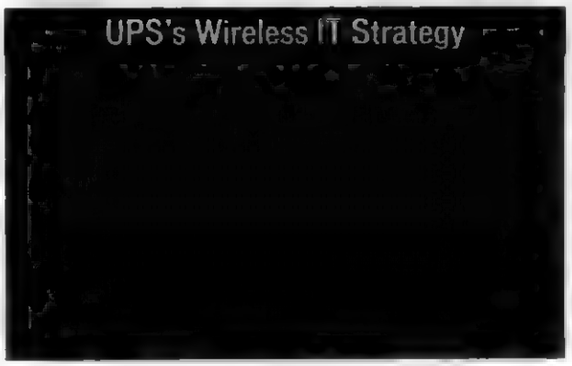
Improved Throughput

For UPS drivers, the rollout should mean much better data throughput. For example, the AT&T Wireless network supports data transmission rates of up to 40K bit/sec., compared with a speed of about 9.6K bit/sec. for the network services provided by Reston, Va.-based Motient Corp. that are now used in the U.S.

The planned U.S. project follows a deployment last year of GPRS-enabled terminals to 15,000 UPS drivers in Europe, where the company uses wireless network services provided by the T-Mobile division of Deutsche Telekom AG in Bonn. T-Mobile's GPRS network runs at 20K to 40K bit/sec. and replaced a 9.6K bit/sec. Mobitex network also operated by T-Mobile.

Schwartz said the higher data rates have helped UPS better manage "on-demand" delivery services in Europe, where drivers typically respond to requests for pickups instead of making scheduled stops as they do in the U.S.

UPS and Memphis-based rival FedEx Corp. both said last July that they planned to standardize their global wide-area wireless architectures on GPRS technology wherever it's available. But the two companies also acknowledged that they would have to use other wireless standards in some locations [QuickLink 31154].



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Gartner analyst Ken Dulaney said UPS has no choice but to go with both GPRS and CDMA in the U.S. In contrast, European countries offer companies GPRS as a single wireless standard, he noted.

The AT&T Wireless GPRS network will be tested at package-delivery hubs with more than 60 drivers, UPS said.

AT DEADLINE

IBM Signs $1B IT Services Deal

IBM announced a six-year IT services deal valued at about $1 billion with AXA Group, a Paris-based insurance and financial services firm. The companies said IBM will consolidate AXA's servers, mainframes and storage devices into an "on-demand" computing installation. But they added that AXA will retain full control of its IT infrastructure and workers.

IETF to Research Antispam Measures

The Internet Engineering Task Force (IETF) said it has set up an antispam research group to investigate new ways to help users block unsolicited commercial e-mail. The group will explore the development of a common architecture for detecting spam and enforcing user consent policies. It will also consider possible antispam legislation.

Sun Plans CPUs With Multiple Cores

At a meeting with financial analysts, Sun Microsystems Inc. outlined plans to develop chip multithreading processors, starting with an UltraSPARC IV device due later this year. Sun said it will put multiple CPU cores that can each simultaneously process multiple tasks on a single piece of silicon. IBM last month said it will deliver similar processors next year [QuickLink 36523].

Short Takes

EMC CORP. in Hopkinton, Mass., added Gigabit Ethernet support and new disk drives to its Symmetrix 8000 storage arrays and announced models optimized for use with mainframes. . . . LUCENT TECHNOLOGIES INC. in Murray Hills, N.J., signed an agreement in principle to settle an accounting probe by the Securities and Exchange Commission.

IBM Upgrades Business Integration Technology

WebSphere tools reduce need for Java programming skills

BY MARC L. SONGINI

IBM IS ENHANCING its WebSphere middleware technology in an effort to simplify the task of creating and monitoring data and business-process workflows through corporate systems.

This week, IBM will announce an upgrade of its WebSphere Business Integration software aimed at letting users model business processes that go across different applications without needing to have special Java coding skills. It also plans to roll out improved development tools and increased Web services support (see box).

To widen the modeling and monitoring capabilities in WebSphere Business Integration, IBM is embedding technology it gained in September when it acquired Holosofx Inc., a business integration software vendor in El Segundo, Calif., said Sean Poulley, director of WebSphere business development at IBM.

Previously, the Holosofx applications required a customized link to WebSphere. They will still be sold separately, but Poulley said the Holosofx technology will now be integrated with WebSphere Business Integration Server Version 4.2, which is due later this month.

Closing the Loop

The Business Integration Modeler will let users outside of IT create blueprints of business processes that can be handed off to developers for implementation, IBM said. Companies can also use the modeler with the Web browser-based Business Integration Monitor to develop systems with built-in thresholds and alerts that provide feedback as business processes are executed.

"If I've got the modeling tool integrated with the monitoring tool, I get a closed loop," Poulley said. For instance, he said, a manufacturer could create a workflow process to restock its inventories and let end users know the cost of items as they're being procured.

Robert Catterall, director of strategic technology for the e-commerce division at CheckFree Corp. in Norcross, Ga., said the capabilities being added by IBM could be useful in involving less technically skilled workers in application integration projects.

"There are people who know Java well, and there are people who understand business processes well, and people in one of these groups are very often not found in the other," Catterall said. CheckFree uses IBM's DB2 database and is contemplating a WebSphere installation, he noted.

IBM is making the right moves by starting to combine its various integration products and giving them common tools and user interfaces, said Sharyn Leaver, an analyst at Forrester Research Inc. in Cambridge, Mass. But IBM has yet to standardize on a single runtime engine for its WebSphere application and integration servers, she added.

PRODUCT FEATURES

- Integrated business-process modeling and monitoring tools that IBM bought in September
- Improved development tools designed to reduce the time it takes to set up data workflows
- IBM's Eclipse framework gives programming environment to provide a consistent interface
- Support for publishing business processes as Web services

Doug Brown, director of marketing for WebSphere integration, acknowledged that IBM supports multiple runtime engines within the sprawling WebSphere line. But by year's end, it plans to consolidate on one runtime technology so applications will be reusable, Brown said.

Cisco Builds Rugged Switch To Link Factory, Back Office

BY MATT HAMBLEN

In a move aimed at unifying factory-floor networks with the ones in corporate back offices, Cisco Systems Inc. will unveil today at the National Manufacturing Week show in Chicago a ruggedized line of switches based on IP and Ethernet.

The Catalyst 2955 series is designed for use in factories and in utility, transportation and military settings, where temperatures, humidity, dust and vibrations are more extreme than they are in regular business environments, Cisco officials said. The devices, which are about one-third as big as Cisco's regular switches, are shipping now and are priced from $2,100 to $3,600.

CISCO'S CATALYST 2955 is about one-third the size of its regular switches.

The 2955 series introduces the first rugged Ethernet switches developed by a major networking equipment vendor, said Harry Forbes, an analyst at ARC Advisory Group Inc. in Dedham, Mass. He noted that Cisco is rolling out the switches at a time when factory-floor devices that control production processes, robots and other machines are starting to be equipped with Ethernet interfaces instead of manufacturing-specific technologies.

The biggest supplier of rugged Ethernet switches for factories is Hirschmann Electronics GmbH in Neckartenzlingen, Germany, Forbes said. Switches accounted for about 8% of the 300,000 Ethernet-ready devices sold for factory use last year, ARC said.

For companies that have installed Cisco products and Ethernet technology in their main corporate networks, the 2955 could help extend to the manufacturing realm the quality-of-service features and other capabilities that are built into the Catalyst technology, said Joel Conover, an analyst at Current Analysis Inc. in Sterling, Va.

"You're going to be able to monitor and control manufacturing from the core network," Conover said. He added that many mainstream IT managers will be more willing to accept the 2955 switches than devices from specialty vendors like Hirschmann because Cisco's technology is so widely deployed and accepted.

"I won't have to sell people on the brand of the switch," said Carl Staab, manager of communications technology at Emerson Process Management in Pittsburgh. Emerson has been beta-testing the 2955 series since January and hopes to resell the Cisco switches with process control equipment that it markets to water and sewer utilities, he said.

The 2955 series also has 12 Ethernet ports — twice what the competition offers, Staab said. Another advantage over existing factory-floor switches is the 2955's ability to quickly alert workers to network problems through an external light on the device, he said.

VIDEO VAULT

Cisco upgrades its technology for caching high-bandwidth data at network edges.

QuickLink 36728
www.computerworld.com

Navy's Massive Intranet Rollout OK'd

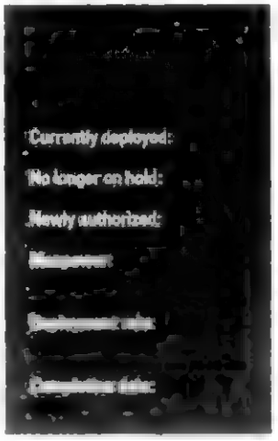
Some users still cite costs, other concerns

BY DAN VERTON

The U.S. Navy confirmed last week that the Pentagon has given it the go-ahead to move as many as 310,000 Navy and Marine Corps IT users to the Navy/Marine Corps Intranet (N/MCI).

The decision comes after months of operational testing that was required by Congress before it would allow the Navy to proceed beyond a 60,000-user cap that it imposed after concerns surfaced about the program's technical feasibility and cost [QuickLink 30106]. However, after the successful completion of the testing phase, the Navy received permission to proceed with all 160,000 of the N/MCI seats that had been previously approved and was authorized to order an additional 150,000 N/MCI seats from its prime contractor, Plano, Texas-based Electronic Data Systems Corp.

N/MCI is an IT outsourcing project, often referred to as seat management, intended to give the Navy and Marine Corps secure, universal access to integrated voice, video and data communications. It's also designed to provide pier-side connectivity to Navy vessels in port and, when completed, will link more than 310,000 desktops across the U.S., Puerto Rico, Japan and Cuba.



Although most of the focus of the N/MCI deployment remains on support units, Vincent Madsen, a 24-year EDS veteran who recently took over as client delivery executive for the N/MCI program, said the potential for military conflict in Iraq does play a role in planning for the future. "We have to work closely with all the units to make sure we're not going to get in the way," he said. "I don't anticipate any delays, but we may move some schedules around."

For now, N/MCI is moving full steam ahead. "The results from four months of testing clearly demonstrated that the N/MCI is ready to move to the next level," Rear Adm. Charles L. Munns, director of the N/MCI project, said in a statement released by the Navy.

"We're now moving at light speed to get all of this deployed as contracted by the end of the year," said Madsen, referring to all 310,000 seats.

EDS has dedicated more than 300 employees to deployment and installation and is relying on Dell Computer Corp. for hardware delivery as well as initial build, configuration and customer support for the N/MCI desktop Windows environment, said Madsen. "We're going to rev up to the point where we'll be able to deploy 1,000 desktops per day across the entire infrastructure at multiple locations," he said.

Hurdles Remain

But some N/MCI users said they continue to struggle to maintain productivity and keep N/MCI costs down.

A San Diego-based Naval IT manager involved in the project said N/MCI seats are costing his customers $3,000 to $6,000 per seat per year. The cost is so high that some Navy organizations can't afford N/MCI workstations for their contractor support personnel, he said. He claimed that using another contractor, he could supply for $570,000 what EDS is charging a Navy unit $2.5 million for.

Another manager from the Naval Region Southwest, which includes 10 bases in California and one in Nevada, said his users continue to deal with "nothing but chaos, poor communication and lack of any deliverables."

One organization has been waiting more than a year to get a critical application shifted to N/MCI, the manager said. There has also been no accountability for missed schedules or critical application or system outages, the manager added.

The Navy and EDS have repeatedly downplayed such problems, characterizing them as natural growing pains and going so far as to accuse some civilian Navy employees of having an agenda to kill the program.

COLLAPSED TALKS

EDS ends negotiations for a multibillion-dollar contract with French firm Alstom

QuickLink 30654
www.computerworld.com

UPS Readies Wireless Upgrade in U.S.

50,000 drivers to get new info terminals

BY BOB BREWIN
LOS ANGELES

United Parcel Service Inc. will deploy higher-speed wireless services to its U.S. delivery fleet this year, starting with retrofitting 4,500 driver data terminals with modems that support AT&T Wireless Services Inc.'s General Packet Radio Service (GPRS) network.

The retrofitting move is a large-scale test of the GPRS mobile data service that will be followed by a rollout of new terminals to UPS's 50,000-plus drivers in the U.S. Tamara Schwartz, the company's director of global network services, said at a wireless IT conference held here last week by Gartner Inc. that UPS next month will detail its plans for deploying the more advanced information terminals.

Schwartz wouldn't disclose any specifics about the new terminals, which will be made by Holtsville, N.Y.-based Symbol Technologies Inc. But a spokeswoman for Atlanta-based UPS said the terminals will be equipped with GPRS modems or with ones that support the rival Code Division Multiple Access (CDMA) wireless network technology.

Improved Throughput

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The AT&T Wireless GPRS network will be tested at package-delivery hubs with more than 60 drivers, UPS said.

UPS's Wireless IT Strategy

- Equip 70,000 drivers worldwide with wide-area wireless services.
- Equip 4,500 driver terminals in the U.S. with GPRS modems as a test and then roll out new terminals to all of the U.S. drivers.
- Use a combination of GPRS and CDMA networks to provide full wireless coverage in the U.S.
- Start a U.S. rollout this year of a bar-code sorting system based on 802.11b wireless LAN and Bluetooth technology.
- Finish the bar-code sorting installations here next year and start a rollout to operations in the rest of the world in 2004.

BRIEFS

Ford to Slash IT Budget by $300M

Ford Motor Co. said it's cutting its IT budget by about $300 million as part of a cost-reduction initiative that began early last year. The cutbacks will lower Ford's IT spending by 20% and may include layoffs of some of its 2,800 contract IT workers, a spokesman said. He added that Ford, which has about 6,000 IT staffers, is evaluating which projects will be affected by the cuts.

HP Results Hit by Weak U.S. Sales

Hewlett-Packard Co. reported lower-than-expected financial results for its first quarter and pinned most of the blame on continued weak IT spending in the U.S. HP said it had a $721 million profit on revenue of $17.9 billion in the quarter, which ended Jan. 31. HP didn't disclose comparative year-earlier numbers that take its acquisition of Compaq Computer Corp. into account.

CERT, IT Vendors Warn of SIP Flaw

The CERT Coordination Center in Pittsburgh warned about a software flaw that could affect networking devices with support for the Session Initiation Protocol (SIP). Analysts and IT vendors said users haven't reported any problems as a result of the flaw. But vendors such as Cisco Systems Inc. and Nortel Networks Ltd. said some of their products are vulnerable, and they have made patches available.

Short Takes

DELL COMPUTER CORP. CEO Michael Dell said at a conference that the company will announce its first Dell-branded printers this month. . . . **DIVINE INC.**, a Chicago-based software and IT services vendor, filed for Chapter 11 protection and said it's exploring a possible sale of its assets.

MARK HALL ▪ ON THE MARK

IT Digital Dashboard To Get Face-Lift . . .

. . . and improved integration with major applications in Version 5.0 of Kintana Dashboard slated for June, sources said. Kintana Inc. in Sunnyvale, Calif., whose eponymous IT capacity planning and resource management product has attracted a growing number of users in the past year, will begin beta-testing its anticipated upgrade next month. The company is adding adapters for Microsoft Outlook and PeopleSoft. It also plans to improve the dashboard's integration with Microsoft Project. Expect to see some modifications to the user interface, such as approval buttons appearing at both the top and bottom of the scrolling screens.

William Farrow, CIO at the Chicago Board of Trade and a user of Kintana Dashboard, said an adapter to **the general ledger portion of PeopleSoft "would be something really hot"** for his company because it has done little customization to its PeopleSoft application and would be able to quickly adopt the upgrade and roll IT project changes into the corporate general ledger. ▪ Although CRM giant **Siebel Systems Inc. is getting knocked around** these days by its much smaller ASP competitors, such as SalesForce.com Inc. and UpShot Inc., larger companies still prefer it. At least that's what CIOs were saying at *Computerworld*'s Premier 100 IT Leaders Conference last week. Even Jay Gardner, CIO at BMC Software Inc. in Houston, whose company bombed its first two attempts to install Siebel, said BMC evaluated the ASP approach after two failed Siebel installs, but "we felt the **ASP model would not give us the control, agility or scalability** to go where we wanted to go." Third time being the charm, BMC now has 3,500 users of Siebel 6.3, and Gardner said the company will upgrade to Version 7.05 this summer. In fact, when the upgrade is complete, the Siebel application running on an Oracle data warehouse will be the primary repository for all corporate data. Maybe "the end of software," a SalesForce.com marketing mantra, isn't so nigh after all.

▪ **Hype prepares us for the future**, suggests Tim Howes, CTO at Opsware Inc. in Sunnyvale, Calif. But what if the future is already here? Companies like IBM, Hewlett-Packard Co. and Sun Microsystems Inc., with their variations on utility computing, "are marketing their vision of what data center computing will look like in three to five years," he says. Howes doubts that it will resemble what the major vendors are betting on. That's because these Big Three vendors have all built their utility model around big iron. But Howes poohpoohs that idea. **"It's more expensive taking the mainframe approach** than going down to [computer retailer] Fry's and buying another inexpensive server," he claims. "They're more reliable and just plain cheaper, too." Furthermore, he argues, a lot of what the Big Three are selling already exists, such as load-balancing and shared-server pools, and companies are already handling planned surges (Super Bowl-type events) and unplanned surges (such as 9/11) in resource demand. His view, of course, is tainted by a different sales pitch, which is that Opsware system management software lets you manage scads of small servers with far fewer resources. Howe boasts that a single sysadmin can "easily handle 100 machines" with agents called Intelligent Software Modules (ISM). These ISMs have to be written for each program running on the server. Currently, Opsware has 60 ISMs, but it will have a "couple hundred" by year's end, Howe says. ▪ You might want to **get some control over all those Fry's shoppers** by installing Frictionless Sourcing 3.0, a policy-based procurement package that helps manage spending that doesn't always go through the purchasing department. Available this week from Frictionless Commerce Inc. in Cambridge, Mass., the upgrade includes a handful of new modules, including spend analysis and workflow management. It can also do demand aggregation so large companies with multiple locations buying the same products can build a single large purchase order for a better deal. And global companies now can have workers review a single purchase in their local languages and currencies.

Sockeye Upgrades WAN Routing Tools

BY MATT HAMBLEN

Sockeye Networks Inc. today will release an upgrade of its wide-area network routing-optimization software that's designed to support the complex network billing models used by companies that rely on multiple Internet service providers (ISP).

With the new capabilities built into Version 3.0 of Sockeye's GlobalRoute technology, companies that use more than one ISP can automatically set up optimal routes for network traffic, based on the terms of their contracts. Network managers can use the information to move traffic to faster or cheaper links and to help renegotiate ISP contracts when they come up for renewal, Sockeye officials said.

The Waltham, Mass.-based company is the second vendor in the emerging market for route-control technology to announce an upgrade in recent weeks. Fremont, Calif.-based netVmg Inc. last month shipped a new release of its Flow Control Platform software and added a pair of low-end route-control appliances.

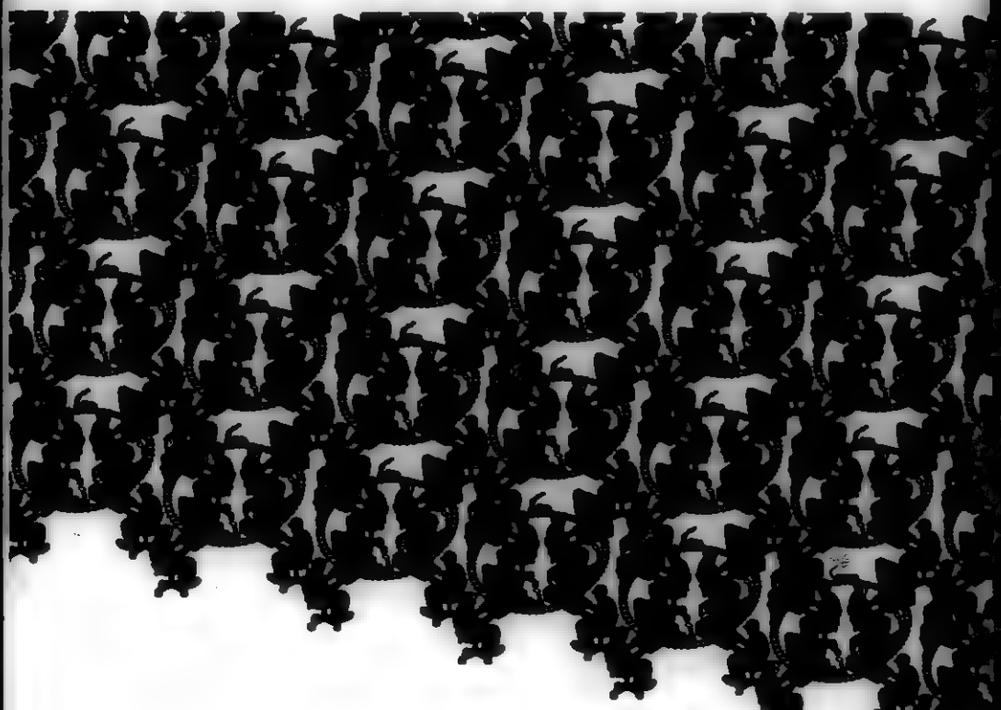
Other companies that offer technology to help users find the fastest and cheapest routes for data traffic over WAN links include RouteScience Technologies Inc. in San Mateo, Calif., and Proficient Systems Inc. in Atlanta. But Sockeye is the only vendor offering those capabilities as a managed service, said Charles Rutstein, an analyst at Forrester Research Inc. in Cambridge, Mass.

Sockeye installs its route-control appliances at customer sites and manages them for monthly fees that start at $4,000.

Digital West Networks Inc., an IT hosting company in San Luis Obispo, Calif., has been using GlobalRoute 3.0 for about a month to help set up optimum routing for the data that's handled by its four ISPs, said Chief Technology Officer Josh Richards.

"It's in our interest to get our customers' traffic pushed as fast as possible, and this software has provided a differentiator for us," he said.

Your Enterprise Monday 10:32 A.M



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Serial SCSI Promises Faster I/O in Servers

Drive vendors set shipment plans as spec OK nears

BY LUCAS MEARIAN

AN IT STANDARDS body is close to ratifying a new serial interface specification for SCSI disk drives that's expected to speed up I/O throughput in servers and could eventually challenge Fibre Channel technology's share of the high-end disk array pie.

The serial-attached SCSI specification is expected to be approved during the second quarter by the T10 technical committee of the Washington-based International Committee for Information Technology Standards. Disk makers such as Seagate Technology LLC and Maxtor Corp. last week said they plan to begin shipping serial SCSI drives to system vendors by year's end.

The IP-based technology will support faster I/O throughput than the current parallel SCSI interface does, said Gordy Lutz, a product marketing manager at Scotts Valley, Calif.-based Seagate.

Serial SCSI is expected to replace its parallel predecessor as the standard disk-drive interface in most servers as well as in workstations and low-end to midrange disk arrays, according to John Lohmeyer, the T10 technical committee's chairman.

TWO FOR ONE
Users will be able to combine serial SCSI drives and less expensive ATA devices in servers and disk arrays.
QuickLink 36708
www.computerworld.com

Drive's Advantages

But the new drives will also offer faster I/O speeds than Fibre Channel devices do, Lohmeyer said. And like Fibre Channel technology, serial SCSI drives will have dual I/O ports for fail-over purposes and will support simultaneous send-and-receive operations.

Seagate, which makes about 95% of the Fibre Channel drives used in high-end disk arrays, said it expects serial SCSI and Fibre Channel to complement each other. But Milpitas, Calif.-based Maxtor is betting on serial SCSI to replace Fibre Channel disk in five to 10 years.

Because the specification supports point-to-point connections between disks and controllers through the use of so-called extenders, there should be no competing demands to slow down the flow of data, as there are on conventional system buses, said Brendan Collins, director of product marketing at Maxtor.

Lev Gonick, CIO at Case Western Reserve University in Cleveland, said the ability to open up the internal bandwidth of servers is serial SCSI's greatest potential feature for improving his school's operations.

Mark Price, director of enterprise architecture at Carlson Companies Inc., said serial SCSI will become interesting to the Minneapolis-based travel industry conglomerate "at the point when the cost of it becomes equal to or less than what we're currently using."

Carlson now uses a Fibre Channel storage-area network (SAN) with multiprotocol switches made by San Jose-based Nishan Systems Inc. to connect mirrored data centers over IP. But, Price said, "we think Fibre Channel is probably a shorter-lived technology. It's very expensive and complicated to implement."

Serial SCSI will likely become "an alternative to doing Fibre Channel in [SANs], but it's not the panacea," said Jamie Gruener, an analyst at Gartner Inc. in Stamford, Conn. "It's meant to replace parallel SCSI. It's not meant to be a complete replacement of everything."

	SERIAL SCSI	FIBRE CHANNEL
	■ 3G bit/sec. throughput, with 6G bit/sec. planned by 2006	■ 2G bit/sec. throughput, with 4G bit/sec. planned by 2005
	■ Includes dual I/O ports	■ Includes dual I/O ports
	■ Supports external cable lengths of up to 6 meters	■ Supports external cable lengths of up to 15 meters
	■ Uses a direct-connect architecture with "extenders" to link multiple disk drives	■ Uses arbitrated loops or loop-switched architectures to link multiple disk drives

Veritas Upgrades Backup Software, Looks to Diversify

BY LUCAS MEARIAN

Veritas Software Corp. last week upgraded its flagship data backup technology. But Veritas, the second-largest vendor of storage management tools, is also embarking on an acquisition-fueled strategy to expand into other IT management technologies.

The plan to augment products such as its NetBackup software with new server and application management tools is aimed at helping Mountain View, Calif.-based Veritas compete against more diversified rivals such as EMC Corp., Computer Associates International Inc. and IBM.

Veritas officials said their goals are to offer IT administrators a bundled suite of management tools and increase the company's annual revenue from $1.5 billion to $5 billion over the next three years.

To some users, the plan makes a lot of sense. For example, Tom Guthrie, vice president of technology operations at Atlanta-based Cox Communications Inc., said there's definite value in the direction Veritas is taking.

Tech Additions

Veritas has announced the following acquisitions:

PRECISE SOFTWARE SOLUTIONS LTD., which sells application performance management software; due to be completed by mid-June.

ARDENT TECHNOLOGIES INC., a developer of software for remote provisioning, deployment and configuration of servers; bought in December.

INTERNOZ TECHNOLOGIES, a data storage management tool developer; bought in January.

"With all of our vendors, we've encouraged them to go up the value chain in areas they're good at, and we're happy to interact with them about that," Guthrie said. He recently standardized backup operations on Cox's 10TB storage-area network (SAN) by installing NetBackup.

Veritas has announced three acquisitions since November, adding products in areas such as server provisioning and application performance management (see box).

Bill Augustadt, chief technology officer at BlueStar Solutions Inc., said the ability to pool server capacity to address application needs and then monitor performance on the fly should help the Cupertino, Calif.-based application outsourcing firm more efficiently control its services according to customer needs.

"Any automation we can do will allow us to scale across platforms with fewer people to manage them," said Augustadt, who uses various Veritas products to handle data backups on a 160TB SAN.

Veritas' big task this year is to "consolidate and integrate the companies we acquired," said Jeremy Burton, the company's chief marketing officer. "But I don't think it will be technology that hinders us." If problems do arise, they most likely will be related to sales execution issues, he noted.

Anders Lofgren, an analyst at Giga Information Group Inc., predicted that other storage software vendors will adopt similar expansion plans. But, he added, "for Veritas to build credibility outside of the storage management space — that will take some time."

In January, Veritas reported a fourth-quarter net loss of $49 million on revenue of $405 million. But the company said business was better than expected, and it reported a $57 million profit for 2002 as a whole, compared with a net loss of $643 million for 2001.

NetBackup 4.5 includes a new feature called Instant Data Recovery, which lets users recover data directly from disk drives instead of from tape devices, Veritas said. The upgrade also streamlines the process of storing Microsoft Exchange e-mail attachments.

MORE TO WORK WITH
Cox Communications says NetBackup has helped increase use of its available storage capacity.
QuickLink 36521
www.computerworld.com

If you're busy monitoring your servers, who's watching your business?

The new HP ProLiant DL740 8-way with hot-plug RAID memory.

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- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 6-64 bit/100 MHz PCI-X slots
- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.

The new HP ProLiant DL760 G2 8-way with hot-plug RAID memory.

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What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that predict, self-diagnose and fix many fault conditions. And now with hot-plug RAID memory exclusively from HP, you can add or replace DIMMs without turning your systems off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

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To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YPH.

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BRIEFS

Qwest Execs Face Fraud Charges

The Justice Department said a Denver grand jury indicted four former Qwest Communications International Inc. executives on corporate accounting fraud charges. The Securities and Exchange Commission also filed civil fraud charges against the four as well as three other former executives and Qwest's current senior vice president of finance. Denver-based Qwest said it's cooperating with the probe.

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Microsoft Corp. updated tools that are designed to help corporate users speed up rollouts of Windows XP Professional and Office XP. The tools, available at no cost on Microsoft's Web site, include new features for testing application compatibility and scanning PCs for missing security updates. Microsoft also began beta-testing a tool kit for developing peer-to-peer applications.

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SAP Readies CRM Upgrade With Vertical Industry Focus

New apps will also include increased support for Web services, mobile users

BY MARC L. SONGINI

SAP AG is readying an upgrade of its customer relationship management (CRM) software that officials said will deliver more industry-specific functions and increased ties to other applications.

SAP plans to release the next version of its mySAP CRM software in June. As part of the upgrade, it will expand the ability of the applications to use Web services technology to take data feeds from both internal and external systems, said Peter Zencke, a member of SAP's executive board. That will let users draw on more information and better exploit analytical CRM tools to improve their interactions with customers, he said.

The new release will also include built-in business processes specific to 22 vertical industries, Zencke said. For instance, SAP plans to expand its marketing campaign management functions for companies in the consumer packaged goods market.

Seeking a Remedy

Eric Bloom, vice president of IT at Endo Pharmaceuticals Holdings Inc. in Chadds Ford, Pa., uses SAP's R/3 enterprise resource planning software and said he would like to see SAP roll out a CRM module for the pharmaceuticals industry. The ability to tie together customer data from multiple systems would be a big advantage for Endo, he noted.

Bloom said SAP has been trying to put together such a product, but he added that it's hard for vendors to create a single set of CRM applications that can meet the needs of companies with different business processes, even within the same industry. Endo currently uses some homegrown CRM tools, Bloom said.

An SAP spokesman said pharmaceuticals is one of the vertical industries that the CRM upgrade will address through functionality such as capabilities for analyzing contested charges and managing drug-sampling procedures.

SAP's increased vertical-market focus shows that it recognizes there's no such thing as one-size-fits-all CRM, said Erin Kinikin, an analyst at Giga Information Group Inc. in Cambridge, Mass. Many users have struggled to apply CRM technology to their specific business needs, she said.

MySAP CRM in particular could appeal to R/3 users because of its tight integration with SAP's back-office applications, Kinikin added.

SAP will make all its CRM functionality accessible to end users with mobile devices for online or off-line processing, Zencke said. Currently, handheld devices are limited to using SAP's sales force automation tools. The company will also make R/3 and its other business applications handheld-accessible, Zencke said. ▶

CRM Additions

SAP said the next release of mySAP CRM will:

LET mobile devices access its full range of CRM functions.

INCLUDE more features tailored for different vertical industries.

USE Web services to take data feeds from more sources.

PRESENT data from multiple systems via a portal interface.

Continued from page 1

CRM Analytics

dig through data repositories for customer information and then dump the data into Excel spreadsheets in order to conduct analyses, Carroll said.

The analytical applications now take feeds directly from Honeywell's Siebel-based call center and sales force automation systems as well as from other data sources. In addition, the dashboard user interface is easy to use and configure, Carroll said. "We had many pessimistic people here, but now it's 'click' and take off," he added, referring to prompts that are built into the software to help automate data-analysis procedures.

CRM analytics "has been the next 'new' thing that never really happened for the past few years," said Erin Kinikin, an analyst at Giga Information Group Inc. in Cambridge, Mass. But that could change over the next couple of years, now that San Mateo, Calif.-based Siebel and other CRM vendors are moving to embed analysis capabilities into their applications, she said.

In addition to Siebel's analysis technology, PeopleSoft Inc. in December announced a marketing module with 30 built-in analytical capabilities. SAP AG said it plans to beef up the analysis features in its CRM software as part of an upgrade due in June (see related story, above).

The Mutual of Omaha Companies is in the initial phases of rolling out real-time analytical CRM software developed by San Mateo-based E.piphany Inc. The insurer has already implemented E.piphany's sales and marketing tools and is now phasing in its marketing and campaign analytics, said John O'Donovan, first vice president of e-business partnership at Mutual of Omaha.

The analytics project should be wrapped up by midsummer, O'Donovan said. When it's installed, the software will let the company use CRM analytics to modify its marketing campaigns on the fly, based on suggestions derived from individual customer profiles.

Mutual of Omaha already uses software from SAS Institute Inc. in Cary, N.C., to do data mining and customer segmentation work that can help target its marketing programs at specific groups.

But O'Donovan said the two products will complement each other. While the SAS technology addresses historical trending, E.piphany's software will be able to help call center workers make marketing decisions when they're on the phone with customers. ▶

Analytics in Action

How Honeywell Aerospace's analytical CRM system works:

- The company has installed Siebel's analytical software on top of the vendor's sales force automation and call center applications.
- The analytical tools take information about customers from the Siebel applications and other data sources within Honeywell Aerospace.
- The tools use the data to identify sales opportunities or customers who are likely to have product issues and should be contacted proactively.
- Salespeople access the information through a Web-based user interface that can be configured to suit the needs of individual end users.

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Is Citrix putting the squeeze on your budget?

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NEW MOON SYSTEMS

Outsourcing Debate Driven by Cost, Agility

IT managers find offshore outsourcing to be a compelling way to cut costs

BY THOMAS HOFFMAN
SCOTTSDALE, ARIZ.

COST PRESSURES and the need for increased business agility are leading a growing number of companies to shift more of their IT work offshore, according to panelists who discussed sourcing issues at the *Computerworld* Premier 100 conference here last week.

PREMIER 100 IT LEADERS 2003

On average, 60% of IT spending now goes to external companies for hardware, software and services, while 40% goes to staff, said Bart Perkins, the panel moderator and managing partner at Leverage Partners Inc., a Louisville, Ky.-based CIO consulting firm. The percentage of external spending will continue to grow as more companies turn to offshore outsourcing, said Perkins, who is also a *Computerworld* columnist.

That's the trend at Agilent Technologies Inc., a spin-off of Hewlett-Packard Co., which outsources about 35% of its IT work. Two years from now, it expects to outsource about 60% of its IT functions, particularly in areas such as application development and maintenance. The reason: Seven consecutive quarterly losses are driving the Palo Alto, Calif.-based company to reduce costs and become ever more agile in the market, said Marty Chuck, CIO at the scientific instrument maker.

The cost of labor in places such as India is "too compelling," said Chuck, referring to a figure cited by Merrill Lynch & Co. Chief Technology Officer John McKinley in an earlier conference session. McKinley estimated the savings from offshore outsourcing of IT at 40% to 50%.

Currently, 90% of Agilent's IT workforce is based in the U.S. and Europe. By 2005, Chuck sees that ratio flipping, with just 30% of the IT workforce remaining in the U.S. and Europe.

Agilent isn't alone. A few years ago, Northbrook, Ill.-based Allstate Insurance Co. created a wholly owned IT subsidiary in Northern Ireland to help cut IT costs and allow faster response to competitive pressures. Even with 900 highly skilled IT employees there, CTO Cathy Brune finds herself struggling with whether to shift operations elsewhere.

"Anytime you go outside your four walls, there's risk associated with it," said Brune. "But if you have a very smart team, you can figure things out and learn from others."

"We'll be doing more outsourcing in the next two years," said George Lin, vice president and CIO at Documentum Inc., a Pleasanton, Calif.-based enterprise content management software vendor. Both near-shore and offshore vendors "are becoming more savvy about understanding my unique business," said Lin. That's one reason he expects his company to move a growing portion of its software quality assurance and maintenance offshore.

While offshore outsourcing might be attractive from a cost standpoint, there are wrenching cultural and political issues that IT managers have to iron out with domestic IT employees. "You have to be honest with people and [tell them] what you're planning on doing," said Brune. It's also important to help them improve their technical skill and business acumen to keep them valuable to the organization.

Retaining technical knowledge of certain technologies that are sent offshore is a must as well, said Chuck. "If you don't retain some of that knowledge in-house, it's almost cost-prohibitive to bring it back in," he said.

For its part, Agilent plans to keep people with business process and project management expertise. In addition, it has opted not to outsource its data center operations, since a recent benchmarking exercise revealed that Agilent can run its back-office operations more cost-effectively than service providers can.

Microsoft Security Czar Critiques Efforts

'Traffic cop' says company making strides toward goal

BY MARK HALL
SCOTTSDALE, ARIZ.

Listeners praised Microsoft Corp.'s recent efforts to improve product security and patch management after hearing Scott Charney, the company's chief security strategist, describe them in detail. But they agreed that Microsoft hasn't yet shown it can reach its own security goals.

Speaking here at the *Computerworld* Premier 100 conference last week, Charney explained how, as part of its Trustworthy Computing initiative, Microsoft delayed the release of products such as Windows 2003 and Visual Studio .Net. That delay, he said, gives developers who have been trained in areas such as threat modeling and penetration testing a chance to review the software code for flaws.

The company also added two layers of security verification outside of the product groups, because making developers in the product groups responsible for security "was like having the fox guarding the henhouse," Charney said.

And despite complaints from some corporate users, Microsoft products will now be shipped with maximum security features turned on, Charney said.

Those moves are essential, according to Phil Dunkelberger, CEO of PGP Corp., a software security provider in Palo Alto, Calif. "Now they have a guy who is a traffic cop who does not have money at stake," he said of Charney.

Dunkelberger went on to praise the idea of shipping products with security features enabled by default. "Locking down products when they're released is good, even when faced with resistance from larger users," he said.

But he expressed disappointment that Charney didn't discuss the idea of opening up the security elements of Microsoft's products to open-source evaluation. PGP's source code is released for open-source review before it's sold commercially.

PHOTOGRAPHY BY BOB MATHEWS

RA Vernon, chief security officer at Reuters America Inc. in New York, said that before Microsoft can achieve the goals of its Trustworthy Computing initiative, "major cultural change has to take place" within Microsoft.

Charney acknowledged that that was true, specifically in relation to the vendor's patch management procedures, which he characterized as "not good today at all."

He said Microsoft's decentralized management approach, while "wonderful" in many respects, is an impediment to effective patch management. For example, the company had eight patch installers, and some tools can't determine whether a patch has been installed properly or not.

That, he said, will change with the release of Longhorn, the code name for the next release of the Windows operating system. With that release, which isn't expected before mid-2004 at the earliest, a single patch installer will exist.

CIOs Discuss Strategies for Demonstrating Value of IT

IT chief warns against overselling projects to execs

BY THOMAS HOFFMAN
SCOTTSDALE, ARIZ.

Said CIOs should stay humble despite project success

CIOs often have trouble communicating to senior management the value IT investments can deliver to their organizations. After an upgrade to his company's global network infrastructure last year, Baxter International Inc. CIO John Moon decided to take matters into his own hands.

After the networking project was done, Moon handed each of the business leaders at a postproduction senior management meeting a yellow cable. He then told them, "No matter where you are in the world [at any of Baxter's 300 offices], plug this into the wall, and you'll be connected" to the company's global network.

The tactic — as well as the message — "was really eye-opening for them," noted Moon, whose Deerfield, Ill.-based health care company has a $350 million IT budget for 2003.

Moon was on a panel of IT leaders who discussed IT investment and value strategies at the *Computerworld* Premier 100 conference here last week.

At Avon Products Inc., Senior Vice President and CIO Harriet Edelman has squeezed business value out of optimizing systems and business processes in critical areas such as procurement and merchandising. Those moves have yielded $10 million in annualized benefits for the New York-based beauty products giant, she said, thanks in large part to her group's use of IT portfolio management techniques.

Still, Edelman was quick to acknowledge that it's important for CIOs and other IT leaders to avoid being arrogant or evasive when it comes to communicating the value of IT to senior management.

"It's an area that's rife with some danger," she said.

Even when IT initiatives deliver huge returns, Edelman said, the trick is to "stay humble and stay within their [business] point of view."

CIOs also sometimes make the mistake of overselling IT projects to top brass, Moon said. That's one reason why Baxter has a staff member whose role is to communicate the value that IT can deliver, he said.

Another way CIOs can get senior management to invest more in IT is by collaborating more closely with business-unit leaders on specific projects.

By persuading her business peers to take the lead on more IT/business initiatives, Edelman said she has helped increase Avon's spending on strategic and transformational IT efforts by 30% during the past two years. ▶

Identify, Kill Nonessential Projects, CIO Recommends

Narrow focus to a few issues, he says

BY JULIA KING
SCOTTSDALE, ARIZ.

chose three top issues to address at BMC

If he were writing a song about his first 18 months in the top IT post at BMC Software Inc., CIO Jay Gardner might call it "I Learned It the Hard Way."

Gardner, who spoke last week at the *Computerworld* Premier 100 conference here, held sales and operations positions at Houston-based BMC before becoming CIO. In that post, Gardner said he had to learn from his mistakes.

The first of those, he said, was trying to solve too many problems at the same time. Having reviewed a 2002 Gartner Inc. study of key issues on CIOs' minds, Gardner took a crack at more than a dozen — too many, as it turned out. He soon switched gears and took direct aim at the top three issues: aligning IT and the business, providing guidance and leadership about technology to top executives, and proving IT's value.

"These are absolutely the top three things to worry about," Gardner told a packed breakout session titled "IT Governance and Organizational Effectiveness."

"It's not so much about the IT organization, but about how I personally spend my time," he said. How and where CIOs spend their time will reflect directly on their success in meeting their top three challenges, he added.

Topping the issues on which Gardner said he spends the most time are IT governance, people and resources management, and IT architecture. Rounding out the list are business alignment and services management.

"When all five of these are working together, you can drive good alignment and IT value," he said.

Among the key challenges Gardner faced when he came into the CIO's job was prioritizing the various IT projects under way at the software maker. A companywide survey

showed that 128 different projects were already in progress, many of which had no business owner and no return on investment attached to them.

His advice to other CIOs: "Find stuff not to do. Cross off projects from the list."

One of Gardner's key achievements so far has been repositioning IT workers to work on projects for which they have the necessary skills.

"Fifteen months ago, we took a skills inventory and found that we had a lot of talent that was not being used by people in their current jobs," he said. BMC redeployed workers accordingly, boosting morale in the process. ▶

"I think the single biggest threat to my environment, and probably to my job as well, is the dual threat of data security and data privacy."

DOUG LEWIS, EXECUTIVE VICE PRESIDENT AND CIO, SIX CONTINENTS HOTELS INC.

"I can be in Redmond in two hours. I know where I'm going and know who to yell at."

DAMIEN BEAN, VICE PRESIDENT OF CORPORATE SYSTEMS, HILTON HOTELS CORP., ON WHY HE FAVORS MICROSOFT OVER LINUX

"Windows has gotten so robust as to cut out low-end Unix. And not-so-low-end."

ROGER J. JONES, CIO, FORTIS HEALTH

"I fired my top 15 managers."

BILL FARROW, EXECUTIVE VICE PRESIDENT AT THE CHICAGO BOARD OF TRADE, ON HOW HE CONVINCED BUSINESS EXECS THAT HE WAS SERIOUS ABOUT TURNING AROUND IT

MARYFRAN JOHNSON

Keeping the Faith

WHEN WILL THE accelerating pace of change finally overwhelm us? That one question — and the astonishing answer — will resonate

with me long after the end of *Computerworld*'s Premier 100 IT Leaders Conference, which drew more than 500 CIOs, CTOs and senior IT managers to Arizona last week [QuickLink al660].

When Andre Mendes, chief technology integration officer at PBS, posed that question, 77% of the audience replied, "Never."

Now that's faith in IT. And in people. I take that as a most welcome sign in these trying times.

It's also one of the distinguishing characteristics of true leaders — something called "adaptive capacity," as Warren G. Bennis, one of our keynote speakers, so aptly put it. The best-selling author of *On Becoming a Leader* and distinguished management professor at the University of Southern California earned a prolonged standing ovation from our assembled IT leaders after his talk about what makes a true leader [QuickLink 36647].

I can't do justice to his speech in a few sentences, but Bennis said the six core competencies that people want in their leaders are direction, trust, acknowledgment, hope, opportunity for personal growth and results. "A sense of 'We can do it!' " is something leaders communicate to everyone around them, he said.

Indeed, faith in IT is the tie that binds us in this industry. And I saw constant signs of hope and determination at our gathering of IT leaders. In one of our audience polls about IT cost-cutting, for example, 43% said they were focusing more on new projects that will grow the business than on ways to cut further.

In my closing remarks at the conference, I borrowed some observations from a September 2002 column by *Computerworld*'s Frank Hayes, titled "The Faith of IT" [QuickLink 32660]. The heart of his column is about what IT people really believe in, and Frank's thoughts are well worth paraphrasing:

You believe in progress, technology, information and business.

You believe that new ideas and fresh approaches can be better than old ways and that technology can be used to make individuals more powerful and organizations more effective.

You believe that we can use technology to store and process information, but also to discover new information we didn't know, to see patterns we didn't recognize before.

You believe in communication and how it can bring people together to cooperate or compete.

You believe that IT can bridge differences, level inequalities and offer opportunities.

You believe in the new, the unfamiliar, the different. (Even, on occasion, the overhyped and the unproven.)

But most of all, you believe in progress and change, that things can and will get better. That over time, our companies, our industries, even our societies, can be transformed by IT. So if you believe we can solve our problems, then you believe in the future.

You believe that we can and will change the world.

Frank's words remind me of one of the greatest teachers I've ever known, who urged his students to "Go out and move the world an inch." That takes more than hard work, more than technology or business expertise, even more than an adventurous, determined spirit.

It takes faith that what you're doing makes a difference. Everything I saw and heard last week among hundreds of your colleagues tells me that you are out there, moving the world an inch at a time.

Keep the faith. ◗

PIMM FOX

Fight Threats From Within

YOU CAN'T PREDICT a security disaster, but you can prepare for one. The recent revelation that an intruder stole more than 8 million Visa, MasterCard, American Express and Discover credit card account numbers should fan the flames about the limits of IT security.

That's because even the best IT security works only up to a certain level. Once past that level, your defenses *will* be breached, either by a technical gaffe or a human miscreant. When that happens, you must be able to put into action a preparedness plan.

The plan should include the active participation of your corporate communications, legal and customer relations departments as well as your executive committee. In the wake of a breach, these people will all be turning to you, the IT folks, to tell them what went wrong and what you're doing to fix the problem. They'll also be asking you for damage assessments and reports on third-party contacts (because so much security work has been farmed out, to white-hat hackers, for example). For these and other reasons, you must have an internal and external communications plan ready for security failures.

Before you ever have a security breach, assemble the core group of specialists who are trained and prepared to deal with IT security as part of their job. Determine who among them are best suited to communicate internally with users, externally to customers and suppliers and, possibly, even to the media. Then train them. And have backup ready in case your spokesmen are away when a crisis is upon you.

Prepare procedures to alert these key contacts on what information will be available, how to get it and who will be responsible for it. Make sure there's a process for vetting information.

Match the information with the audience. In the recent breach, the credit

card companies didn't publicly reveal the name of the payment processor whose security was compromised, but surely the necessary people inside the credit card companies were briefed in detail. Remember that responding to a security breakdown is an information problem as well as a technical problem. Who you tell and what you tell them is as important as who does the telling.

In addition, security failures can quickly raise legal liability issues, as many financial service companies and health care providers have come to recognize. So it's of paramount importance for your company to speak with a chorus of coordinated voices.

A good, well-tested plan will protect your company against charges of ignoring a threat and make it easier to withstand a crisis when it occurs.

MICHAEL GARTENBERG

Blogging For Fun and Profit

IF I WERE REMAKING *The Graduate* today, with Dustin Hoffman's character as an IT professional who was looking to advance his career, the one word of advice I would give him would be: *weblogs*.

Weblogs, those personal journals and information sites that are growing by leaps and bounds on the Internet, are a simple way for an IT department to create some positive momentum for itself quickly and cheaply. Weblogs, or blogs as they're usually called, allow for easy, direct and effective communication to a wide audience. Most important, the cost of starting an internal blog project is ridiculously low. Most blogging software can be acquired on a trial basis, so you can test to your heart's content, and purchase costs are moderate as well. Here's how to get started creating a corporate blog site.

First, think "modest" and "discreet." While I'd love to see the CEO of every company keep a public weblog (imagine reading what's going on in the mind of Steve Ballmer, Scott McNealy or Carly Fiorina), that's not likely to happen in the near future. In fact, I'd caution you about creating a blog site that can be viewed by the outside world (or even keeping a personal weblog that refers to your company's activities) without first going through a very thorough review process internally. There are already tales of a number of good people who have lost jobs because of corporate discussions on their weblogs.

Instead of going for the full corporate monty from the start, first launch an internal IT blog. Start slowly, as you would with any IT project. Create a beta blog that can be viewed only by IT managers, then open it to IT staffers before you roll it out to the entire company. Get a group of folks to volunteer to create your first series of weblogs and use the beta process to weed out the ones who don't post often enough. Nothing is worse than a stale blog.

Use your blog as a vehicle for communication. Explain what's going on inside IT operations, link to interesting articles and create forums for internal discussions. While everyone is comfortable using PCs and most software, they still appreciate getting timely advice and opinions from experts in the field. Why shouldn't they get it from you and your team?

During the beta process, post at least three times a week, keeping your comments pithy and focused on a single point. Don't make it available to the entire firm until you have at least one month's worth of content.

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More letters on these and other topics are on our Web site: **computerworld.com/letters**

MARYFRAN JOHNSON

Keeping the Faith

WHEN WILL THE accelerating pace of change finally overwhelm us? That one question — and the astonishing answer — will resonate with me long after the end of *Computerworld*'s Premier 100 IT Leaders Conference, which drew more than 500 CIOs, CTOs and senior IT managers to Arizona last week [QuickLink al660].

When Andre Mendes, chief technology integration officer at PBS, posed that question, 77% of the audience replied, "Never."

Now that's faith in IT. And in people. I take that as a most welcome sign in these trying times.

It's also one of the distinguishing characteristics of true leaders — something called "adaptive capacity," as Warren G. Bennis, one of our keynote speakers, so aptly put it. The best-selling author of *On Becoming a Leader* and distinguished management professor at the University of Southern California earned a prolonged standing ovation from our assembled IT leaders after his talk about what makes a true leader [QuickLink 36647].

I can't do justice to his speech in a few sentences, but Bennis said the six core competencies that people want in their leaders are direction, trust, acknowledgment, hope, opportunity for personal growth and results. "A sense of 'We can do it!' " is something leaders communicate to everyone around them, he said.

Indeed, faith in IT is the tie that binds us in this industry. And I saw constant signs of hope and determination at our gathering of IT leaders. In one of our audience polls about IT cost-cutting, for example, 43% said they were focusing more on new projects that will grow the business than on ways to cut further.

In my closing remarks at the conference, I borrowed some observations from a September 2002 column by *Computerworld*'s Frank Hayes, titled "The Faith of IT" [QuickLink 32660]. The heart of his column is about what IT people really believe in, and Frank's thoughts are well worth paraphrasing:

You believe in progress, technology, information and business.

You believe that new ideas and fresh approaches can be better than old ways and that technology can be used to make individuals more powerful and organizations more effective.

You believe that we can use technology to store and process information, but also to discover new information we didn't know, to see patterns we didn't recognize before.

You believe in communication and how it can bring people together to cooperate or compete.

You believe that IT can bridge differences, level inequalities and offer opportunities.

You believe in the new, the unfamiliar, the different. (Even, on occasion, the overhyped and the unproven.)

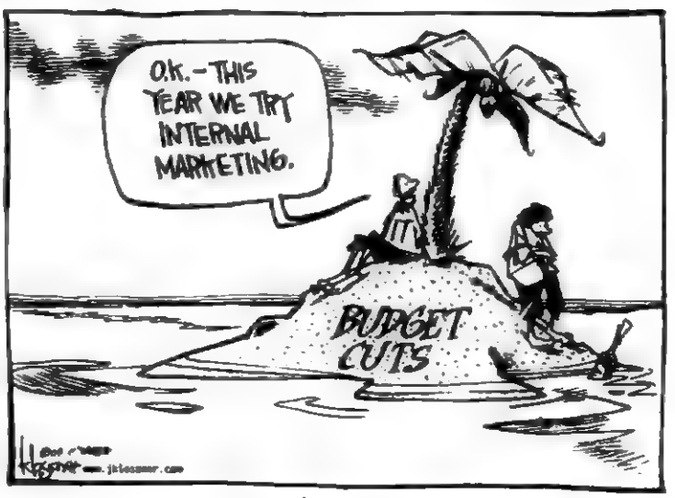
But most of all, you believe in progress and change, that things can and will get better. That over time, our companies, our industries, even our societies, can be transformed by IT. So if you believe we can solve our problems, then you believe in the future.

You believe that we can and will change the world.

Frank's words remind me of one of the greatest teachers I've ever known, who urged his students to "Go out and move the world an inch." That takes more than hard work, more than technology or business expertise, even more than an adventurous, determined spirit.

It takes faith that what you're doing makes a difference. Everything I saw and heard last week among hundreds of your colleagues tells me that you are out there, moving the world an inch at a time.

Keep the faith.



PIMM FOX

Fight Threats From Within

YOU CAN'T PREDICT a security disaster, but you can prepare for one. The recent revelation that an intruder stole more than 8 million Visa, MasterCard, American Express and Discover credit card account numbers should fan the flames about the limits of IT security.

That's because even the best IT security works only up to a certain level. Once past that level, your defenses *will* be breached, either by a technical gaffe or a human miscreant. When that happens, you must be able to put into action a preparedness plan.

The plan should include the active participation of your corporate communications, legal and customer relations departments as well as your executive committee. In the wake of a breach, these people will all be turning to you, the IT folks, to tell them what went wrong and what you're doing to fix the problem. They'll also be asking you for damage assessments and reports on third-party contacts (because so much security work has been farmed out, to white-hat hackers, for example). For these and other reasons, you must have an internal and external communications plan ready for security failures.

Before you ever have a security breach, assemble the core group of specialists who are trained and prepared to deal with IT security as part of their job. Determine who among them are best suited to communicate internally with users, externally to customers and suppliers and, possibly, even to the media. Then train them. And have backup ready in case your spokesmen are away when a crisis is upon you.

Prepare procedures to alert these key contacts on what information will be available, how to get it and who will be responsible for it. Make sure there's a process for vetting information.

Match the information with the audience. In the recent breach, the credit

card companies didn't publicly reveal the name of the payment processor whose security was compromised, but surely the necessary people inside the credit card companies were briefed in detail. Remember that responding to a security breakdown is an information problem as well as a technical problem. Who you tell and what you tell them is as important as who does the telling.

In addition, security failures can quickly raise legal liability issues, as many financial service companies and health care providers have come to recognize. So it's of paramount importance for your company to speak with a chorus of coordinated voices.

A good, well-tested plan will protect your company against charges of ignoring a threat and make it easier to withstand a crisis when it occurs.

MICHAEL GARTENBERG

Blogging For Fun and Profit

IF I WERE REMAKING *The Graduate* today, with Dustin Hoffman's character as an IT professional who was looking to advance his career, the one word of advice I would give him would be: *weblogs*.

Weblogs, those personal journals and information sites that are growing by leaps and bounds on the Internet, are a simple way for an IT department to create some positive momentum for itself quickly and cheaply. Weblogs, or blogs as they're usually called, allow for easy, direct and effective communication to a wide audience. Most important, the cost of starting an internal blog project is ridiculously low. Most blogging software can be acquired on a trial basis, so you can test to your heart's content, and purchase costs are moderate as well. Here's how to get started creating a corporate blog site.

First, think "modest" and "discreet." While I'd love to see the CEO of every company keep a public weblog (imagine reading what's going on in the mind of Steve Ballmer, Scott McNealy or Carly Fiorina), that's not likely to happen in the near future. In fact, I'd caution you about creating a blog site that can be viewed by the outside world (or even keeping a personal weblog that refers to your company's activities) without first going through a very thorough review process internally. There are already tales of a number of good people who have lost jobs because of corporate discussions on their weblogs.

Instead of going for the full corporate monty from the start, first launch an internal IT blog. Start slowly, as you would with any IT project. Create a beta blog that can be viewed only by IT managers, then open it to IT staffers before you roll it out to the entire company. Get a group of folks to volunteer to create your first series of weblogs and use the beta process to weed out the ones who don't post often enough. Nothing is worse than a stale blog.

Use your blog as a vehicle for communication. Explain what's going on inside IT operations, link to interesting articles and create forums for internal discussions. While everyone is comfortable using PCs and most software, they still appreciate getting timely advice and opinions from experts in the field. Why shouldn't they get it from you and your team?

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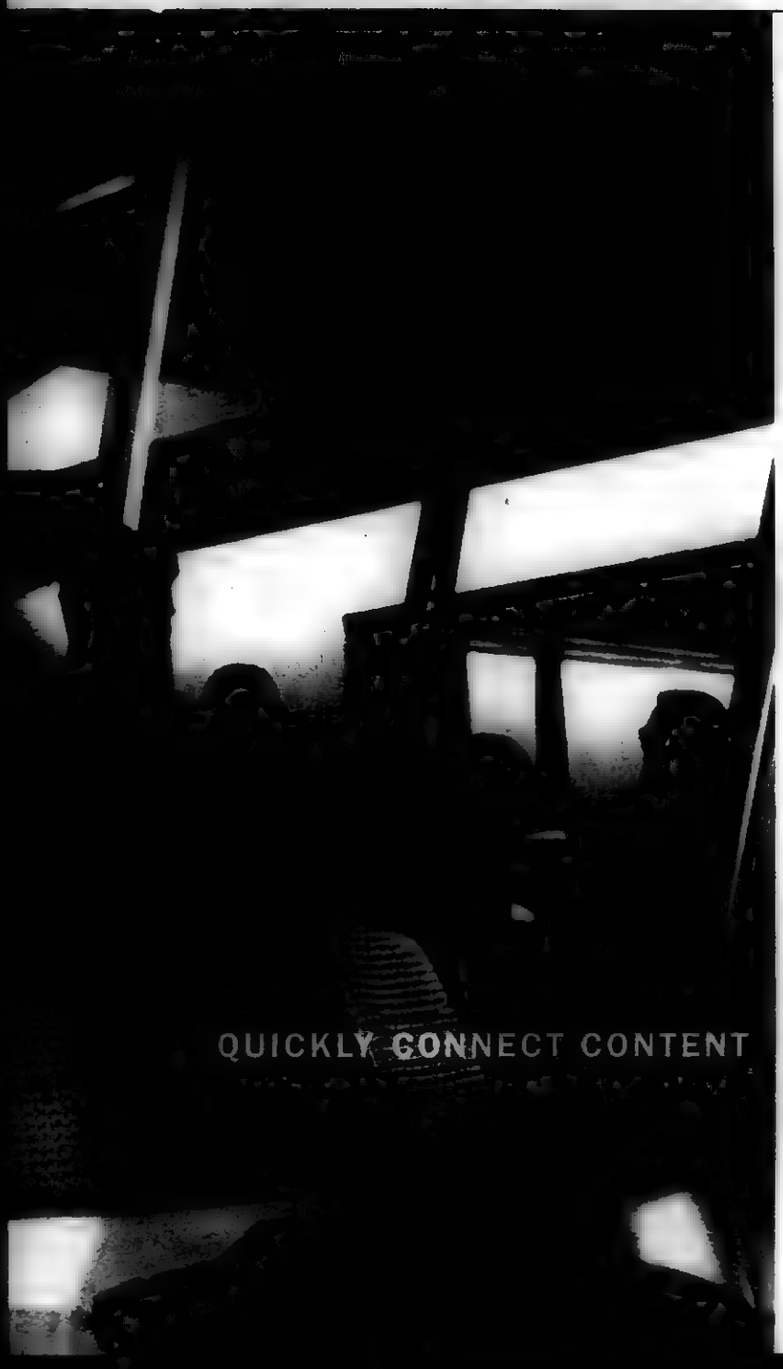

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OPINION

Don't-Ask-Don't-Tell E-Commerce

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EMERGING TECHNOLOGIES

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Wireless Nets Go Regional

They may use the same spectrum as wireless LANs, but wide-area wireless network technologies can bridge Ethernet LANs in offices many miles apart. **Page 28**

CAMPBELL LAIRD

Trades AT TOP SPEED

Straight-through processing means that financial services firms must move to all-digital processes to remain competitive and connected.

By Lucas Mearian

IN THE NAME OF STRAIGHT-THROUGH PROCESSING (STP) of securities trades, financial services companies over the next two years will spend an estimated $6 billion replacing their manual processes by plugging into virtual trade-matching utilities (VMU), installing middleware and integrating front- and back-end computer systems.

In simple terms, STP is the removal of manual processes in the trade-processing cycle, including paper and disparate data systems, creating an unbroken electronic stream of information from the broker/dealer to the clearinghouse. At present, much of the trades process still relies on fax or telephone.

STP includes messaging standards, translation middleware and electronic connectivity among investment managers, broker/dealers, custodian banks and clearing companies. One confusing aspect of STP is its association with T+1, or trade plus one day. T+1 refers to reducing the trade settlement cycle from the current standard of three days to one, and it's dependent on STP's electronic efficiencies.

The Securities Industry Association (SIA), an industry group with offices in New York and Washington, has lead the charge toward STP and T+1. But the Sept. 11 terrorist attacks and the economic downturn squelched the SIA's effort to move to T+1 by 2005, as attention and budgets turned toward more critical needs such as disaster recovery, business continuity and regulatory compliance. The SIA stated in July that it will focus on promoting STP by 2004, with no deadline for T+1.

The real incentive to move to STP, the SIA argues, is the return on investment, which could be considerable for many companies.

For example, the Northern Trust Corp. in Chicago went live in August with an e-mail alert system that replaced a labor-intensive fax process for notifying investment managers of corporate actions such as mergers, acquisitions and name changes. The homegrown technology, called Corporate Action Delivery and Response system, took a year to develop and cost just under $10 million. It has reduced the number of employees required for data input by up to 70% and improved productivity by 50% to 60%, says Teresa Parker, who is responsible for securities and banking operations worldwide at Northern Trust.

The Web-based e-mail system runs off a Sun Solaris server, while production data, including accounting programs, runs off IBM iSeries and zSeries mainframes. The Web-based e-mail application is a proprietary program based on Java. It's used for sending securities-related data to fund managers, who are online using either the Society for World-

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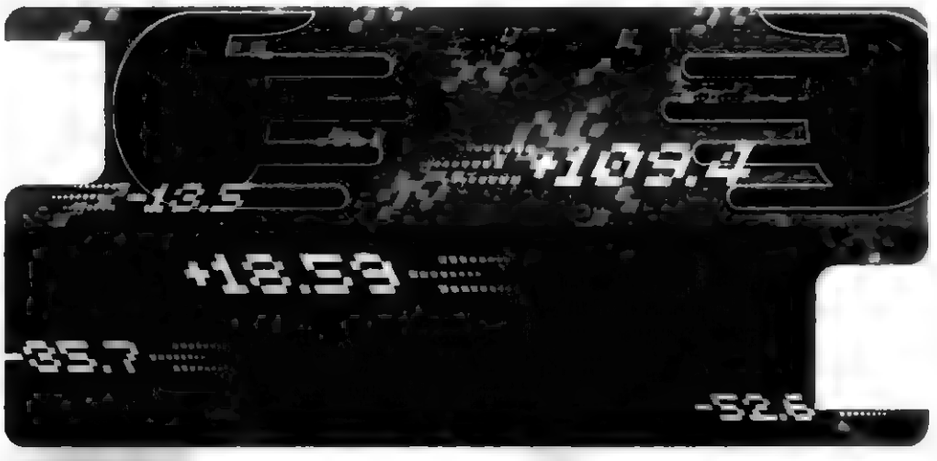

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I HAVE X-RAY VISION. I HAVE THE POWER TO SEE A BANK ROBBERY FROM ACROSS TOWN. I HAVE THE POWER TO SEE HOW MANY PEOPLE ARE ROBBING THE BANK. I EVEN HAVE THE POWER TO SEE WHICH ONE IS WEARING THE SKI MASK. I AM MORE THAN A POLICE OFFICER.

I AM A NETWORK.

I AM THE X-RAY GLASSES. I AM A WIRELESS NETWORK. I HAVE THE POWER TO SEND VIDEO AND DATA WITHOUT THE USE OF WIRES. I HAVE THE POWER TO LINK A BANK'S SURVEILLANCE CAMERA TO A SQUAD CAR EN ROUTE TO A ROBBERY. I HAVE THE POWER TO SHOW COPS WHAT THEY'RE UP AGAINST. I AM HERE TO PROTECT AND SERVE. I AM MORE THAN A NETWORK.

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FleetBoston Financial Corp. launched one of the industry's first Internet links for high-value money-market and mutual-fund customers, creating an electronic straight-through process connecting its front- and back-end systems.

FleetBoston partnered with Bonaire Software Solutions LLC to develop the application, which lets investors order trades online and lets traders and salespeople view, approve or reject customer orders through an electronic link to a trade blotter. It then sends approved trades directly to multiple record-keeping and/or processing systems. Both FleetBoston and Bonaire are based in Boston.

FleetBoston replaced a manual process, which required customers to call in to find out what their position was on any given day and what excess cash they had in their accounts.

Since the Web-based portal was launched in February 2002, the number of money-market and mutual-fund accounts has tripled. Large volumes of trades that normally took an hour to process now take less than five minutes, says Dean Richmond, a senior systems manager at FleetBoston. Thirty-one percent of FleetBoston's mutual fund and money market customers, or 470 users, access their accounts at least once per day via the system.

Richmond said the system took about a year and a half to build but didn't require replacing any existing systems. "It involved taking existing legacy systems and giving them the ability to talk to a Web application. We had to build a lot of APIs [application programming interfaces] and make sure that process was hardened and redundant," says Richmond. The system almost immediately paid for itself through time savings and customer retention, he adds.

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wide Interbank Financial Telecommunications (SWIFT) industry messaging standard or Northern's Web-based product.

"Before, it took 10 people to process 1,000 trades a day, and now it takes four people," says Parker. But there is risk involved in moving to an all-electronic process. "If you get a trade wrong, the most you're going to pay for is the lost interest on the trade. If you get a corporate action wrong, you might have to sell a security you got by mistake. That could be 17 cents, or it could be millions of dollars," she says.

IT managers say that the benefits of STP outweigh the risks. A move to an all-electronic flow of information allows managers and broker/dealers to see a stock price first and react to it, which can translate into increased profitability and improved customer service, according to Larry Tabb, an analyst at TowerGroup in Needham, Mass. Electronic systems also require fewer salespeople, who are normally busy writing down orders and having staff keypunch information into back-end systems. STP also helps remove errors from orders that in a manual process can be entered at any point as orders move internally and externally from a fund manager or retail broker to a custodian bank and a clearinghouse.

Integrating Internal Systems

Because banks work with multiple brokerages to authorize the release of funds that are used to cover securities trades, the manual approval processes used today can take several days to clear even one trade.

"Firms use multiple systems, and not all of them are linked together. The issues have to do with linking all the systems together so transactions flow from one to another with no one handling it. There are snafus everywhere along the line," says Tabb.

Internal message standards for cash reporting, bulk payments, investment funds, securities pretrade processes and customer-to-bank credit transfers are virtually nonexistent, say analysts.

Applications and messaging systems within securities firms and banks weren't created with consistent architectures, so middleware is needed to send data from one message format, such as the Financial Information Exchange (FIX) protocol, to back-end systems that may use proprietary formats.

STRAIGHT TALK

For additional information on the need for messaging standards, visit:

QuickLink 36685
www.computerworld.com

Generally, high-value customers — those who trade more than $100,000 a day — call brokers or sales representatives on a trading desk to check their account balances, stock holdings and what excess cash they might have to invest. Sales representatives then write up order tickets by hand and fax them to an operations department, where someone else keys in the order into back-office systems. Those orders then have to be reconciled between the front and back office to make sure all the tickets were received without any missed trades.

Virtual Matching Utilities

One key issue for all companies participating in securities trading is connectivity to nascent VMUs, such as Boston-based Omgeo LLC and the Zurich-based Global Straight-Through Processing Association. Matching in posttrade message instructions at one centralized data center creates an unbroken flow of electronic data between financial services firms.

Matching utilities are basically trading traffic managers. They use large servers or mainframes and common messaging formats based on XML to allow broker/dealers and investment managers to communicate with one another and assemble the many pieces of data required for a trade to be confirmed before being sent on for settlement by a custodian bank.

Royal London Asset Management has been integrating back-office systems for about a year and plugged into Omgeo's Central Trade Manager (CTM) VMU about three months ago. Before that, the London-based bank was taking an average of 20 hours to get confirmation of a trade, according to Julian Baines, Royal London's investment servicing manager, who oversaw the deployment of Omgeo's technology at his company. The same process now takes three hours, he says.

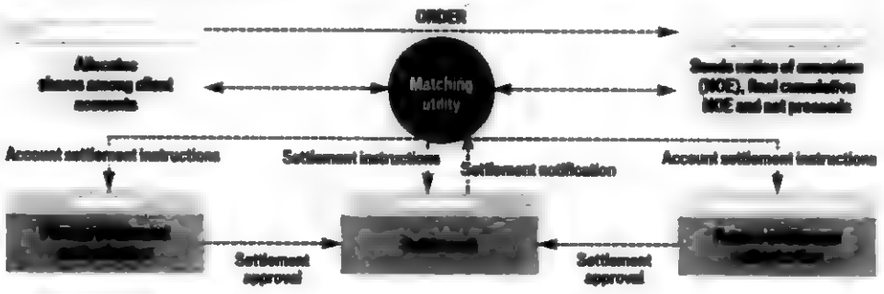
Also, prior to using Omgeo, Royal London's fund managers input data onto databases that were transferred daily in batch mode to a back-office system, where the trades were physically examined by clerks on the company's settlement team. Those clerks in turn printed an electronic confirmation and used that to discover exceptions or mistakes.

"Fifty percent of those orders were failing on poor allocation data, poor information to brokers or vice versa," says Baines, who adds that errors were virtually eliminated with the new electronic messaging system. Royal London uses an application programming interface gateway device on an existing Windows NT server that translates code from its Thomson Financial's Icon investment management, valuation and accounting system into Omgeo's CTM.

"Because our back-end database was from Thomson, they did the integration work," Baines says. The connection into Omgeo's CTM took about a year. The greatest hurdle, as Baines puts it, was understanding "the new jargon." Royal London has linked eight of its highest-volume brokerages, with four more in the pipeline. "That would give us 60% of our volume," Baines says. "Once we hit that, we'll be looking to increase it and have all 60 brokerages on by the end of the year."

An STP Model for Facilitating Securities Trades

This example shows how an STP system facilitates real-time matching of data throughout the trade life cycle. The process starts with the initial trade agreement between the broker and investment manager; the subsequent settlement agreement involving the executing broker, clearing brokers and custodian banks; and the actual settlement with the depository. The matching utility sends pending settlement instructions to the depository, so each agent doesn't need to do so in a separate transaction.



SOURCES: SECURITIES INDUSTRY ASSOCIATION; GLOBAL STRAIGHT THROUGH PROCESSING ASSOCIATION

STP Pays Off for Fleet

FleetBoston Financial Corp. launched one of the industry's first Internet links for high-value money-market and mutual-fund customers, creating an electronic straight-through process connecting its front- and back-end systems.

FleetBoston partnered with Bonaire Software Solutions LLC to develop the application, which lets investors order trades online and lets traders and salespeople view, approve or reject customer orders through an electronic link to a trade blotter. It then sends approved trades directly to multiple record-keeping and/or processing systems. Both FleetBoston and Bonaire are based in Boston.

FleetBoston replaced a manual process, which required customers to call in to find out what their position was on any given day and what excess cash they had in their accounts.

Since the Web-based portal was launched in February 2002, the number of money-market and mutual-fund accounts has tripled. Large volumes of trades that normally took an hour to process now take less than five minutes, says Dean Richmond, a senior systems manager at FleetBoston. Thirty-one percent of FleetBoston's mutual fund and money market customers, or 470 users, access their accounts at least once per day via the system.

Richmond said the system took about a year and a half to build but didn't require replacing any existing systems. "It involved taking existing legacy systems and giving them the ability to talk to a Web application. We had to build a lot of APIs [application programming interfaces] and make sure that process was hardened and redundant," says Richmond. The system almost immediately paid for itself through time savings and customer retention, he adds.

Continued from page 21

wide Interbank Financial Telecommunications (SWIFT) industry messaging standard or Northern's Web-based product.

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"Before, it took 10 people to process 1,000 trades a day, and now it takes four people," says Parker. But there is risk involved in moving to an all-electronic process. "If you get a trade wrong, the most you're going to pay for is the lost interest on the trade. If you get a corporate action wrong, you might have to sell a security you got by mistake. That could be 17 cents, or it could be millions of dollars," she says.

IT managers say that the benefits of STP outweigh the risks. A move to an all-electronic flow of information allows managers and broker/dealers to see a stock price first and react to it, which can translate into increased profitability and improved customer service, according to Larry Tabb, an analyst at TowerGroup in Needham, Mass. Electronic systems also require fewer salespeople, who are normally busy writing down orders and having staff keypunch information into back-end systems. STP also helps remove errors from orders that in a manual process can be entered at any point as orders move internally and externally from a fund manager or retail broker to a custodian bank and a clearinghouse.

Integrating Internal Systems

Because banks work with multiple brokerages to authorize the release of funds that are used to cover securities trades, the manual approval processes used today can take several days to clear even one trade.

"Firms use multiple systems, and not all of them are linked together. The issues have to do with linking all the systems together so transactions flow from one to another with no one handling it. There are snafus everywhere along the line," says Tabb.

Internal message standards for cash reporting, bulk payments, investment funds, securities pretrade processes and customer-to-bank credit transfers are virtually nonexistent, say analysts.

Applications and messaging systems within securities firms and banks weren't created with consistent architectures, so middleware is needed to send data from one message format, such as the Financial Information Exchange (FIX) protocol, to back-end systems that may use proprietary formats.

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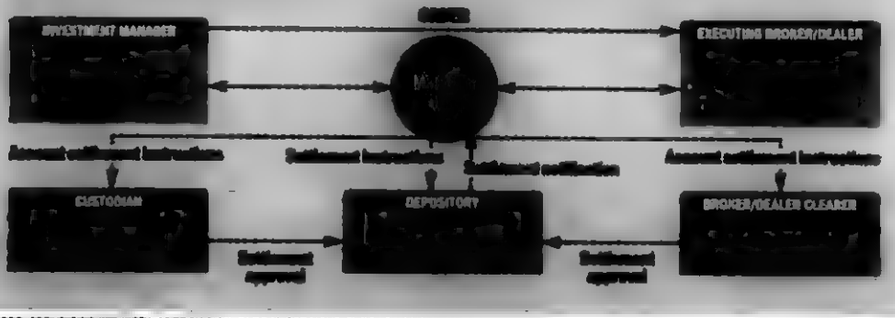

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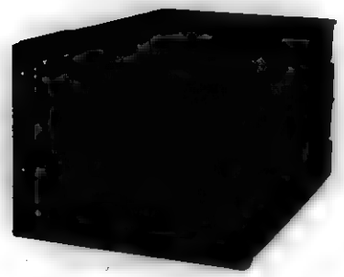

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WIRELESS NETS GO REGIONAL

Wide-area wireless networking systems can provide a cost-effective alternative to leased lines for Internet access or metro-area connectivity. By Bob Brewin

THE UNLICENSED PORTION of the U.S. radio frequency spectrum represents just one-tenth of 1% of the total bandwidth allocated for communications, but this thin slice has made the current boom in wireless LANs possible. Because WLANs use the free spectrum, companies can set them up without the hassle or expense of going through the Federal Communications Commission's licensing process.

But WLANs aren't the only networking technologies leveraging the free spectrum. Corporations are also using fixed wireless systems and services from wireless service providers to extend connectivity beyond the LAN.

Fixed wireless systems use the same 2.4- and 5-GHz bands used by WLAN products. But highly focused directional antennas support wide-area connections over distances measured in miles, rather than the hundreds of feet WLAN devices cover. Fixed wireless devices let enterprises tie together regional or metro-area office buildings using a privately owned and operated broadband network. The systems can support point-to-point Ethernet bridging or IP-based multipoint packet routing. And some products also offer a separate T1 channel, eliminating the need to lease physical T1 circuits for digital voice traffic.

Companies that don't want to set up their own systems may find similar wireless offerings from service providers. A new breed of wireless Internet service providers (ISP) uses the unlicensed frequency band to offer last-mile broadband services at rates lower than those that telephone companies charge for comparable leased-line services. Service providers offer data rates ranging from a few hundred kilobits per second to 54M bit/sec. or more. And in some remote locations, as well as in parts of some metropolitan areas, wireless ISPs are the only broadband alternative.

Building a Network

York, Pa.-based Kinsley Inc. opted for a fixed wireless WAN that serves 1,500 workers in multiple locations. Patrick Kinsley, a project co-coordinator at the construction and commercial property management firm, says the company had to accommodate large data files generated by computer-aided design (CAD) workstations, as well as growing voice traffic. It also needed a way to connect telephone and computer systems in office trailers at construction sites into back-end systems more quickly than the several weeks it took to provision lines from the local telephone company.

Business Information Group (BIG), the York-based systems integrator that hosts Kinsley's data center, designed the fixed wireless network, which serves 1,500 workers in eight locations. Some 22 other companies housed in buildings Kinsley manages also pay to use the system. This helped shave Kinsley's cost in building the network, says John Dolmetsch, BIG's president and CIO. The wireless network consists of a high-speed backbone, with secondary spurs fanning out to other offices at speeds ranging from 284K to 24M bit/sec.

Kinsley routes all voice traffic from IP and digital phones over its wireless IP backbone. Digital phone signals are converted to IP at remote switches. All voice traffic terminates in IP trunk cards in a private branch exchange from Nortel Networks Ltd. The switch can handle up to 336 concurrent voice-over-IP sessions, Dolmetsch says.

Kinsley's wireless network uses Tsunami point-to-point and point-to-multipoint wireless networking equipment from Proxim Inc. in Sunnyvale, Calif. Tsunami operates in the 5.8-GHz unlicensed frequency band and interconnects backbone locations at speeds up to 24M bit/sec. The network also uses BreezeAccess II 2.4-GHz wireless equipment from Alvarion Inc. in Carlsbad, Calif., to provide connectivity with smaller locations and remote job sites (see diagram).

The equipment is installed on five towers within a 30-mile radius around York, each no farther than 10 or 12 miles from an office location, Dolmetsch says. Kinsley completed the fixed wireless backbone in 2001 and has continued to add office locations.

Dolmetsch estimates the system's five-year return on investment at 70% when calculated against the cost of the voice and data circuits it replaced. Savings on phone charges alone have been $3,500 per month, he says. The wireless equipment cost about $200,000.

Todd Carothers, an analyst at The Telnecity Group LLC in San Jose, says the size and scope of the Kinsley wireless WAN is unusual. "I've never heard of [a wireless WAN] by one company as extensive as this," he says.

The Hotel Wireless

Rather than install a private fixed wireless system, Kevin Lanigan, vice president and general manager of the Stanford Park Hotel in Menlo Park, Calif., contracted with a service provider. The service delivers the high data rates Lanigan needs to support guest Internet access and provides variable bandwidth — something he couldn't easily obtain from his local phone company.

The hotel, located in the heart of Silicon Valley, hosts large meetings for local high-tech companies. Those guests require bandwidth for meetings that it would typically take multiple T1 lines to support. Lanigan initially contacted the local exchange carrier, a unit of SBC Communications Inc. in San Antonio, and was told that it would take 60 to 90 days to install such circuits. In contrast, NextWeb Inc., a wireless ISP in Fremont, Calif., provides a basic 1.44M bit/sec. T1 circuit from a small dish on the hotel's roof, and it can ramp up the bandwidth to the equivalent of multiple T1 lines in one day.

David Williams, vice president of business development at NextWeb, says his 5-GHz service supports speeds from 1M to 10M bit/sec. Lanigan's T1 service

supports WLAN access throughout the 163-room hotel — a service for which it doesn't charge guests extra. Nonetheless, Lanigan says the broadband wireless installation has paid off: The hotel has landed "not fewer than 12 group bookings" in the past year because of its ability to offer such connectivity.

While broadband wireless was once viewed as ideal for rural areas with little telecommunications infrastructure, Trent Anderson, CEO of wireless ISP SkyRiver Communications Inc. in San Diego, says that even in densely populated areas, there are pockets not served by telephone companies' Digital Subscriber Lines or fiber. And if fiber connections are available, they are often prohibitively expensive, he says.

Linda Tucker, co-founder of Aerial Access LLC, a digital aerial photography firm in San Diego, fell on the other side of that digital divide. Aerial Access has a half terabyte of stored aerial photos and often needs to send 10MB or larger image files to prospective customers. SBC could offer only fractional T1, at a cost of $350 per month. SkyRiver charges $149 per month for a 512K bit/sec. connection, which Tucker says is adequate for her requirements. "An average file between 3 and 10MB transmits in between 30 and 60 seconds," she says.

Growing Pains

Although vendors such as Proxim and wireless ISPs such as NextWeb and SkyRiver have established a fixed wireless beachhead, the wireless WAN market is still in its infancy, according to Wai Sing Lee, an analyst at Frost & Sullivan Inc. in San Antonio.

Between 1,500 and 1,800 wireless ISPs operate in the unlicensed spectrum band today, according to Daryl Schoolar, an analyst at In-Stat/MDR in Scottsdale, Ariz. He predicts significant growth over the next several years. Free spectrum and low-cost equipment, at about $8,000 for a complete base station, will serve as the drivers for this growth, he says.

But analysts and wireless ISPs alike say growth could be inhibited by interference. The 2.4-GHz band is already crowded, and the same may happen in the 5-GHz band. NextWeb's Williams says interference could be mitigated by using a technique called dual polarization, whereas Carothers at Telnecity envisions the wireless ISP industry developing a self-policing interference body.

Security is also a concern, but not as much with fixed wireless as with broadband, since fixed wireless uses a narrow, hard-to-intercept transmission beam. The Proxim gear used by Kinsley adds a proprietary encryption scheme. Wireless ISPs like SkyRiver build in additional layers of security as well, including a Media Access Control layer. They also offer individual addresses for customer equipment.

But even though the industry is still evolving, the technology is stable. Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., calls fixed wireless relatively easy to install and operate.

And to users, it seems like magic. Jeff Leaf, a project co-coordinator at Kinsley-owned LSC Design Inc., notes that "when you tell people in York that you're doing business over a wireless network, they don't have a clue." When the network was first turned on, Leaf says, he marveled at the speed at which his CAD files were transmitted. Now he doesn't think about the network or its speed at all — a sure sign that the technology has gained acceptance.

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KINSLEY'S WIDE-AREA WIRELESS NETWORK

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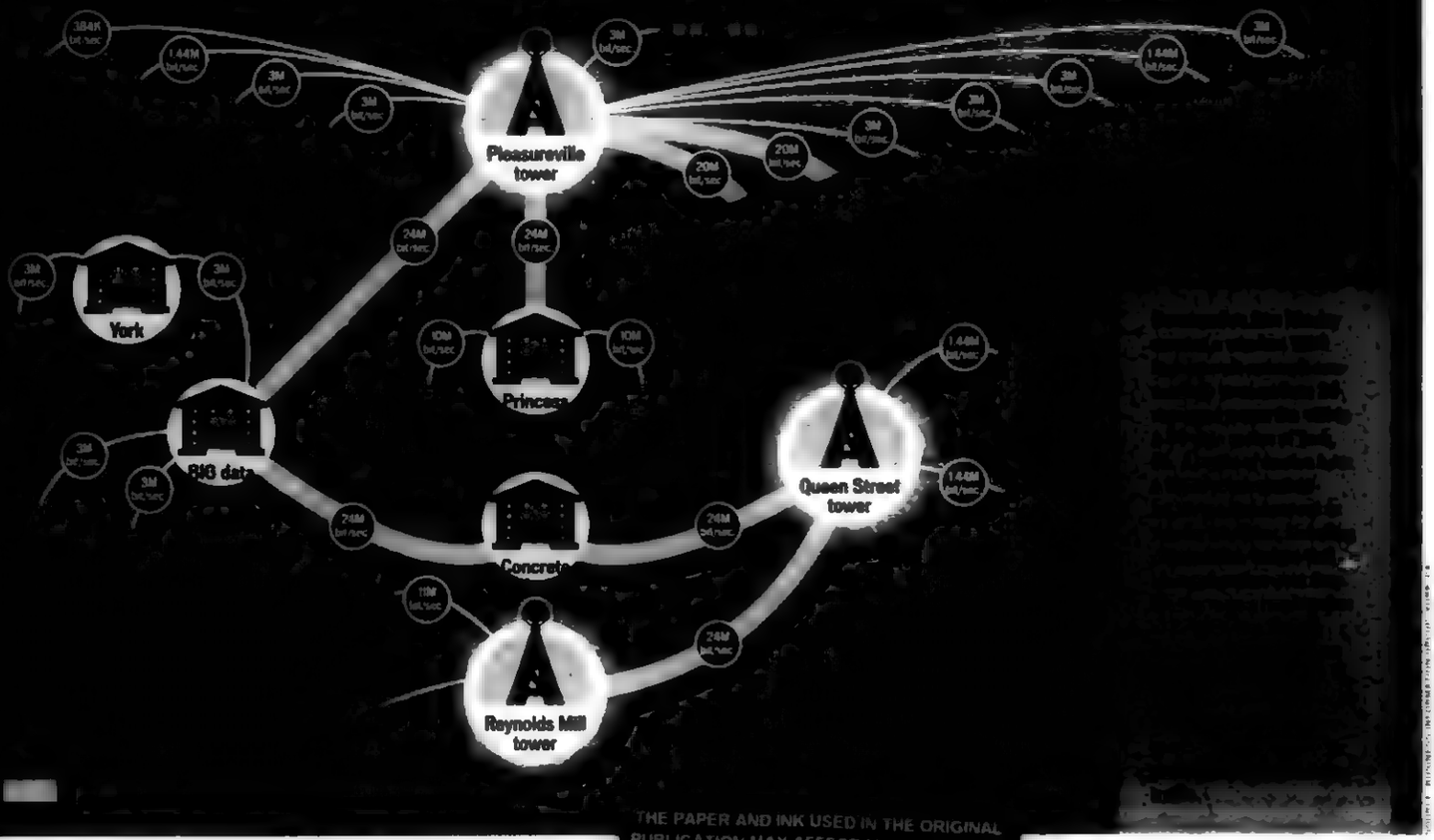


THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICROFORM EDITION

Virtually Face to Face

Outlook: As corporations upgrade infrastructures for IP telephony, integrated IP-based videoconferencing systems are starting to proliferate. By Robert L. Mitchell

EMERGING TECHNOLOGIES

VIDEOCONFERENCING used to require users to adjourn to specially designed rooms filled with complex technology that worked over satellite, Integrated Services Digital Network (ISDN) or other private network services. Such systems cost upward of $50,000 per site. But no more. Compression technology has improved, design upgrades have cut costs, and a new generation of videoconferencing systems designed to work over IP networks as well as ISDN is gaining a foothold in corporations.

"We have seen a heavy shift toward IP," says Stacy Saxon, director of marketing at videoconferencing vendor Polycom Inc. in Pleasanton, Calif. She says she expects 75% of all videoconferencing systems to be IP-based within the next three years, up from just 25% today. Giga Information Group Inc. in Cambridge, Mass., predicts 18.9% annual growth in videoconferencing appliance sales through 2005.

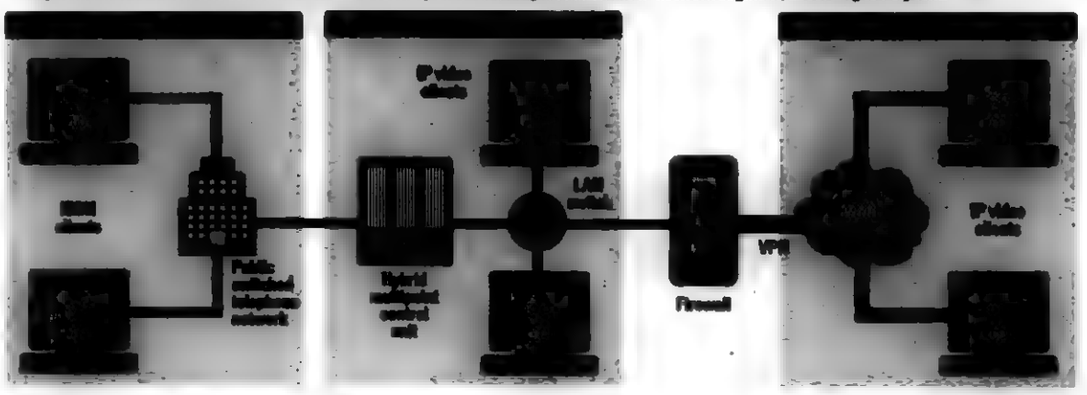
Several developments are driving the technology forward. IP-based systems eliminate the need for ISDN service, which can be expensive and difficult to provision and is unavailable in many locations. Unlike those based on ISDN, IP-based systems can be moved to any office with an Ethernet jack. Corporations are gradually replacing network infrastructures with switches and routers that support quality-of-service standards required for IP telephony and enable clear, jitter-free video services.

"We're piggybacking on what the company's doing with voice over IP," says Chris Duncan, global leader for e-communication technology at The Dow Chemical Co. in Midland, Mich., which is equipping 500 offices worldwide with an IP videoconferencing system. Ethernet advances have also boosted LAN bandwidth to Gigabit Ethernet and 10 Gigabit Ethernet speeds that can better support video feeds. And businesses are also extending those high-bandwidth connections to remote offices. "Getting fairly large bandwidth isn't as big an issue as it was four or five years ago," Duncan says, citing the current glut in long-haul fiber capacity.

Meanwhile, bandwidth requirements

Video Over IP

Videoconferencing systems can be configured to run over private IP networks, eliminating the need to provision ISDN while allowing integration with Web conferencing and other IP-based applications. Over wide-area connections, a VPN is often implemented for increased security. Most systems also support ISDN links for backward compatibility. Although a portion of the ISDN link may touch the IP network, the ISDN H.320 client protocol differs substantially from the H.323 connections of IP users and doesn't present security issues on the IP network segment, according to Polycom.



Vendors Jump on IP Video Bandwagon

Videoconferencing products fall into two categories: group-room systems, and single-user desktop systems. The endpoint equipment may consist of a stand-alone appliance, or it may connect to a PC using a universal Serial Bus port or internal add-in card.

Most corporate deployments are group systems. While appliances are easier to use, PC-based units offer better integration with Web conferencing features such as application sharing, says Giga analyst Elizabeth Herrell. Conferencing with more than one location requires a multipoint control unit, which acts as a central call manager. Vendors also offer specialized software that handles bandwidth management and call scheduling and provides the conference with a global address book.

Prices range from less than $5,000 per site for a system supporting up to three callers to $65,000 or more for room systems with large screens. But users also need to consider the incremental cost of upgrading and managing a more complex network infrastructure to support IP videoconferencing, Herrell notes. All systems can support a mix of ISDN and IP connections.

While at least 10 vendors offer products in this area, three players dominate, Herrell says.

Polycom Inc.
Pleasanton, Calif.
www.polycom.com

Polycom has more than two-thirds of the market and a comprehensive suite of hardware and software offerings. Products include the ViaVideo PC-based single-user system. Pricing for group systems, which include the ViaStation set-top and PC-based iPower series, start at $3,999.

Tandberg Inc.
Reston, Va.
www.tandbergusa.com

Tandberg focuses on the high end, offering 128-bit Advanced Encryption Standard encryption and directory integration via the Lightweight Directory Access Protocol. Its integrated 2500, 7000 and 8000 systems start at $35,000 per site and go up to $59,000. The 800 and 550 series set-top units start at $4,000 per site. Its 1000 series single-user desktop units start at $5,400.

Sony Electronics Solutions & Systems Co.
Park Ridge, N.J.
http://bvsc.sel.sony.com/Professional/

Sony's high-performance, low-cost systems have sold well to small and midsize businesses, Herrell says. Its PCS-1600 series set-top units start at $3,994; desktop units start at $3,994. On the high end, a packaged system capable of supporting six multipoint sessions sells for $21,900.

are shrinking. Video encoders now support up to 1,000-to-1 compression, delivering acceptable quality in as little as 128K bit/sec. per connection. "It's good-quality video, if you don't have a lot of movement," says Saxon, although Duncan says he considers 384K bit/sec. to be the minimum for acceptable quality. The newest standard, named H.264 by the Geneva-based International Telecommunication Union (ITU), will soon deliver DVD-quality video feeds using less than 1M bit/sec. of bandwidth.

Videoconferencing technology is also starting to converge with traditional Web conferencing systems, allowing IT to create a single interoperable and centrally manageable set of applications that may include data sharing, whiteboarding and streaming media. For example, Polycom's Web conferencing software, called WebOffice, works with its PC-based videoconferencing systems. And Web conferencing vendors are adding video to their services, although analysts say quality-of-service issues will keep most business videoconferencing off the Internet.

"Enterprise users are primarily using VPNs [virtual private networks] and dedicated private IP networks to ensure the quality of service, which cannot be offered by the public Internet," says Roopam Jain, an analyst at Frost & Sullivan Inc. in New York. And while some quality-of-service standards are in place today, analyst Lou Latham at Gartner Inc. describes them as "fluid and incomplete." Network administrators still worry about reliability and performance, he says. "There's an anxiety on the part of network administrators that their networks are going to get saturated," he says, adding that the key is to keep traffic segregated and prioritized so it moves quickly.

In addition, the ITU's H.323 interface standard for videoconferencing may give way to the Internet Engineering Task Force's evolving Session Initiation Protocol (SIP). That could ease integration problems when adding audio calls from voice-over-IP telephony systems, which use SIP or proprietary protocols, into a videoconferencing session. "That wasn't a problem with ISDN," Duncan says.

> **"There's an anxiety on the part of network administrators that their networks are going to get saturated.**
> LOU LATHAM, ANALYST, GARTNER INC.

Jain says videoconferencing also continues to face ease-of-use issues. For example, users may need to know the destination IP address or phone extension to establish a session. Some products allow the creation of an address book, but most can't access information already stored in an Active Directory or other enterprise directory infrastructure.

Despite its limitations, IP videoconferencing can pay off in organizations that require more than 30 hours of videoconferencing per month, says Giga analyst Elizabeth Herrell. Gartner's Latham is more cautious. "You can start by keeping your ISDN lines and test the IP waters, connection by connection," he says. He doesn't expect end-to-end reliability to be worked out until next year.

But Duncan says the technology hurdles are surmountable. "The bigger challenge is getting people comfortable using the technology."

Russell Kay, a freelance writer in Worcester, Mass., contributed to this story.

Videoconferencing Effort Goes Global

Dow Chemical has nearly completed the rollout of IP videoconferencing to 500 offices worldwide using Polycom iPower units, and it plans to eliminate 125 ISDN-based systems. CHRIS DUNCAN, global leader for e-communication technology, spoke with Computerworld's Robert L. Mitchell about how the project is working out.

Why did you pursue IP videoconferencing?
One reason was the reliability of ISDN. These 125 sites were in 40 countries, and because of the questionable reliability of ISDN, it was never fully accepted beyond an executive tool. It didn't become part of the culture. We wanted to find a way to expand the endpoints, and video over IP seemed to make a lot of sense.

What's the payback? IP is significantly less money[than ISDN]. If we're going from the States to Pacific [Rim countries, it costs] probably 75% less. We're using the same bandwidth we use for everything else. We've allocated certain percentages of our [wide-area network] bandwidth to video only. It's the same pipe, but we've segmented the network. We have three-quarters of our deployment done. We're in 15 or 16 countries now.

How does the quality compare with that of ISDN? We had been running our ISDN at 128K bit/sec. Some of that was due to cost. When we decided to upgrade with the new iPower systems, we decided that we had to improve not only the reliability but also the picture quality. We're running 384K bit/sec. It's a minimum of three times better. There is some jerkiness in 384K bit/sec., but it's not so annoying.

Why not use videoconferencing? You really need to have some face-to-face to read the body language to see what's going on. If we can avoid one trip per month per room, the entire system pays for itself.

How are users accepting videoconferencing? We haven't seen a notable reduction [in travel] yet. The harder part is the cultural change. People are comfortable meeting face to face. When you put a monitor in between, you have to focus on the cultural changes. There are certain etiquettes that are different. And if your call goes down for two minutes, you have to understand that the meeting still saved you 30 hours [of travel].

Managing collaborative [illegible]

That's [illegible] Office.

Recognize any of those issues? Or, perhaps, all of them? We thought so. Many of these issues can be related to your legacy desktop software; fortunately, many of them can be addressed by features in Microsoft® Windows® XP Professional and Office XP Professional. Want specific

examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your end users. With the Send for Review feature, Office XP Professional lets users easily assign roles to everyone involved in the document review cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back into the original document. And finally, several new features make deployment easier than ever. For more ideas about managing your desktops, visit microsoft.com/desktop

Escape From SQL Hell

Quick response to SQL Slammer deflects potential disaster. By Mathias Thurman

UPFRONT preparation helped my company ward off the SQL Slammer worm, which exploits a buffer overflow vulnerability in Microsoft SQL Server and creates a flood of packets, similar to a denial-of-service attack. But we still didn't totally avoid it.

Shortly after the worm appeared, we decided to run scans of our infrastructure to find and patch vulnerable systems. In the interim, we implemented Cisco Systems Inc.'s Network-Based Application Recognition (NBAR) feature on our core edge routers, configuring it to drop any packets that matched the signature of the SQL Slammer attack. The problem with NBAR is that routers are designed to route traffic, not inspect packet payloads. NBAR consumes a considerable amount of router resources and can lead to performance problems, so we didn't want to keep it in place any longer than necessary.

SECURITY MANAGER'S JOURNAL

Notifying Users

Once the NBAR rules were set, we sent out a mass e-mail internally with a link to a Web page we had assembled. The page contained information on SQL Slammer, instructions on determining whether a particular system is vulnerable and a link to the patch, which mitigates the vulnerability. Only after we had completed our scans and were satisfied that our SQL servers and other impacted desktops were patched did we remove NBAR.

Ultimately, we were lucky, but we weren't 100% successful. A few stray servers were somehow infected. Even a week later, we still found an occasional system that had slipped through the cracks.

A few days after the initial SQL Slammer incident, I received a call from our network operations center reporting that our servers were under a denial-of-service attack. We have a limited capability to monitor bandwidth utilization on some edge network devices. Those utilization rates were extremely high, and network performance was suffering. So we pulled up data from our intrusion-detection system sensors, examined the packets and discovered an excessive amount of file transfer protocol traffic.

It turns out that our company had just released a new software download that was in excess of 40MB, and the traffic was overloading our network. Until we could make significant changes in our systems, we decided to outsource the downloads by using Cambridge, Mass.-based Akamai Technologies Inc.'s EdgeSuite service.

The implementation went without a hitch. With a few modifications in our server configurations and some redirection, we were ready to go.

The problem with NBAR is that routers are designed to route traffic, not inspect packet payloads, and it consumes a considerable amount of router resources.

Eventually, we will either upgrade our network to handle the load, outsource to a managed service provider or possibly stick with Akamai.

EDirectory Assistance

With that incident out of the way, I've begun searching for an easily implemented, inexpensive method of providing centralized access control for our Sun Solaris servers.

In the past, most Unix administrators just used the Unix Network Information Service (NIS). Because of some vulnerabilities in NIS, however, we shied away from that and focused on tools that would integrate with our Novell eDirectory service. We use eDirectory for all of our enterprise accounts and as a user-information repository for controlling access to PeopleSoft, Siebel and other applications. The new system must allow central control of username, password and home-directory information through eDirectory and must let the administrator dictate the log-in shell for each user.

We use RSA Security Inc.'s SecurID tokens for two-factor authentication, so the log-in shell will be the program that activates the SecurID software. After some research and phone calls, we decided to implement a Unix pluggable authentication module (PAM). Several PAMs are available, depending on what you want to integrate. We wanted credentials stored in an LDAP-compliant database, so we used the PAM_LDAP program. For this to work, we needed both the PAM libraries and the LDAP client installed on our Solaris servers.

Unfortunately, we couldn't get the native Solaris LDAP client to work with PAM and properly authenticate to our Novell eDirectory. Instead, we had to use a third-party LDAP integration tool developed by Melbourne, Australia-based PADL Software Pty. The PADL libraries let us successfully direct the authentication requests to eDirectory. We have conducted some preliminary testing, and almost everything seems to work as advertised.

One issue that we're still trying to resolve, however, is establishing encryption between the Solaris resource and the eDirectory server. We initially thought that we could implement Secure Sockets Layer encryption for this, but it had problems. We're now experimenting with the IPsec protocol, but that will require additional configuration on each Unix resource we want to protect.

Adding Features

The other issue we face is support for additional features outside of the authentication portion of the deployment. For example, we might eventually want to enable netgroups (which group together machines and users with identical resource access rights for easier administration) and Role-Based Access Control.

When using PAM and the PADL libraries with Solaris 2.8 and eDirectory, we can't configure these additional features. However, we know through our testing of Solaris 9 and Netscape's iPlanet LDAP server that this functionality is available. So in theory, it should work with the LDAP-based Novell eDirectory. Perhaps I'll have the answer by next time.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum.

QuickLink: a1990

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

STORAGE NETWORKING WORLD

April 14-17, 2003
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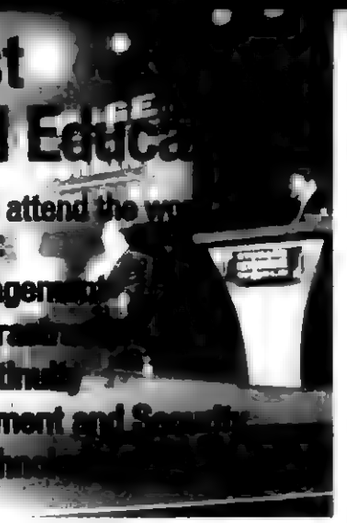

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VERITAS Software

Agenda Snapshot*

For details, updates, and to register visit **www.snwusa.com/expo**

*subject to change

Monday, April 14
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Primer
12:00pm-5:00pm	Golf Outing
1:00pm-2:00pm	SNIA Tutorial Sessions - choose from five different sessions
2:00pm-2:10pm	Break
2:10pm-3:10pm	SNIA Tutorial Sessions - choose from five different sessions
3:10pm-3:20pm	Break
3:20pm-4:20pm	SNIA Tutorial Sessions - choose from five different sessions
4:20pm-4:30pm	Break
4:30pm-5:30pm	SNIA Tutorial Sessions - choose from five different sessions
7:00pm-9:00pm	Pre Conference Networking Reception

Tuesday, April 15
(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:30am-9:15am	Opening Keynote: Regis McKenna
9:15am-12:00pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:45pm-4:00pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-8:30pm	Expo, Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 16
(General Conference - Day Two)

7:15am-8:15am	Continental Breakfast
8:30am-9:05am	Opening Keynote: David Chamberlain
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Expo, Buffet Luncheon
12:00pm-7:15pm	Interoperability and Solutions Demo Open
1:45pm-3:50pm	General Sessions
3:50pm-4:00pm	Break
4:00pm-5:00pm	Technical, Technical/Business and Business Tracks
5:15pm-7:15pm	Expo Open
7:30pm-9:00pm	Gala Evening

Thursday, April 17
(Tutorial and Workshop Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business and Business Tracks
11:45am	Conference Concludes

Register Today!

Options for IT End-Users*	**Pre-Registration** (through April 11th)	**On-Site Registration** (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	$1,095	$1,245
Total 4-day Package (Apr. 14, 15, 16, 17): (Includes General Conference Package, Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses, Expo, Meals and Receptions)	$1,490	$1,690
Options for IT Vendors**		
Total 4-day Package (Apr. 14, 15, 16, 17): (Available to Sponsoring Vendors and their Resellers/Integrators, Industry Consultants, and Storage Solutions Implementors)	$1,490	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

* See IT End-Users description on the Registration Application on the reverse. ** See Non-Sponsoring Vendor description on the Registration Application on the reverse.

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Pre-Conference Golf Outing

Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Palmer Course at Wildfire, located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Lager at **1-508-820-8277**

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Options for IT End-Users*	Pre-Registration (through April 11th)	On-Site Registration (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	❑ $1,095	❑ $1,245
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Non-Sponsoring/Exhibiting Vendor Package:	❑ $5,000	❑ $5,000

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

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Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, April 14th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CFO/Controller/Treasurer
- ❑ VP/GM/Director
- ❑ Sales/Marketing/Product Staff
- ❑ CIO/CTO/Other IS/IT Manager
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Cancellation Policy *(All of the below options require written notification.)*
In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Fall 2003 Storage Networking World* conference, if written notice is received by March 31, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by March 31, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events *(subject to change)*

Monday, April 14, 2003
- Pre-Conference Golf Outing
- Pre-Conference Networking Reception
- Tutorial Sessions

Tuesday, April 15, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition

Wednesday, April 16, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition
- Gala Evening

Thursday, April 17, 2003
- Tutorial Sessions

BRIEFS

Movex Gets XML

Intentia International AB, a customer relationship management and enterprise resource planning application vendor in Sweden, is adding XML Web services technology to its Movex flagship suite. The Movex Web Services Framework will include a tool kit and runtime server. The product will ship in April.

Expand Networks Boosts Accelerator

Expand Networks Inc. in Roseland, N.J., has added a new feature to its Accelerator traffic-compression appliance that improves the performance of voice over IP on low-bandwidth data links up to 128K bit/sec. Expand offers a free upgrade to current customers with service contracts.

NetIQ Updates SQL Management Suite

NetIQ Corp. has released Version 2.0 of its year-old SQL Management Suite, with new features including a revamped user interface in one module and additional reporting tools in another. The San Jose vendor's offering is intended to ease administration of Microsoft Corp. SQL Server production systems by providing configuration management, diagnostic and recovery functions. Pricing for the full suite starts at $15,000 for a five-server starter pack.

ERoom Offering Gets Addition

Enterprise content management software vendor Documentum Inc. announced its first integrated product offering resulting from its acquisition of collaboration technology provider eRoom Technology Inc. last year. ERoom Enterprise lets corporate workers collaboratively create, share, manage, reuse and archive content, according to officials at the Pleasanton, Calif., firm. Upgrade pricing starts at $25 per seat.

ROBERT L. MITCHELL

Don't-Ask-Don't-Tell E-Commerce

WHEN IT COMES to IT security, good technology can't protect an organization against bad policy. Judging from the way the banking industry handled the recent theft of more than 8 million credit card account numbers [QuickLink 36530], that's a lesson that major U.S. credit card associations and issuers have yet to learn.

The situation is unlikely to improve in the near term because the financial services firms that control most credit cards see little economic incentive to change their ways. Those most at risk of incurring losses include consumers (through identity theft), and merchants that accept "card-not-present" transactions.

The card associations' policies, as demonstrated, could be described thusly: Don't publicize credit card thefts in any way; don't require card issuers to notify affected card owners unless they ask; don't share the list of compromised account numbers with merchants; and don't require banks to reissue stolen cards. And don't worry — banks will monitor accounts for "unusual activity" with automated, high-tech monitoring tools.

Card-not-present transactions aren't protected by the same zero-liability policy given to consumers and merchants at brick-and-mortar stores, where clerks can physically check the credit card and obtain a signature. This puts online vendors at a competitive disadvantage.

Meanwhile, credit card fraud is increasing. In early February, the largest electronic break-in to date took place at credit card processor Data Processors International (DPI) in Omaha. Some 8 million Visa, MasterCard and other accounts were affected. Yet customers wouldn't have known about the breach until their statements started arriving if it hadn't been for Citizens Bank, which decided to recall 8,800 affected cards.

If accounts are used fradulently, how much damage will online merchants suffer before the monitoring systems catch on and defuse the situation? Probably nothing will happen. But merchants won't know for sure until cardholders receive their statements.

What's worse, this cloak of secrecy could ultimately erode cardholder confidence and trust. For example, the story of the DPI incident surfaced in the press on Feb. 17. DPI acknowledged the incident on the 20th. A spokesperson declined to say when the break-in occurred, but unofficial reports put it early in the month — perhaps as early as Feb. 3 or 4. Visa said it "immediately notified all affected card-issuing financial institutions." Yet one bank manager I spoke with said she couldn't confirm whether specific cards were on the list until Feb. 19. Her bank didn't start receiving the compromised account numbers until Feb. 17 and received the last batch two days later. Was this case the exception?

To their credit, some card issuers are moving to protect online transactions with new authentication programs. For example, MasterCard SecureCode and Verified by Visa require the buyer to use a password before making a purchase. Merchants who obtain passwords from buyers are protected from chargebacks. But most buyers don't have one yet. MasterCard and others should follow Visa's lead and protect e-commerce providers that *request* passwords from buyers.

This shifts the cost of stolen data away from merchants but doesn't solve the problem. Credit card companies should also question whether having dozens of processing companies handling customer data makes sense in a Web-connected world. Or whether security measures that address the way card transaction processors, issuers and merchants handle and protect account data should be more strictly dictated and policed. Or whether it makes better business sense to assume a policy of more open disclosure with cardholders.

In a world where credit card numbers can be used for fraud or identity theft, organizations have a moral obligation to disclose such compromises to cardholders and merchants as soon as a security hole is closed.

The industry worries about the expense of reissuing cards. Yet banks have spent a lifetime building trust, and serious erosion of consumer confidence could cost far more than simply replacing those cards. It could cost billions in lost sales to e-commerce merchants that are dependent on credit card payment systems.

The current policies are bad for e-commerce, bad for consumers and, ultimately, bad for business. The industry should make changes now, before consumers finally wake up to what's going on and legislators step into the breach.

GET THE FACTS

Read vendor statements, proposed legislation and related research and discussion on the issues on our Web site.

QuickLink 36513
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BRIEFS

Movex Gets XML

Intentia International AB, a customer relationship management and enterprise resource planning application vendor in Sweden, is adding XML Web services technology to its Movex flagship suite. The Movex Web Services Framework will include a tool kit and runtime server. The product will ship in April.

Expand Networks Boosts Accelerator

Expand Networks Inc. in Roseland, N.J., has added a new feature to its Accelerator traffic-compression appliance that improves the performance of voice over IP on low-bandwidth data links up to 128K bit/sec. Expand offers a free upgrade to current customers with service contracts.

NetIQ Updates SQL Management Suite

NetIQ Corp. has released Version 2.0 of its year-old SQL Management Suite, with new features including a revamped user interface in one module and additional reporting tools in another. The San Jose vendor's offering is intended to ease administration of Microsoft Corp. SQL Server production systems by providing configuration management, diagnostic and recovery functions. Pricing for the full suite starts at $15,000 for a five-server starter pack.

ERoom Offering Gets Addition

Enterprise content management software vendor Documentum Inc. announced its first integrated product offering resulting from its acquisition of collaboration technology provider eRoom Technology Inc. last year. ERoom Enterprise lets corporate workers collaboratively create, share, manage, reuse and archive content, according to officials at the Pleasanton, Calif., firm. Upgrade pricing starts at $25 per seat.

ROBERT L. MITCHELL

Don't-Ask-Don't-Tell E-Commerce

WHEN IT COMES to IT security, good technology can't protect an organization against bad policy. Judging from the way the banking industry handled the recent theft of more than 8 million credit card account numbers [QuickLink 36530], that's a lesson that major U.S. credit card associations and issuers have yet to learn.

The situation is unlikely to improve in the near term because the financial services firms that control most credit cards see little economic incentive to change their ways. Those most at risk of incurring losses include consumers (through identity theft), and merchants that accept "card-not-present" transactions.

The card associations' policies, as demonstrated, could be described thusly: Don't publicize credit card thefts in any way; don't require card issuers to notify affected card owners unless they ask; don't share the list of compromised account numbers with merchants; and don't require banks to reissue stolen cards. And don't worry — banks will monitor accounts for "unusual activity" with automated, high-tech monitoring tools.

Card-not-present transactions aren't protected by the same zero-liability policy given to consumers and merchants at brick-and-mortar stores, where clerks can physically check the credit card and obtain a signature. This puts online vendors at a competitive disadvantage.

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COMPUTERWORLD PC WORLD

A Setup for a Security Nightmare

Author Notra Trulock details the appalling state of computer security at the Department of Energy during one of the most infamous espionage scandals in recent decades, and what the corporate world can learn from it. **Page 40**

ROI: Whose Job Is It, Anyway?

Columnist John Berry asks, "Why can't IT evolve into a value-added business partner that could help business units with economic value management tasks?" **Page 41**

QUOTE OF THE WEEK

"The difference between portals which succeed and those that don't is clearly the amount of business involvement."
– Bob Rogers, portal consultant, Cap Gemini Ernst & Young

Here are 10 ways to assess the financial health of your IT vendors. By Kathleen Melymuka

Follow THE Money

CHOOSING A STRATEGIC VENDOR is a long-term commitment that involves a lot more than technology. Before you tie your company's fortunes to those of a supplier, you'd better dig deep into your would-be partner's financial health. Here are 10 questions that vendor-management veterans say can help you decide whether your intended is really the one for you.

1 What's new about the company? Even if you think you know all about a technology vendor, check again. Today's Wall Street darling could be tomorrow's Enron. Tap a variety of sources for your intelligence, from Dun & Bradstreet Inc. (D&B) to your industry peers. "You may find that this new company that seems really hot used to be this old company that was really outdated," says Pamela Hollington, a director at Rebound Consulting Ltd. in North Vancouver, British Columbia. Beware of companies that change their names to distance themselves from poor financial performance.

2 How does it conduct business and with whom? Some IT vendors have reputations as being unethical; others are just difficult to do business with. Either way, it pays to find out. "I can't believe how many clients actually don't check references," says Eileen M. Birge, an analyst specializing in vendor relationships at The Concours Group in Kingwood, Texas. "It sounds so basic, but they say, 'We were in a hurry,' or, 'It was really close to the end of the quarter, and they offered a great deal if we signed right then.' "

Go beyond references. Check the vendor's ethics with various sources, including customers, says Pat Fausett, a strategic alliances manager for software and intellectual property at Agilent Technologies Inc. in Santa Clara, Calif. Many vendors list customers on their Web sites, and you can also ask among your peers. Then call the customers' accounting departments and ask what it's like to work with that vendor. Is billing timely and accurate? Are hidden "gotchas" in contracts costing extra? Is the vendor flexible about license transfers in the case of a spin-off? Does it work with the customer on creative ways to meet peak demands?

3 How has the vendor's executive team performed? Look at the backgrounds of the officers, especially the chief financial officer, says Fausett. "See where they've been, what they've done or haven't done," she says. For example, does the CFO have a track record in other successful companies, or is he learning on the job? Did he leave a former company under unusual circumstances? Has his name been linked to bankruptcies or Securities and Exchange Commission investigations?

If his last company is unknown to you, run the company name through a search engine and see what comes up. If an officer has jumped from company to company, that's also a red flag. "Look at where they were jumping from and to," Fausett says. "Think about what caused that."

ILLUSTRATION BY JENNIFER DAYTON

4 What is the vendor's market position? If you're taking a risk on a new technology, be sure you've got a market leader, says Birge. "Unless they're a leader, you don't want to be out there on the edge with them." To get a quick read on the vendor's market position, check Web sites such as Hoovers.com and The Motley Fool (*www.fool.com*). But beware of a market leader with no followers, says Greg Schueman, vice president and chief technology officer at Mercury Insurance Group in Brea, Calif. That can indicate an insufficient market for the product. "You want to see several strong competitors," he says. "You have to look at the viability of that particular market segment, not just the company."

5 What is the vendor's financial position? For public companies, use resources such as the vendor's Web site (see box) and D&B to check financials and earnings statements. "Go to Hoover's and pull some data there," says Schueman. "You can just pay for what you need. Look at what's happening with their business model. What kind of customers are coming on board? Who are their competitors? Look for a company that is profitable and becoming increasingly so. You don't want to see that they're gaining market share by burning cash."

A 10-K report, which publicly traded companies must prepare annually for the SEC, is a "gold mine," Fausett says. It includes information such as financial statements and supplementary data; analysis of the company's financial condition; quantitative and qualitative disclosures about market risk; information on legal proceedings, directors and officers; and additional resources. In many cases, the 10-K is available on the vendor's Web site.

For a privately held vendor, ask the owner for permission to talk with the bank that represents the company. The bank probably won't give you numbers, Fausett says, but it will give an indication of the vendor's debt ratio and the outlook for its financial health.

6 What is the vendor's ability to assume financial risk? A vendor can promise you anything, but can it deliver? If it goes belly up, it may not have the financial resources to refund your losses, regardless of good intentions and contract assurances. "You have to be sure in the event they fail that they can keep you whole," Birge says. One company she worked with was dealing with a start-up application service provider. The customer required the vendor to supply financial statements every month, including certification that it had six months' worth of working capital on hand. The contract stipulated that if the capital ever dipped below six months' worth, the customer had the right to pull out of the agreement and bring the applications back in-house over several months.

7 Does the vendor have pending or past lawsuits? "Most salespeople won't say, 'By the way, we're being sued,' " Fausett notes, but financial statements will include a section on litigation judgments against the company. Check its Form 10-K and ask your legal department to do a search for past litigation against the vendor. "Learn who has been suing the company and why," Fausett says. Also check whether it has settled out of court or gone to trial. "That gives me a flavor for how they deal with adversity," she says.

8 Is there an acquisition on the horizon? You sign a contract with a vendor you really want to work with, and two weeks later, the vendor is acquired. "There is so much consolidation in the industry that this comes up often," says Hollington. The product you're about to buy may be important to the vendor, but the company buying the vendor may not be interested in supporting it.

Schueman learned this the hard way once when a software vendor he was dealing with went bankrupt. The company's assets were acquired by another company, and the new owner de-emphasized the product. "The lesson for me was that you have to look extremely carefully at the likelihood that a product will get the investment it needs to push forward," he says.

If the company is public, you should be able to sniff out an impending acquisition. Also, ask specifically in the request for proposals about future organizational plans and the long-term strategy for the product.

Once you have gathered your intelligence, make sure your investigations are ongoing. "For a strategic supplier, looking at those things is not a one-time event," says Larry Graham, vice president of IT vendor management at San Mateo, Calif.-based Inovant, a wholly owned transaction-processing subsidiary of Visa International Inc.

John Moon, CIO at Baxter International Inc. in Deerfield, Ill., agrees. A while ago, his company was doing business with an Internet service provider that was experiencing financial difficulties. The vendor repeatedly assured Moon that it was able to meet its commitments and was in serious discussions with a number of companies about a potential acquisition. Then one day, it laid off virtually its entire workforce without warning. Moon got the news from laid-off employees. "We trusted those folks because they had been straight with us," he says. "We didn't verify as much as we should have."

Now Moon monitors his top 30 IT vendors as he would the competition or a potential acquisition to see how well they're executing against their business plans. He watches their financial performance on a quarterly basis and looks at their balance sheets to see whether they are consuming cash and will need to borrow money and how that will affect products and services. "Now we use the old Ronald Reagan approach," he says. "Trust but verify."

Continual questioning will help you to detect impending changes that may affect your business and to anticipate problems early so you can manage them.

9 Who is your real partner? If your intended partner is really the local value-added reseller (VAR) of the big vendor's products rather than the big vendor itself, that's who you need to know about. "Finding out [that] Great Plains is a stable Microsoft company is interesting," Hollington says. "But it's more interesting to know the VAR [I deal with] in Vancouver is about to be sold to someone else."

10 Is the vendor committed to the technology? Are you buying at the end of a product cycle? Is the vendor more interested in developing the next big thing than supporting what you're buying? "Look at the expected life of the technology offered and the vendor's commitment to that technology," Birge advises. What are the vendor's research and development expenditures in the area you're interested in? she asks. How innovative has it been in your industry or field? You can get R&D numbers from the vendor's 10-K, but don't neglect your own internal intelligence. If you've worked with the vendor before, has it brought innovative ideas and interesting thinking that made you sit up and take notice? ◗

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@earthlink.net.*

It Doesn't Take Sherlock Holmes

Much of the intelligence you need about a prospective vendor partner may be just a click away. To see how much information we could get on a prospective vendor just from its own Web site, we picked Symantec Corp. in Cupertino, Calif., at random. This is what we found:

CORPORATE INFORMATION PAGE

- Company profile
- Four years of revenues
- Basics on technology and services offered
- Customer list
- Corporate history highlights
- Directors and top executives
- Worldwide facilities and service centers
- Ability to drill down for:
  - Latest news
  - Information on partnerships, acquisitions and alliances
  - Investor relations
  - Executive biographies

INVESTOR RELATIONS PAGE

- 2003 quarterly financial results
- Toll-free fax number for free copies of SEC filings and other financial documents
- Ability to drill down for:
  - Additional financial information
  - Investor resources
  - Details on corporate direction

FINANCIAL INFORMATION PAGE

- Financial news releases
- Details about recent alliances
- Annual reports since 1998 (including 10-Ks)
- Other SEC filings

INVESTOR RESOURCES PAGE

- Summary of recent quarterly financial results
- Presentation for investors
- List of research analysts who report on Symantec

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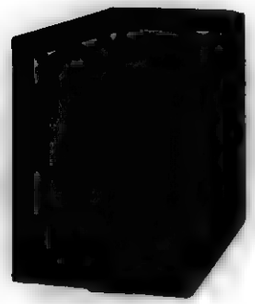

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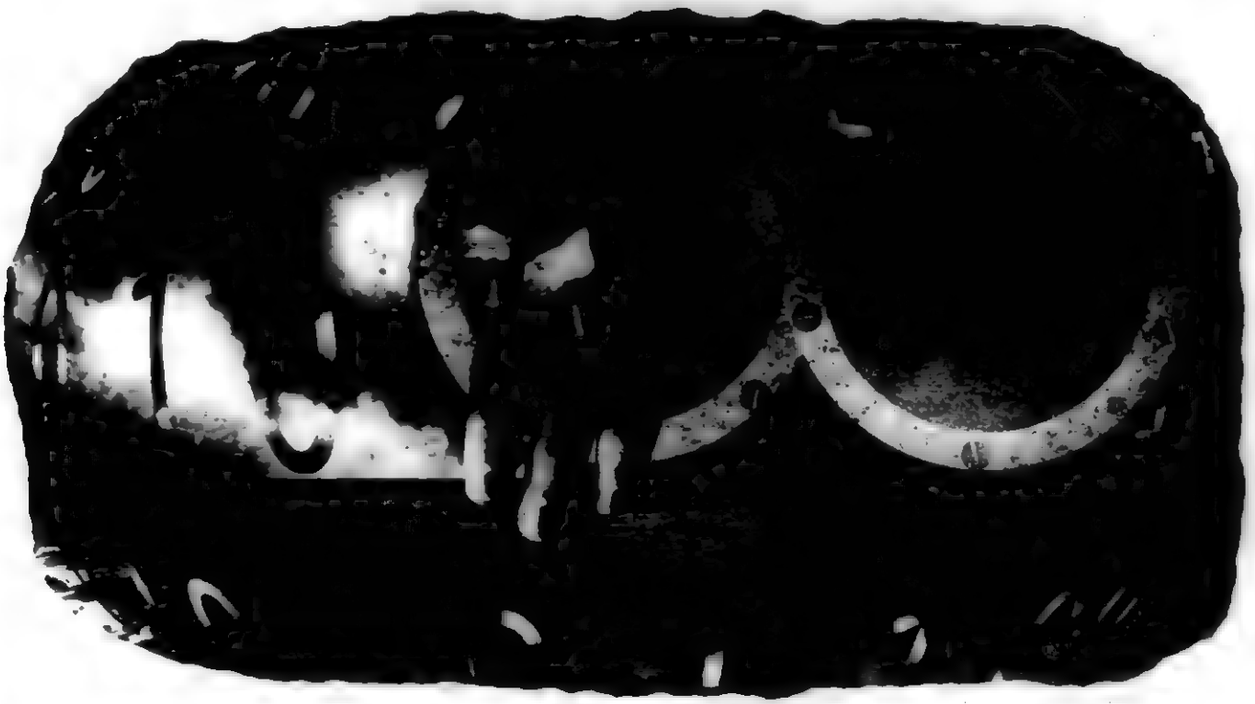

DRAWING A CROW

How to build and maintain portals that users will really use. By Connie Winkler

MICHAEL MORGENSTERN

COMPANIES typically plan and deploy software portals to provide employees, customers and suppliers with a single, Web-based access point for data, content and both new and legacy applications across the enterprise.

But things don't always go as planned. Too often, companies build portals, but users just don't come.

"So many firms with less-than-hoped-for portal results repeat that story that it has almost become a cliché in the industry," says Nathaniel Palmer, an analyst at The Delphi Group in Boston. In a December Delphi survey of 500 companies spanning 20 industries, 37% of the companies that had installed portals said they were disappointed by the lack of "adequate interest among target users."

According to Delphi's findings, the reason people aren't using portals is because there isn't a strategy or life cycle for keeping people involved — what Delphi calls change management, explains Palmer. "There's a lack of strategy beyond the technical architecture," he says.

Indeed, too many companies got caught up in the techie hoopla sur-

rounding portal technology, focusing mostly on implementation and integration issues, according to Delphi's analysis of its survey findings. Meanwhile, critical usability issues, such as educating users about the portal's capabilities, training them to use it efficiently and marketing the value of using the portal, haven't received the necessary attention.

"It seems obvious, but time after time, I have seen the enterprise value proposition for a portal be that it's going to save everyone in the company 20 minutes a day," says Bill Ives, a partner at Accenture Ltd. in Boston. "That's a little fuzzy," he says. "What are they supposed to do with that 20 minutes?"

Start at the Top

Another problem many companies have is failing to involve top management from the very beginning of a portal project. It's critical to pay attention to the requirements of top managers because they are often the busiest of potential users, and they're frequently on the road or located remotely, making them among the hardest to bring to the portal.

"Bringing the portal to them through off-line access and proactive notification is one of the best opportunities for successful portals," notes Palmer.

Experts estimate that project portal teams need to devote 30% to 40% of their time gathering business requirements and getting top managers involved from the start. "The difference between portals which succeed and those that don't is clearly the amount of business involvement the portal project receives and the level of integration with the business," says Bob Rugare, a portal consultant at Cap Gemini Ernst & Young in Atlanta.

Portal project teams should be always looking to add value to the business, Rugare says. That often begins with addressing a very specific business problem.

At Du Pont Co.'s $3.8 billion Performance Coatings group, the issue was content management.

"We have a very large number of documents for marketing: brochures, press releases, warranty information on products and general support content for our distributors and [car repair] body shops," explains Catherine Marchand, the group's e-business strategy manager. "Our salesmen were driving around with 50 pounds of obsolete literature in their trunk."

Du Pont opted to deliver the information through a Web-based portal, using technology from Bowstreet, a portal software and Web development tools company in Tewksbury, Mass. Du Pont wanted the ability to customize information about its half-dozen coating brands. It also wanted each of its 2,500 distributors and repair shops worldwide to see the relevant customized brand information displayed in almost 4,000 different site views, which the technology would allow it to do.

Beyond Custom Content

Few disagree with the content management value of portals. "The two go hand in hand," says Ives, who tells of call center staffers all working off the same page when wireless call plan information is consolidated in a portal.

"Commonality of content both increases business efficiency, because it's cheaper to do it once, and increases the effectiveness of the information, because it's consistent across multiple channels."

Since the content capability was initiated, Du Pont's site has grown rapidly. The body shops can now get training, benchmarking tools and car paint color formulas via the portal. There's also a job-posting and résumé service, Marchand says. And for the distributors, Du Pont is researching adding order-tracking and order-accuracy capabilities.

Portal project teams must think long term, advises Ben Gaucherin, chief technology officer at Sapient Corp., a technology consulting company in Cambridge, Mass.

"Have a clear vision and commitment to the long-term picture. . . . Ask what [the portal] is going to do for your business in the long run," Gaucherin says. "Over and over I've had conversations with clients who are about to buy an expensive piece of software, and it looks very much like a short-term value."

It's also important to think enterprisewide, not merely department by department. "The easy departments to pick off for portal projects are those that stand alone," says Rugare. A human resources portal, for example, may enable employees to enter their own address changes into the HR system and thus eliminate phone calls to HR staffers. But that doesn't solve the problem of updating all corporate systems with the change.

"Clearly, if you can implement a portal that's integrated to your supply chain, your suppliers and partners or distributors, or to your customers, the value goes up almost geometrically," he says.

Winkler writes about the management of technology from Seattle and is Computerworld's former New York bureau chief. Contact her at winklerconnie@yahoo.com.

"Southwire was trying to be ahead of the game – at the urging of our CEO. With all this Internet hoopla, the thinking was that surely there was something we could do with it.

SHEILA SIMPSON, WEB DEVELOPMENT MANAGER, SOUTHWIRE

Finding the Real Need: Productivity

Southwire Co., a $1.7 billion, Carrollton, Ga.-based manufacturer of cable and wire, didn't set out in 1999 to build an ideal portal. The privately held firm just wanted a spot on the Web where customers could place orders. It also wanted to clean up multiple internal and corporate Web sites, which had been set up by IT on behalf of various departments, each using different Web development software.

But four years later, Southwire's portal is yielding impressive business results. Customer orders are up 33%, and 25% of all orders are electronic, with online customers ordering twice as many items as those who place orders via fax, telephone or electronic data interchange. And thanks to content management and workflow capabilities added in the past year, Southwire's managers can approve and post announcements to the portal, without involving IT.

"We had several independent Web sites and a fairly robust e-commerce site. The portal provides an umbrella to bring all those separate Web sites under, along with providing a single sign-on, multilevel security access, customization and personalization," says Sheila Simpson, a Web development manager in Southwire's IT Services group. The underlying portal technology is from Sybase Inc. in Dublin, Calif.

"Southwire was trying to be ahead of the game – at the urging of our CEO," recalls Simpson. "With all this Internet hoopla, the thinking was that surely there was something we could do with it."

The portal was first funded as a research and development effort, separate from IT services. Southwire's initial portal offered only 1,200 commonly ordered products out of the company's 65,000 stock numbers.

The emphasis wasn't on creating a "pretty front-and storefront" for the ordering site, according to Simpson. The true business need was cutting costs associated with processing lots of paper and increasing productivity.

"We didn't want the behind-the-scenes manual processing," says Simpson. "Southwire [in 2000 and 2001] was hit, like a lot of other companies, with trying to become more efficient. We did not need to create more work, we needed to eliminate work, to streamline," she says.

Thus came the emphasis on integrating the order site to the back-end systems. The company eliminated a significant chunk of manual work, which means fewer telephone calls to answer and less faxed information to relay into the computer system.

The push to streamline operations is a big part of the portal popularity, and not just at Southwire, according to Raj Shah, manager of business consulting at Sapient. "They're looking for consolidation of systems and processes . . . and portals are the [user interface] of technology consolidation."

– *Connie Winkler*

A Setup for A Security Nightmare

Lessons learned at the Department of Energy can be applied to the corporate world. By Dan Verton

A new book by **Notra Trulock**, *former director of intelligence at the U.S. Department of Energy, details how apathy and politics can infect the decision-making of senior managers and create a security nightmare for frontline administrators.*

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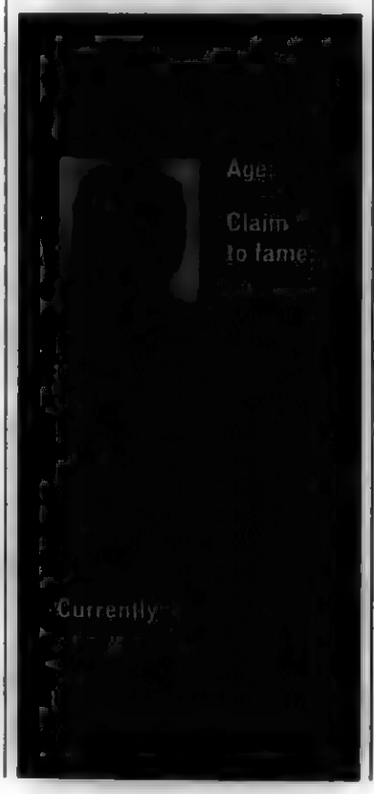
In an interview with Computerworld, *Trulock offered insight into how mismanagement of security issues at the highest levels of an organization can have devastating results.*

In your book, you wrote about many management and leadership shortcomings at the DOE, and especially how those shortcomings had a debilitating effect on enterprise security. Can you expand on a few examples that might offer some sober lessons for large corporations? Most importantly, I think, security was sharply devalued by the Energy Department and senior lab managers during the 1990s. It is common knowledge that budgets were run down and both manpower and training were sharply cut back. By far the worst offense, however, was the corruption and manipulation of security standards and measures of performance imposed by these officials.

Time and again, senior managers fudged or simply suppressed the results of security exercises, evaluations and self-assessments. More than once, senior lab managers were caught red-handed pressuring security officials to revise upward poor marks on security exercises. In other cases, the outcomes of such exercises were rigged to conceal vulnerabilities. Inevitably, senior management officials also had to suppress and silence those security officers unwilling to go along with the coverups.

You also wrote that you "witnessed many incidents in which CI [counterintelligence] officers were asked to report on the same people who wrote their performance appraisals, granted raises and approved budgets." What lessons and suggestions should come out of this for large corporate security programs that might be wrestling with finding the right management structure? I don't know whether the problems I witnessed are unique to the national labs. As counterintelligence was de-emphasized [along with security] at the labs in the 1990s, CI units were pushed further down the lab structure to the point that multiple layers of management existed between CI officers and the lab director. Consequently, CI [and security] problems rarely were brought to the attention of the lab directors or their senior management group. For a time at Los Alamos, the CI [group] reported to a unit that was also responsible for hallway maintenance and replacing burnt-out light bulbs.



First and foremost, large corporate enterprise security units should enjoy high visibility within the enterprise and report directly to either the chief executive or chief operating officers. The further down a [security] unit is in the corporate structure, the greater the potential for interference and obstruction in the performance of the unit's mission.

For companies that have large volumes of intellectual capital and proprietary research to protect, what is your advice on how to achieve an appropriate level of security while at the same time maintaining enough flexibility to remain competitive? The 1990s were a period in which senior managers refused to think through the long-term implications of losing secrets vs. the short-term political benefits of openness or declassification. In an enterprise setting, I suppose this would entail deciding what is worthy of protection and what senior managers might be willing to concede to potential competitors. The costs of lost or stolen data would have to be factored into such an equation. Flexibility might not be valued so highly if the loss of sensitive data undercut an enterprise's competitiveness.

You mention one instance in which a lab director simply crossed out classification markings on a document and released it to the media. We now know that the document in question contained sensitive information. What should corporate security managers do when confronted with similar situations? I assume you mean beyond updating his or her résumé and looking for a new job? Security managers can try a slow, steady process of educating the CEO to the potential downsides of lax security. I know of one Fortune 100 corporation whose world-famous CEO totally disdained security of any type and made nearly all corporate locations open campuses. He retired just before 9/11 and left his successors a staggering problem of how to protect corporate assets worldwide against terrorists determined to attack symbols of American economic power. His successors had to start from scratch to rebuild security at the corporation's facilities. ▶

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How did you estimate the savings? We pay a fixed amount, and it's a [large] part of my IT budget. Our company has gone through a significant operational restructuring to centralize a lot of functions. This deal was the trigger that allowed us to rescale our IT operating expenses. We've gone through tremendous growth, from a very small company to a $4 billion company, and now with the telecom decline, we've radically had to scale [everything companywide] back down.

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For example, a business unit would request a custom or packaged application, and IT, working in partnership, would deliver an economic forecast, change management tactics and perhaps a method for quantifying the intangible ROI and a postinvestment audit capability.

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In other words, who is going to champion a consistent, repeatable IT measurement program and see that it happens and thrives?

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In reality, the broad trend has been for such a management course to originate in business units, which increasingly have control over discretionary IT budget expenditures. The IT organization's budget, meanwhile, is largely confined to life-cycle management expenditures, upgrades, replacements and maintenance.

However, with control comes accountability. Lines of business can chart their technological destinies, but senior management is also holding them accountable for the returns their investments deliver. This compels business units to manage the risks and uncertainties of their investment decision-making. This is accomplished by adding clarity to these decisions — economic forecasts, metrics construction, the whole measurement megillah.

Now, square the budgeting trends and related measurement responsibility with an equally important reality showing IT's genuine interest in busting out of its utility services role. In the case of this high-growth company, the IT group aspires to participate at a more strategic level.

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As it turns out, this company's IT budgeting is centralized, not in defiance of the trend, but most likely because of its size. As its revenue grows, as its need for complex applications grows, it might decentralize budgeting too. Today, IT in this company is excited about the chance to lead a transformation effort that embeds forecasting and measurement in investment decision-making.

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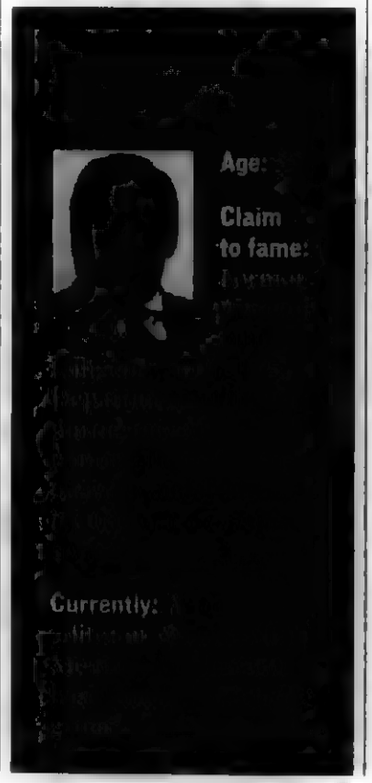

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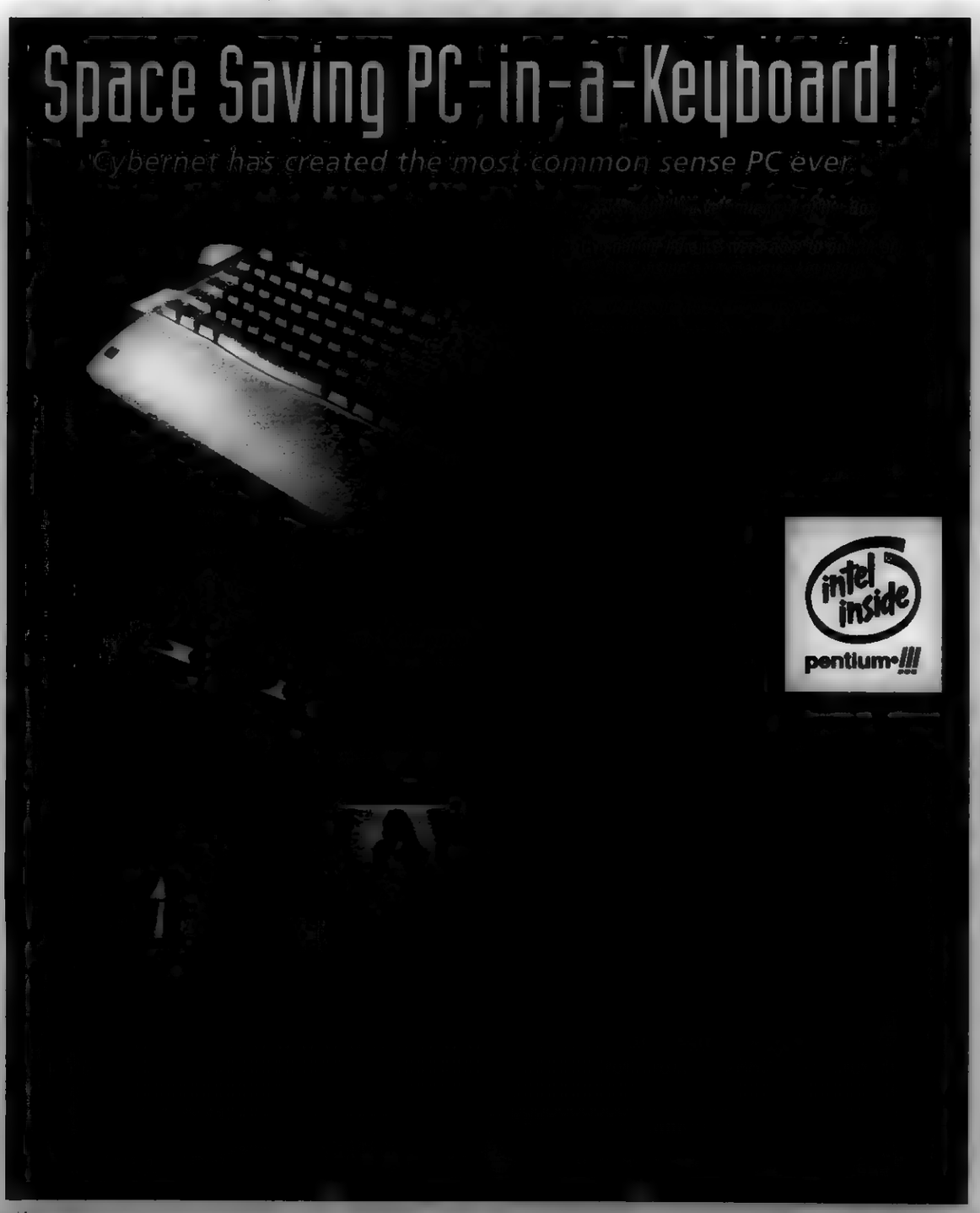

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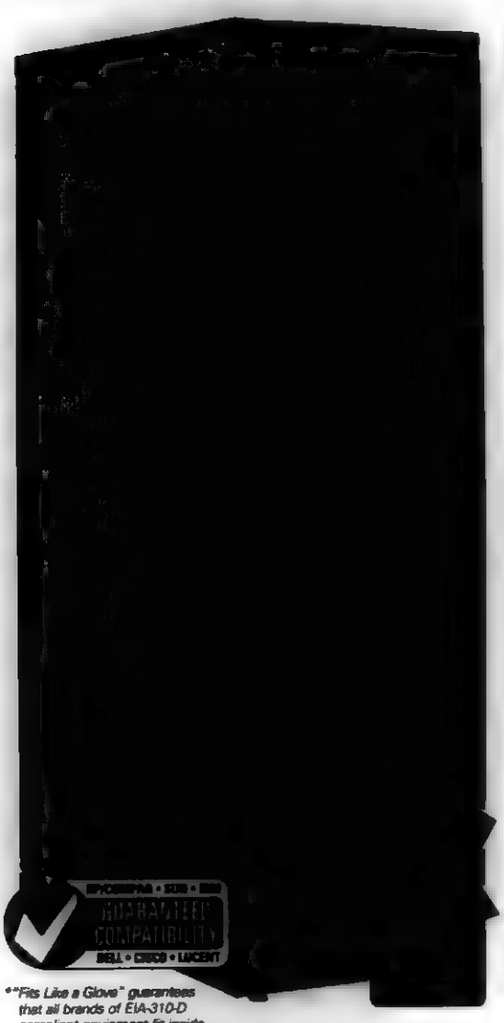

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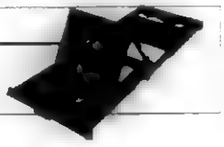

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IT CAREERS IN FINANCIAL SERVICES

Among the most aggressive industries using information technology to enable business is financial services. Despite the upheaval of the past two years, the industry continues to lean on information technology and its professionals to drive change in the future. Over the next 12 to 48 months, the priorities for the industry – whether a traditional banking institution such as Wells Fargo or E*Trade, which introduced online trading 20 years ago – fall into four categories: security, peer-to-peer networking, mobility and web applications.

The issue of security was evident when the Slammer worm hit the Internet in January, closing down ATMs across the country for at least part of the weekend. For E*Trade, which has the second largest automatic transaction machine network in the United States, that kind of problem is a killer. Peer-to-peer networking is an issue for Wells Fargo as it consolidates nationwide operations. And for Edward Jones, extending the business capability and service to customers through mobility, new web applications and security is a model for what most institutions face.

Rodney Gee, general principal over human resources in information systems at Edward Jones, has a short list in terms of priorities for IT professionals in the future. The base is technical skills, which at Jones translates to Java-based programming, database development, system programming and administration, and network and technical architecture. "We look for people who have demonstrated the ability to learn new skills," says Gee. "So if you don't have Java but have proven to be an excellent programmer in another language, we'll help you get that capability."

Edward Jones, headquartered in St. Louis, supports a world network of locations, and IT pros align to the businesses. "So it's important to be able to leverage the capabilities of a teammate," says Gee. "At Jones that is much more important than your abilities as a lone ranger. And, probably, the biggest thing needed before folks move on in their careers is understanding the bigger business context and how IT can enable that business model."

Keith Irwin, manager of learning and development at Wells Fargo Services, says creating this type of workforce encompasses myriad programs. His group provides more than 350 courses online. The courses are configured into maps that track with Wells Fargo's careers of the future. "There's no one thing that keeps me awake at night," he admits. "It's the full range. In financial services, we're still using mainframes, but we also are moving rapidly in the areas of web applications to deliver services to customers.

"That means we're working to cover all the bases because we can't afford to fall behind in any one."

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You will analyze, implement, maintain and support HP NonStop/Tandem-based real-time stock trading systems. Systems Analysts require min. 1 yr exp. as Systems/Technical Analysts. Some positions require knowledge of TAL, pTAL, Postgre SQL and Oracle 8.0 technologies. Sr Systems Analyst and Software Engineering positions require knowledge of Guardian and UNIX/OSS operating environments and min 2 yr exp. Software Engineer positions requires master's level degree. Please send resume, indicating code # you are applying for, to: The NASDAQ Stock Market, Inc., Human Resources, 45 Commerce Drive, Trumbull, CT 06611, or e-mail resumes to: careers.CT@nasdaq.com. Only qualified candidates will be contacted. We are an equal opportunity employer committed to diversity in the workplace.

NET2S

NET2S is a leading International Consulting and Engineering firm specializing in communications technologies. We are presently seeking to fill the following positions:

Business Analyst (NYC)

Develop and implement marketing strategies. Manage sales life cycle including client presentations and negotiations. Oversee project management including deployment and roll out. Co-manage project center.

Must possess excellent communication skills as well. All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street Suite 400, New York, NY 10005; Fax: (212) 279- 1980; Phone (212) 279-6565, or Email: jobus-ny@net2s.com

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SOFTWARE ENGINEERS (12 positions): require Bachelor's or equivalent in Engineering/Computer Science/Mathematics/Science or closely related field with experience providing skills in described duties. Competitive salary and benefits. Provide on-site consulting in design, analysis and development of software applications for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase; e-commerce and web applications development in Microsoft, Java and related technologies; network management systems development with Netscape Server and related tools; SAP R/3 applications on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to: Vice President, Y&L Consulting, Inc., 7550 I H 10 West, Suite 940, San Antonio, TX 78229.

Telecheck Services, Inc., a Division of First Data Corporation, a company in Greenwood Village, CO specializing in check guarantee, has an opening for an Intermediate Software Developer to work in Houston, Texas and other unanticipated job sites in the U.S.. Engage in full life-cycle software development involving object-oriented design and development. Requires a bachelor's degree in computer science; experience implementing and integrating ORACLE products; and working knowledge of C, C++, Java, Shell Scripts, Windows 2000, SQL, and Unix. Respond by resume to Norm Barnett, First Data Corporation, 6200 S. Quebec St., Suite #2000 West, Greenwood Village, CO 80111 and refer to job #3983DE.

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ALGORITHM DEVELOPMENT ENG – Designs and develops pattern recognition algorithms for medical applications. Master's degree in Elec./Computer Eng. Will pay prevailing wage. Send resume to Zilling Huo, Beckman Coulter, Inc. 11800 SW 147th Ave., Miami, FL 33196 or fax to (305)-380-3647.

EXPERIENCED IT PROS NEEDED

DBAs, PM, & Proj. Managers to design, develop, admin, and support DBs: Sybase, SQL Server, Informix, Oracle& Rdb. Disaster recovery plan/implement, per. tuning, back up/restore, and troubleshoot. Expert in WinNT, VAX/VMS, SCOUnix, TCP/IP, PowerBuilder, Access, and C++. MS Proxy/SMS Server & IIS to develop web DB applications. Expert RDB theories, CASE & RDBMS physical implementations required. Job Location: San Francisco Area and Phoenix. Please submit resume to: Apex Software, Inc., 4718 E. Cactus Road, #208, Phoenix, AZ. 85032

Seeking qualified applicants for the following positions in Memphis/Collierville, TN. Senior Business Application Analyst. Form/state/define systems' scope and objectives based on user/customer needs and a good understanding of applicable business systems and industry requirements. Requirements: Bachelor's degree* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with business case development and project management tools (e.g., Primavera Project Planner, TeamPlay, MS Project or MS Access) also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Software Engineer wanted at NY office of Empact Solutions to design, develop, test, implement and provide maintenance support for EyeQ software. Must have analytical, trouble shooting, and problem solving skills. Experience with Java, JSP, Servlet, ASP, Perl, and Win2000 Design and document capability with UML. Experience with use cases, class diagrams, sequence diagrams and state diagrams. Database knowledge with Oracle, DB2, and SQL Server/ Analysis. Hands on programming with EJB, J2EE, XML, and C++. Must have a BS in Computer Science or Engineering, and at least 2 years of experience. Send resume to NY Recruiter at careers@empactsolutions.com referencing code SENG.

Sr Consultant (dynaSight/SAP specialist) for comp s/ware dvlpg, mktg & service co. in Wayne, PA for job in Rochester, NY. Duties incl.: dsgng & dvlpg web-based Business Intelligence (BI) applics & providing related implmtn svces. Extensive travel required. Reqs: Master's or equiv in Bus./Technology or related field. 5yr exp in job offrd or 5yr exp in translating bus. info reqmts into reporting or BI solutions. Applicants must have significant SAP exp. SAP BW implmtn exp & dynaSight implmtn exp. Respond to: Michael Disterle, Director of Professional Services, arcplan Inc., 900 West Valley Road, Suite 204, Wayne, PA 19087.

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Assistant Director, Network Systems Development and Support

The University of Kansas is seeking an accomplished individual to play a key role in our dynamic, service-oriented information technology environment. This new position leads the technical systems group responsible for the development and ongoing maintenance support of the enterprise communications systems for KU. As part of the NTS management team, the successful candidate will provide vision and technical guidance to ensure the effective and efficient utilization of communications technology at KU.

For complete information on the position, required qualifications, and application procedures, see www.nts.ku.edu or contact *Ann Ermey @ NTS, 1736 Engel Road, Lawrence, KS 66045 785-864-9310 or email aermey@ku.edu.*

Complete applications postmarked by April 1, 2003 will be given first consideration. EO/AA Employer.

Full-time Software Engineer/ Middleware Developer responsible for program design and analysis, coding, testing and implementation for numerous projects. Define applications architecture and document applications functionality expansion and customer integration. Develop applications requirement specifications and develop software and documentation according to established standards. Provide end-user support, identify and troubleshoot defects found. Work with Oracle, C++, PL/SQL, Java, MQ Series, MSQI, E-SQL. Must have a Bachelor's degree in Computer Science, Information Systems or related field. Educational and or work background must have included the above-referenced skills. Salary Competitive. Send resume to: Robbin Lee, United Parcel Service, 12380 Morris Road, Alpharetta, GA 30005. Employer will not sponsor visas for position.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Java, C++ and CORBA also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1600 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

SR J2EE/IVR Developer. 2+yrs exp design, develop, & implement scalable platforms at least one of which must be on large scale telephony sys, J2EE, TomCat, Apache Edify & IVR. Submit resume to Tracy Smutko, Resource Mgr. NCS Technologies 242 Old New Brunswick Road, Piscataway, NJ 08854

Software Engineers & Programmers:

Analyze, design, test and implement specialize software applications for e-commerce, Web, Client Server technologies, Legacy systems and distributed apps. in Weblogic, Corba, Apache, Mainframe, ASP, J2EE, PB and related technologies utilizing appropriate RDBMS including Oracle and DB2. HR, Inretcomp, Inc., 900 Lacey Ave., Suite #298, Lisle, IL 60536. EOE.

Software Engineer: Design, develop, implement, test the business applications in areas of data access, data extraction, conversion, migration, procedures, data modeling, quality assurance using Oracle 8.0, PL/SQL, Oracle Designer, Developer 2000 and Oracle relational database tools on a Unix system. Requires MS in Comp. Sci. Engg/Related field with 2 yrs exp or BS with 5 yrs exp. Wages: $60,000/yr. 40 hrs/wk, 8am-5pm. Send 2 resumes to: Case#200116737, Labor Exchange Office, 19 Staniford St. 1st Fl., Boston, MA 02114.

Job Code SSBA. Manage web and eCommerce projects using VB, .NET, ASP.NET, Visual Basic 5.0/6.0, HTML, DHTML, JavaScript, VBScript, ASP, XML/XSL, SOAP, COM/COM+, MTS, SQL Server 2000/7.0/6.0, Oracle, DB2, Office Object Model (VBA), Seagate Crystal Reports, BS 5.0. System Analysis/Reviews, database design using ERWIN, quality issues using CMM levels. Maintain Ebix software: Ebix-One, Ebix-ASP, Ebix-Exchange, Ebix-SaleSource, Ebix-Mail and Elite. Microsoft certification as a solutions developer. BS + 2 yr of exp. in software field (Requires 1 yr. exp. with Ebix software packages) OR no BS + 5 yr. of experience in software development.

Job Code SSBA. Analyze client biz proc., project planning, software dev., QA & team mgmt. Conduct reqs and system analysis, review biz sols., and end user needs. System arch & database dsgn., deploy and dev software on Microsoft tech like ASP.net and C#, Active Server pages, VB.NET/ Visual Basic 6.0, VBScript, JavaScript, Microsoft Transaction Server, SQL Server 2000, COM/ COM+, DCOM/MS.NET Remoting, XML/XSL, Rational Rose, data modeler like ERWIN, Windows 2000/NT and Intel Based machines. Maintain Ebix software packages: Ebix-One, Ebix-ASP, Ebix-Exchange, Ebix-SaleSource, Ebix-Mail and Elite. BS in CS + 2 yr of exp. in software field (Requires 2 yr. exp. with Ebix software packages) OR no BS + 4 yr. of experience in software development.

Competitive salaries. Apply with Job Code to EBIX, 5 Concourse Parkway, # 3200, Atlanta, GA 30328 with proof of work authorization.

Senior Network Engineer req'd for CT telecom co. Must be CCIE and have M.S. or equivalent, 4 yrs. Practical experience required. NO TELEPHONE CALLS Please. Send Resume to: attn. Jim Florwick Globelcom LLC, P.O. 605,Old Greenwich,CT.06870

Sr Consultant (dynaSight/ Hyperion Essbase-Oracle specialist) for comp s/ware dvlpg, mktg & service co. in Wayne, PA. Duties incl.: dsgng & dvlpg web-based Business Intelligence (BI) applics & providing related implmtn svces. Extensive travel required. Reqs: Master's or equiv in Bus/Info Systems or related field. 5yr exp in job offrd or 5yr exp in translating bus. info reqmts into reporting or BI solutions. Applicants must have significant Oracle & Hyperion Essbase implmtn exp. Respond to: Michael Disterle, Director of Professional Services, arcplan Inc., 900 West Valley Road, Suite 204, Wayne, PA 19087.

Software Developer
Full-time position in Wheaton, IL. In this position you will deliver quality code in a collaborative environment, as well as document and communicate technical and architecture information as needed. Required: Master's degree in Engineering, Computer Science or related field; 1+ year of experience in developing N-tier DNA application using ASP, VB.COM, DCOM, SQL server, javascript, remote scripting; 6+ months experience in developing in Web Farm Environment; and 6+ months of development experience in ASP.net, VB.net, XML, XSL and Xpath. Contact: mwinski@warnerbychecki.com.

Boehringer Ingelheim Pharmaceuticals, Inc. has an immediate opening in its Ridgefield, Connecticut facility for the position of Lead Business Analyst.

Provide business knowledge and technical leadership in identifying projects, conducting feasibility studies, evaluating system design and determining cost/benefit and economic justification on all IT projects to address the systems and technology needs of the assigned business area.

Must possess a Bachelor's degree or its equivalent in Business Administration, Computer Science, Information Systems or a related field and relevant experience with SAP-Business Analyst skills in SD and HR modules, the development of custom database programs using Oracle, Visual Basic and SQL-based RDBMS, automated tools to automate SAP test script specifications and Software Project Implementation and Analysis.

Resume and/or cover letter must reflect each requirement above and specify reference code AD-GCD/GC0103 or it will be rejected.

Forward resume to: BI Staffing Center, PO Box 534, Waltham, MA 02454. Fax number: (781) 893-2431
Email: BIPC@BI-careers.com

NET2S

NET2S is a leading International Consulting and Engineering firm specializing in communications technologies. We are presently seeking to fill the following positions:

- Sr. Tibco (RV, Integration Mgr) Developer
- TIBCO/TRIARCH Systems Engineer
- Sr. Security Systems Engineer

All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street Suite 400, New York, NY 10005. Fax: (212) 278- 1980. Phone (212) 278-8585, or Email: jobus-ny@net2s.com

Programmer Analyst. Experience w/ C++, VB, Java. Must have BS in CS, Comp. Eng., or EE. Must have authority to work in US. Send cover letter and resume to Jennifer c/o PCS at 1415 N. Dayton, Chicago, IL 60622.

Remedy Applications Engineer / System Administrator req'd for CT telecom co. Must have M.S. or equiv't + 3 yrs. exp. NO TELEPHONE CALLS Please. Send Resume to: attn. Jim Florwick Globelcom LLC, P.O. 605,Old Greenwich,CT.06870

Prosoft

Prosoft Technology Group, Inc. is a nationwide professional software-consulting firm. We offer competitive salaries, full benefits and a team spirited, success driven environment.
The positions of Programmer Analyst (ERP) and Programmer Analyst (EAI/B2B Integration) require at least two (2) years of work experience. All other positions require at least one (1) year of experience in one or more of the following skill sets and also all positions require at least a Bachelor's degree in Computer Science or Engineering (any field).
PROGRAMMER ANALYST (ERP):
SAP R/3 Functional Modules, ABAP/4 Reporting, BASIS, BW and CRM
Oracle Applications, Peoplesoft, Siebel
PROGRAMMER ANALYST (EAI / B2B Integration):
Web Methods (EAI and B2B Integration), See Beyond and Mercator
PROGRAMMER ANALYST (eSolutions):
SAP Portals (Top Tier), Web Logic, Web Sphere, iPlanet and J2EE Technologies
PROGRAMMER ANALYST (Knowledge Management):
Data Warehousing, Enterprise Reporting, Actuate, Cognos, Business Objects and Crystal Reports
System Administrators and DBA:
Unix Administrators (Solaris, AIX, HP-UX, DEC-Unix, NT, LDAP, Oracle DBA and SQL DBA
Business Development Manager: Requires a Bachelor's degree in Business Administration or Engineering (any field) with at least one (1) year of experience in Information Technology.
ALL POSITIONS REQUIRE FREQUENT TRAVEL AND RELOCATION THROUGHOUT THE U.S. ONLY QUALIFIED U.S. WORKERS NEED APPLY.
Please mail your resume with Ref # Pros - 2003 to Attn: HR Manager, PROSOFT TECHNOLOGY GROUP, INC., 2001 Butterfield Road, Suite 1000, Downers Grove, IL 60515

SOFTWARE ENGINEERS (8 positions): require Bachelor's in Engineering/Computer Science/Mathematics/Science or closely related field with experience providing skills in described duties, at $65,000 per year; Senior Software Engineers (8 positions) with Master's and two years experience, at $70,000 per year. Provide on-site consulting in design, analysis and development of software applications for legacy systems in IBM mainframe environment; development and administration in Oracle, DB2, SQL Server and Sybase, e-commerce and web applications development in Microsoft Java and related technologies, network management systems development with Netscape Server and related tools, SAP R/3 applications on Windows with DOS and ABAP/4 and related modules. 40% travel to client sites in the United States. Mail resumes to YASH Technologies Inc., Human Resources, 606 17th Avenue, Suite 1, East Moline, IL 61244.

OpSmum Technologies seeks Software Engineers to design & develop complex s/ware applications using UNIX, Windows, C++, VC++, VB, PL/SQL, Unix Scripting (sed, awk, grep) Linux Scripting, SS7, Oracle, SQL Svr & related tools. MS or equivt in Comp Sci, Engineering, Business or a closely related field. A min one yr exp req'd. Job in Woodridge, IL & other locations. Apply to HR, Optimum Tech, 1230 Oakview Dr., Woodridge, IL 60517. Fax: 630 985 7825.

Computers-Staff Leads needed. Seeking qual. candidates possessing MS or equiv. and/or rel. work exp. Part of the required rel. exp. must include 6 months working with PeopleSoft ERP, Oracle & DB2. Duties include: Design, develop & implement business solutions & applications; Create system conversions of legacy mainframe systems to PeopleSoft systems; Mentor junior tech. consultants. Must be willing to travel extensively & relocate as req'd. Exp. in SQR, SQL with UNIX & Windows platform preferred. Fwd. resume & ref. to: Ceder, Inc., Attn: HR, 25 Burlington Mall Rd., 4th Floor, Burlington, MA 01803.

Computer Programmer. Plan, develop, test, and document programs. Evaluate user requests for new and modified programs for business applications using Visual Basic 6.0, Microsoft SQL Server, Windows 2000/NT, and software automation for large retail supply chain management. Swansea, SC location. 40 hrs/wk, 9AM-5PM. Competitive Salary. Send resume to: Primetech Systems, Inc., 1010 Green Tree Rd., Pittsburg, PA 15220.

PROGRAMMER-ANALYSTS needed at client sites to dsgn & dvlp interfaces & prgm modules using Sybase, Java, ESQL/CPP, Perl, Unix, Open client library & T-SQL; Write & sched jobs thru Autosys & Control-M; Access data thru DB-Artisan; Synchronize d/bases using Sybase replication server. Send resume to Global Consultants, 601 Jefferson Rd, Parsippany, NJ 07054.

Infobahn Technologies delivers innovative IT Solutions to business clients nationwide. We have immediate full time oppurtunities for Software Engineers. All applicants must have a minimum BS in Comp.Sci.Engg. or related field plus 2 years of experience. Send resume to: Infobahn Technologies, (HR) 288 Walnut St. #410, Newton MA 02460.

Software Engineer - Mohegan Lake, NY. Require experience in designing &developing commercial applications using Java, XML, Developer, Oracle, Data Warehousing & Oracle Applications. Relocation within USA possible. Attractive compensation package. Send resume to Siva, Globytes Technology Solutions Llc., 691 Panorama Drive, Mohegan Lake, NY 10547

Senior Software Engineer responsible for research, design and developing computer software systems. Will conceptualize, design and construct a framework for business application software. Will use various platforms including COBRA/J2EE and C++, Java and object oriented design. Must have 5 yrs of exp. in job offered. Salary Competitive. Send resumes to: Kate Elliott, Mentisys, Inc.1545 Peachtree St., Ste. 340 Atlanta, GA 30309.

Supermarket Retail Bans seeking: Software Engineer w/MS Degree & 1 year exp. to: analyze business needs for users in the dept. of consumer goods. Custom Des. & maintain system using Business Basic, FoxPro, VB 5, SQL Svr, FRX, Crystal Reports & Win NT on mainframe (Unisys A series) to consolidate data for reporting. Travel abroad & within US to gather user req., specifications & for imp. of software. Exp. in retail busn. is must. Resume to: Attn: Don Winant, MIS-8810, Grietede's Foods, Inc., 823 11th Ave, NY, NY 10019.

Sr. Database Admin. Design, analyze, test, maintain & improve logical & physical databases. Responsible for backup, recovery & tuning of databases. Calculate optimum values for database parameters & system analysis. Use Oracle, SQL server, &/or related skills. Req 4 yrs. exp in job/4 yrs exp as Systems Analyst & Consultant or Asst. Syst. Anal. Or Sr. Programmer & Programmer. Jobsite: West Greenwich, Rhode Island. Send ad & resume: Yen C. Chong, Amgen Inc., One Amgen Center Dr., Thousand Oaks, CA 91320-1799. Include Ad# 02-412FV.

Logos, a Bible Software Company, seeks S/w Dsgn. Analyst for HQ office in Bellingham, WA. DESC: Dsgn & dev. multilingual info. retrieval sys. for use in computer reference works util. C++, ATL, COM, HTML, JScript, & XML on Win. Dev implementations of info. retrieval approaches including auto summarization, term conflation, doc. clustering, cross lang. searching, & topic extraction. REQS: BS in Engr, CS, Math, or Physics + 6 mos. exp. coding progs. & apps. in C++ for Win. Prem. sal. + bonus. Pls. reply to E. de Kock, Job# LR-101, 1313 Commercial St, Bellingham, WA 98225.

Database Analyst sought by Telecom Network Solutions co. Bach in Comp Sci/Eng or related field w/3 yrs exp. Respond by resume to HR Dept, Amplidyne, Inc, 5475 Peoria St, Bldg 1, Ste J, Denver, CO 80239.

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OH Data/Telecom Service Co. seeks Programmer-analyst I to assist in plan/develop/test/document of computer programs; apply knowledge of program. Techniques and computer systems; assist in eval user requests for new/modified programs; consult w/users to identify current operating procedures; clarify program objectives; enter program codes into computer system; assist in analyzing, reviewing, altering program to increase operating efficiency. Bachelor's in Comp Sci/Civ Engin or equiv and 3 mos in job/job related exp req., including exp w/UNIX programming, C++, Perl, Java, SQL (PgSQL). Resumes (no calls) to Boadvox LTS, 1228 Euclid Ave. Ste. 390 Cleveland, OH 44113. EOE.

Web Applications Developer to architect, design, develop, test, implement and debug interactive web sites and web applications for e-commerce clients, utilizing full range of web development skills (including XML, XSLT, CGI), business layer skills (including COM and CORBA) and back end office systems (including DB2, AS400 and MySQL). Requires Masters or equivalent level degree in Computer Science, Math, Physics, Engineering, Chemistry (Math based) or closely related field and 2 years of experience in business to business software development. Qualified applicants must be eligible for permanent employment in the United States. Send resumes to: Ms. Carol Stano, Controller, Drone & Mueller and Associates, 12977 N. Forty Drive, Suite 100, St. Louis, Missouri 63141

NEWS MEDIA MANAGER - WABC Eyewitness News has an immediate opening for a News Media Manager. Responsibilities include: managing media ingest, output and traffic flow for multiple newscasts, including digital playback, supervising news editors, news editing, and managing digital servers and archives.

The successful candidate will have a minimum of 3 years television news editing experience, and multiple years experience working in a TV newsroom exercising editorial judgment. Must be proficient in non-linear editing techniques, computer literate, comfortable working with Microsoft Office and Windows NT, as well as experience with one or more newsroom systems such as AP ENPS.

The individual must be highly organized and used to working under tight deadlines while working on multiple, overlapping projects. The News Media Manager will work closely with News Producers and Management to ensure the timely and accurate production of newscasts, special reports and special segments. Prior supervisory experience preferred.

Please send resume to: Ted Holtzclaw, News Operations Manager, WABC-TV, 7 Lincoln Square 4th Fl., New York, NY 10023. No calls please. We are an Equal Opportunity Employer

AppliedR, Inc., is hiring Programmers/Analysts, Software Engineers, System Administrators, Functional Application Consultants and Market Research Analysts. May be assigned to client sites nationwide. Send resumes to: AppliedR, Inc., 12280 Saratoga-Sunnyvale Road, Suite # 105, Saratoga CA 95070 or email: appliedr@ix.netcom.com.

JUNIOR PROGRAMMER/ANALYST to analyze, design, develop and maintain enterprise application software systems in a client/server environment using PowerBuilder, C++, Visual C++, SQL, PL/SQL, Java, SQL Server, Oracle and Sybase under Windows and UNIX/SCO operating systems. Perform duties under close supervision of project director to ensure accuracy and that project progresses according to prescribed instructions and expected results are met. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with one year of experience in the job offered or as a Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Shri Gangal, President, Syspro Technologies, Inc., 3091 Holcomb Bridge Rd., Suite H-2, Norcross, GA 30071; Attn: Job KS.

SOFTWARE ENGINEER to design, develop, implement and maintain web-based application software and enterprise wide databases/reports using Visual Basic, ASP, SQL Server, Oracle Developer, Oracle Designer, Oracle Discoverer Tools, Active Reports and Oracle Reports under Windows and UNIX operating systems; Mentor junior programmers and engineers. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with four years of experience in the job offered or as a Programmer/ Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Vishy Desari, President, Objectnet Technologies, Inc., 1117 Perimeter Center West, #E-104, Atlanta, GA 30338; Attn: Job CB.

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PROGRAMMER/ANALYST to analyze user requirements, and design and develop manufacturing applications using Visual FoxPro, Clipper and Visual Basic under Windows and UNIX operating systems. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered or as a Systems/Analyst. Competitive salary offered. Apply by resume to: Kyle Williams, Concord Business System, 1701 Barret Lakes Blvd., Kennesaw, GA 30144; Attn: Job SP.

Pro Softnet Corporation has multiple openings at its Woodland Hills office, and unanticipated client sites throughout the U.S. for the following positions: Software Engineers, Programmer Analyst, Business Manager, Management Analyst. Mail resumes to : Pro Softnet Corp. 21300 Vicory Blvd. # 1230 Woodland Hills, CA 913007 Attn R. Kulkarni Code P101.

Eclipsys Corporation, a global healthcare information technology and services company, seeks a qualified applicant for the position of VP - Sales Executive for its Malvern, PA location. Position requires a minimum of a Bachelor's degree in Marketing, Business Admin., or Healthcare Admin, or equivalent, plus 2 yrs. exp in sales or marketing in a healthcare environment. To apply, visit our web site at: www.eclipsys.com

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Computers-Programmer Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the required rel. exp. must include 1 yr. working with Visual Basic, MS SQL Server & Unix (ADX) and 6 months working with People Tools. Work with 3 of the following: MS SQL Server, Visual Basic, Unix (ADX), Windows NT, Oracle & People Tools. Fwd. resume & ref. to Percipia, Inc., Attn: HR, 816 Morrison Rd., Gahanna, OH 43230.

Information Systems Manager needed. Seeking qualified candidates possessing MS/BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include one year working with SQL Server, Visual Basic, and Visual Interdev. Duties include: Plan, direct and coordinate all information systems projects; Assess hardware and software needs and provide technical support. Mail res., ref. and sal. req. to Shelby County Trustee's Office, 160 N. Main St. #300, Memphis, TN 38103.

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BEA

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Even in the tool's early incarnation, some companies found benefit. Richard Lynn, vice president of global applications at Pfizer Inc.'s pharmaceutical group, said his division was able to set aggressive timetables with the outsourcers that develop its applications, knowing that the BEA tool gave them added flexibility to make changes.

Lynn said the new tool will provide more benefits, since developers will no longer have to "Alt-Tab" between applications, and they will be able to more easily reuse code.

BEA is promoting its new WebLogic Platform as a way to converge integration and custom application development. Kapoor said the adoption of integration brokers has been limited, but he hopes WebLogic Platform 8.1, with its newly unified architecture, will make integration more mainstream by reducing the complexity, cost and time needed for such projects.

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Murphy said he expects platform vendors such as BEA and IBM to eventually provide all of the integration tools that most companies need, pushing to niche vertical markets the vendors that specialize in integration brokers.

SOURCE: BEA SYSTEMS INC., SAN JOSE

Jon Derome, an analyst at The Yankee Group in Boston, said that in the past 10 months, he has noticed that IBM and BEA have been turning up on users' short lists for integration projects, alongside integration broker vendors such as webMethods Inc. and Vitria Technology Inc.

Derome said the combined application server/integration broker offering can make a lot of sense for companies with complex integration challenges involving multiple legacy or packaged applications and Web applications.

Just because BEA is promoting the new products and new versions doesn't mean users will be rushing to get them. Bear, Stearns & Co., for instance, has major financial applications running on BEA's WebLogic Server.

Most of the applications are running on Version 5.1, and Bear, Stearns is looking to convert to 7.0, said Sue Picus, managing director in the architecture office at the New York-based company.

"We don't just drop everything and convert," said Picus, noting that it costs money to port code to a new version and to retest the complete system. "We tend to upgrade only when there's a need."

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IBM

a lot of careful upfront analysis before adoption.

"There is still some confusion. This is still tricky for some users," said Marcy Nechemias, an IBM pricing manager. "But the overall message here is that WLC is here to stay." She added, "There have been some rumors that IBM is going to discontinue WLC. Those are completely untrue."

Hewitt Associates LLC, a human resources outsourcer in Lincolnshire, Ill., has been using WLC since November 2001. The company is saving approximately 25% in monthly mainframe software licensing costs, said Dan Kaberon, Hewitt Associates' Parallel Sysplex manager.

"It was a good deal on the first day of the first month, and it has become easier to implement and more valuable for us to exploit with every change that IBM has made," Kaberon said.

In many instances, companies aren't moving to WLC simply because they see little benefit in it, said Stan King, president of Information Technology Co., an IBM business partner in Falls Church, Va. None of the 65 data centers that are directly supported by Information Technology has adopted WLC, King said. In all 65 cases, mainframes and associated software are being used at full throttle in production environments. Such shops won't see the same benefits from WLC, which favors users that don't fully max out capacities or those that have variable workloads, King said.

"There can be tremendous saving in this for those who own application development shops or are using mainframes on a limited basis or have brand-new requirements," King added.

Nechemias said IBM will work with users to understand specific concerns and address them where possible.

For instance, in response to user demands, IBM has made changes in the way usage is defined and measured under WLC. More recently, IBM discontinued plans to develop a license manager technology that was to have been used with z/OS, after users complained that it was too intrusive and complex to install.

In the same vein, IBM is currently working with users to clarify issues related to a four-hour rolling average metric IBM uses in some cases to measure software usage, Nechemias said.

"We are just dotting the i's and crossing the t's" to clarify things for users, Nechemias said. Later this year, IBM plans to highlight several customer case studies showing how early users who have implemented WLC are taking advantage of it, she said.

IBM's move to educate users about WLC comes at a time when barely 40% of all z/OS users have adopted the pricing model, despite its touted benefits.

"In terms of an adoption rate, one of the gating factors is that a lot of users are running z/OS in a mixed environment" with OS/390, said Mike Chuba, an analyst at Stamford, Conn.-based Gartner Inc. That makes WLC hard to implement, he said.

Another major factor is that WLC's benefits can vary widely depending on the overall capacity of installed mainframes and the applications that run on them, so users need to do the necessary analysis before making a move, Chuba said.

For instance, a mainframe user with less than 1,000 MIPS installed is unlikely to see much of a price benefit and is probably better off with current Parallel Sysplex licensing models, Chuba said. On the other hand, a user with more than 1,000 MIPS running multiple software packages could benefit substantially by moving to WLC, he said.

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WebLogic Upgrade

BEA Systems' WebLogic Platform 8.1 includes:

WebLogic Server 8.1 – Improved performance, enhanced clustering and monitoring, support for Web services security and reliable messaging, simplified development and ease of administration.

WebLogic Workshop 8.1 – Integrated development environment that can be used with all products in the WebLogic Platform; includes additional and extensible controls for connecting to databases and back-end resources; provides graphical designer for Java Server Pages, portals, business process management and data transformation.

WebLogic Integration 8.1 – XQuery language for data access and transformation, XML-based workflow language to simplify business process automation, enhanced message broker and guaranteed delivery services.

WebLogic Portal 8.1 – Support for Java portlet (JSR 168) and content repository (JSR 170) standards; content management and search capabilities, simplified integration of Web resources.

Note: WebLogic Server is due for general release in the spring. The Workshop, Integration and Portal products are due in the summer.

Continued from page 1

IBM

a lot of careful upfront analysis before adoption.

"There is still some confusion. This is still tricky for some users," said Marcy Nechemias, an IBM pricing manager. "But the overall message here is that WLC is here to stay." She added, "There have been some rumors that IBM is going to discontinue WLC. Those are completely untrue."

Hewitt Associates LLC, a human resources outsourcer in Lincolnshire, Ill., has been using WLC since November 2001. The company is saving approximately 25% in monthly mainframe software licensing costs, said Dan Kaberon, Hewitt Associates' Parallel Sysplex manager.

"It was a good deal on the first day of the first month, and it has become easier to implement and more valuable for us to exploit with every change that IBM has made," Kaberon said.

In many instances, companies aren't moving to WLC simply because they see little benefit in it, said Stan King, president of Information Technology Co., an IBM business partner in Falls Church, Va. None of the 65 data centers that are directly supported by Information Technology has adopted WLC, King said. In all 65 cases, mainframes and associated software are being used at full throttle in production environments. Such shops won't see the same benefits from WLC, which favors users that don't fully max out capacities or those that have variable workloads, King said.

"There can be tremendous saving in this for those who own application development shops or are using mainframes on a limited basis or have brand-new requirements," King added.

Nechemias said IBM will work with users to understand specific concerns and address them where possible.

For instance, in response to user demands, IBM has made changes in the way usage is defined and measured under WLC. More recently, IBM discontinued plans to develop a license manager technology that was to have been used with z/OS, after users complained that it was too intrusive and complex to install.

In the same vein, IBM is currently working with users to clarify issues related to a four-hour rolling average metric IBM uses in some cases to measure software usage, Nechemias said.

"We are just dotting the *i*'s and crossing the *t*'s" to clarify things for users, Nechemias said. Later this year, IBM plans to highlight several customer case studies showing how early users who have implemented WLC are taking advantage of it, she said.

IBM's move to educate users about WLC comes at a time when barely 40% of all z/OS users have adopted the pricing model, despite its touted benefits.

"In terms of an adoption rate, one of the gating factors is that a lot of users are running z/OS in a mixed environment" with OS/390, said Mike Chuba, an analyst at Stamford, Conn.-based Gartner Inc. That makes WLC hard to implement, he said.

Another major factor is that WLC's benefits can vary widely depending on the overall capacity of installed mainframes and the applications that run on them, so users need to do the necessary analysis before making a move, Chuba said.

Still Committed

IBM's Workload License Charge allows users to:

- **Pay for mainframe software based on workload-capacity requirements.**
- **Upgrade hardware without necessarily incurring associated increases in software fees.**
- **Handle sudden workload spikes without paying extra for them.**

For instance, a mainframe user with less than 1,000 MIPS installed is unlikely to see much of a price benefit and is probably better off with current Parallel Sysplex licensing models, Chuba said. On the other hand, a user with more than 1,000 MIPS running multiple software packages could benefit substantially by moving to WLC, he said.

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FRANK HAYES ▪ FRANKLY SPEAKING

Offshore Face-off

NERVOUS ABOUT OFFSHORE OUTSOURCING? You should be — and not just because offshoring has just become the favorite theme of the usual IT-analyst suspects. Last week at *Computerworld*'s Premier 100 conference, some panelists were throwing around cost numbers, like 8 cents on the dollar for offshore IT work. Is that realistic? No. Will it get your CEO's attention? You bet.

So ask yourself this: How much of my IT shop's work doesn't require "face time"? That should give you a pretty good idea how much of your work might be shipped off to Bangalore.

Along with a pretty good idea of just how obsolete you've become.

Not obsolete as in, "You're obsolete because what you do can be done more cheaply offshore." But as in, "You're obsolete because what you do doesn't meet the needs of the business any longer."

Does that sound too simple? Think about it: Business is about face time. Every good executive, manager and salesman knows that. And if IT's top priority is to align with business needs, how well we're aligned should show up in our face-time numbers.

Besides, what a business needs from its IT shop today isn't technology. Technology is easy to buy. Hardware and software vendors deliver it by the truckload. Sure, IT shops were once in the technology-making game. We routinely wrote big enterprise applications and even operating systems. But those days are long gone.

What the business needs isn't even the technical smarts to get the technologies working together. Specialist consultants can get an SAP installation going faster than internal IT people can, or bring new multitier middleware online with fewer problems than you'd have trying to dope it out with in-house talent.

What the business needs is the ability to do business better, faster and more effectively. And what the business needs from IT is to make sure technology makes the business better, faster and more effective.

So face time is bound to be a telltale marker. You can't understand a user's business problems without spending time watching, listening, asking questions and clarifying answers. That takes face time.

You can't make certain that some big, new supply chain system will actually make the business more agile and effective unless you check out your assumptions with warehouse and logistics people and suppliers. You can't be sure that a CRM system will help salespeople write more orders until you get a view through the eyes of those salespeople. That's face time and more face time.

And you can't know how well systems are actually serving the business without spending time face to face with the people using them.

It's grim but true: If corporate IT shops think IT is all about making technology, they can't compete. Our huge homegrown Cobol systems couldn't compete with SAP and PeopleSoft. And our teams of heads-down, cubicle-bound programmers working on big, well-specified applications can't compete with teams in India and Russia, where discipline is higher and the pay is much lower.

Anything we can do isolated in our IT shop cubicles, they can do in their offshore cubicles — and almost always faster and cheaper.

But they can't do face time. And they can't really know our business and put IT fully into its service. And those are the things the organizations we serve need from their IT shops today.

All that face time and business focus might not be what we'd prefer. It may well not be the reason we wanted to get into IT in the first place. It may even scare some IT people.

But that's what we're needed for today. And offshoring is just another reminder that the business *does* need us — but we have to do what the business needs.

Or face becoming obsolete.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

See a PIN and Pick It Up . . .

Hospital's new computerized transcription system requires a PIN for access, but one older doctor can't manage to log in. "I didn't have time for the instruction class – how do I do this?" he asks help desk pilot fish. Fish walks him through it, but doc complains, "It isn't taking my PIN number." Are you sure it's the right one? fish asks. "I have two, Visa and MasterCard," doc says. "Neither one worked."

SHARK TANK

Them

Pilot fish reviewing backup policy is surprised when sysadmin tells him his group doesn't store backups off-site. What if there's a disaster? fish asks. "If there's going to be a disaster, whoever lives the farthest away takes the backup tapes home," sysadmin says. But what if it's an unanticipated disaster? fish asks. "Oh," sysadmin tells him, "they'll always let us know in advance if there's going to be a disaster." Says fish, "I didn't have the guts to ask who 'they' are."

No Secrets Here

Pilot fish quits his county government job but still has his e-mail account to help during the transition. Then he receives a message from a new IT guy, asking all users with remote access for their phone numbers, log-ins and passwords. "I hoped all the users I had repeatedly schooled in security would refuse to respond," says fish. But one department head not only e-mails his password, but also clicks on "Reply to all," fish says – "so every user in the county got the message."

Sure, That Should Fix It

This not-for-profit group has constant IT troubles and an IT guy who keeps spending money without fixing the problems. So the organization's president sets up an IT advisory board to come up with a plan, says pilot fish on the board. But in-house IT guy resists implementing the easy plan – so could that be it's first. The result? "The president hires back the IT guy as a consultant at a better rate to fix the problems he didn't fix as an employee," sighs fish. "Go figure."

If at First . . .

User ignores the reminders to back up the files on his CD burner – after all, how different can Windows 98 Second Edition be from the regular version of Windows 98 on his laptop? How it won't boot properly, so he tries using the Windows ME disk from his daughter's PC to repair the damage. "Fortunately, I was able to make most of the issues he made," says IT pilot fish. "Then he asked, 'After you reload everything, do you think I can try to hook up that burner again?' "

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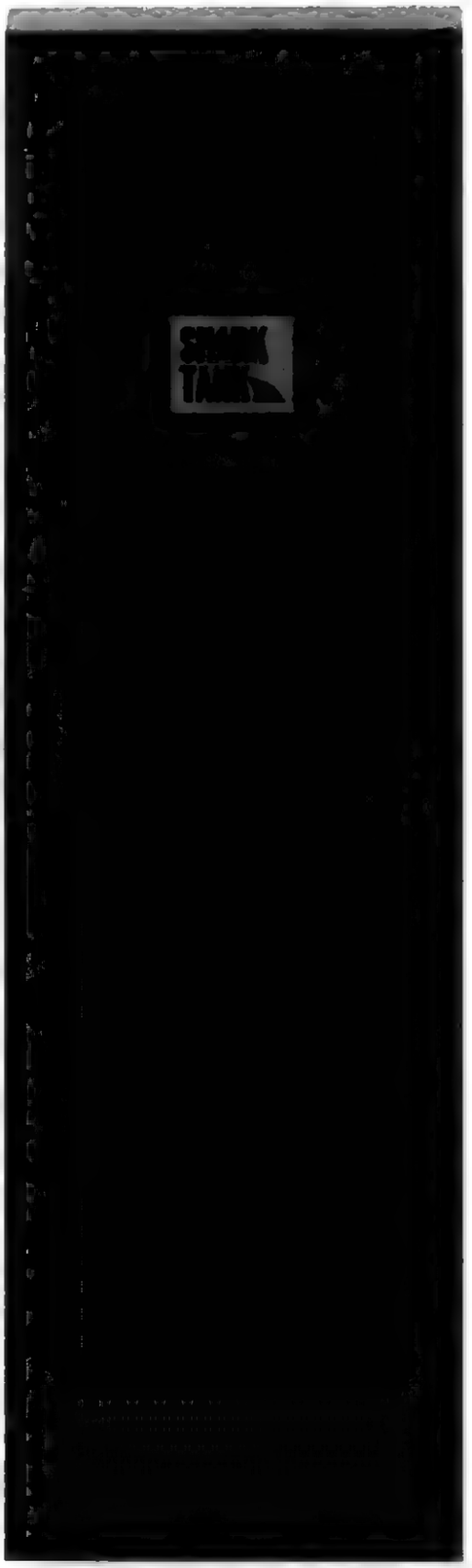

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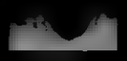

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Tight IT Budgets Impair Planning As War Looms

Companies lack funds for disaster protection

BY DAN VERTON

Regardless of how imminent a U.S.-led war in Iraq might be, IT budget constraints are preventing many companies from taking appropriate security and disaster-preparedness measures to defend themselves against possible retaliatory terrorist strikes.

It's not necessarily that the threat is being ignored. It's just that the money many IT managers would like to have to combat it just isn't there.

John Ervin, a systems ad-

Companies, page 53

States struggle to pay for homeland security

BY PATRICK THIBODEAU
WASHINGTON

States are rapidly taking steps to standardize systems, eliminate IT redundancy and cut expenses in order to fund cash-strapped homeland security initiatives.

IT leaders must secure their companies' digital assets, says Patricia Keefe.

State IT spending will rise slightly this year, much of it going to improve administrative and health systems, Federal Sources Inc. forecast last week. But new IT projects will be rare, because funding by Congress for homeland security is less than what IT managers say they need.

"It's extremely frustrating," said Rizwan Ahmed, whose duties include serving as CIO of the Louisiana Department of Natural Resources. Federal homeland security officials have asked his agency to help produce geographic information system maps of critical oil and gas pipelines. Although the mapping is getting done, "it's at the expense of some of our own projects," he said.

A telling sign of the bleak outlook was offered last week by FSI President James Kane at the company's annual state conference. Of approximately 500 potential IT spending projects that FSI is tracking — projects that haven't yet been put out to bid — two-thirds are on hold.

States, page 53

Top Execs Demand Data Now

But legacy systems hamper delivery of real-time information

BY THOMAS HOFFMAN

A growing number of CIOs say they're facing increased pressure to deliver real-time financial and operational data to their CEOs and chief financial officers, who want to be able to react more quickly to changing business conditions.

The problem is, many IT departments are struggling to meet such demands due to legacy system constraints and half-baked enterprise application integration efforts that haven't been aligned with corporate business processes.

Extracting financial and operational information for use by business managers "takes us weeks," said Steve Scott, vice president of IT at Vision Service Plan, a Sacramento, Calif.-based eye care benefits administrator that serves 36 million people in the U.S.

Scott was one of several technology managers who noted the challenges posed by real-time reporting demands at *Computerworld*'s Premier 100 IT Leaders Conference late last month. He said VSP is currently constrained by a 23-year-old financial system that it plans to replace within the next 12 months. Scott added that VSP is looking to install a

Real-Time Data, page 16

New BEA Tool Wins Guarded User Support

Developers wary of proprietary features

BY CAROL SLIWA
ORLANDO

BEA Systems Inc.'s new WebLogic Workshop 8.1 tool drew mixed reactions — sometimes from the same person — at the software maker's eWorld conference, held here last week.

The allure for many users is the point-and-click, drop-and-drag tool's potential to boost developer productivity. Several developers called Workshop compelling, and some referred to it as "Visual Basic for Java," referencing the Microsoft Corp. tool known for its ease of use.

But there's a trade-off for the new features. Many users took note of various proprietary application programming interfaces and class libraries in WebLogic Workshop 8.1 that they fear may re-

BEA Tool, page 15

Breaking Outsourcing Barriers

WATCH

CIOs at Allstate Insurance, Documentum and Coast Capital Savings all have outsourcing success stories to tell. But none of them got where they are by following conventional playbooks. Instead, they focused on the idiosyncrasies of their companies' business needs. So did the CIOs at General Motors and Bank One, who offer up some of the tough lessons they learned before adopting opposing all-or-nothing approaches to IT outsourcing.

READ THEIR STORIES, BEGINNING ON PAGE 30.

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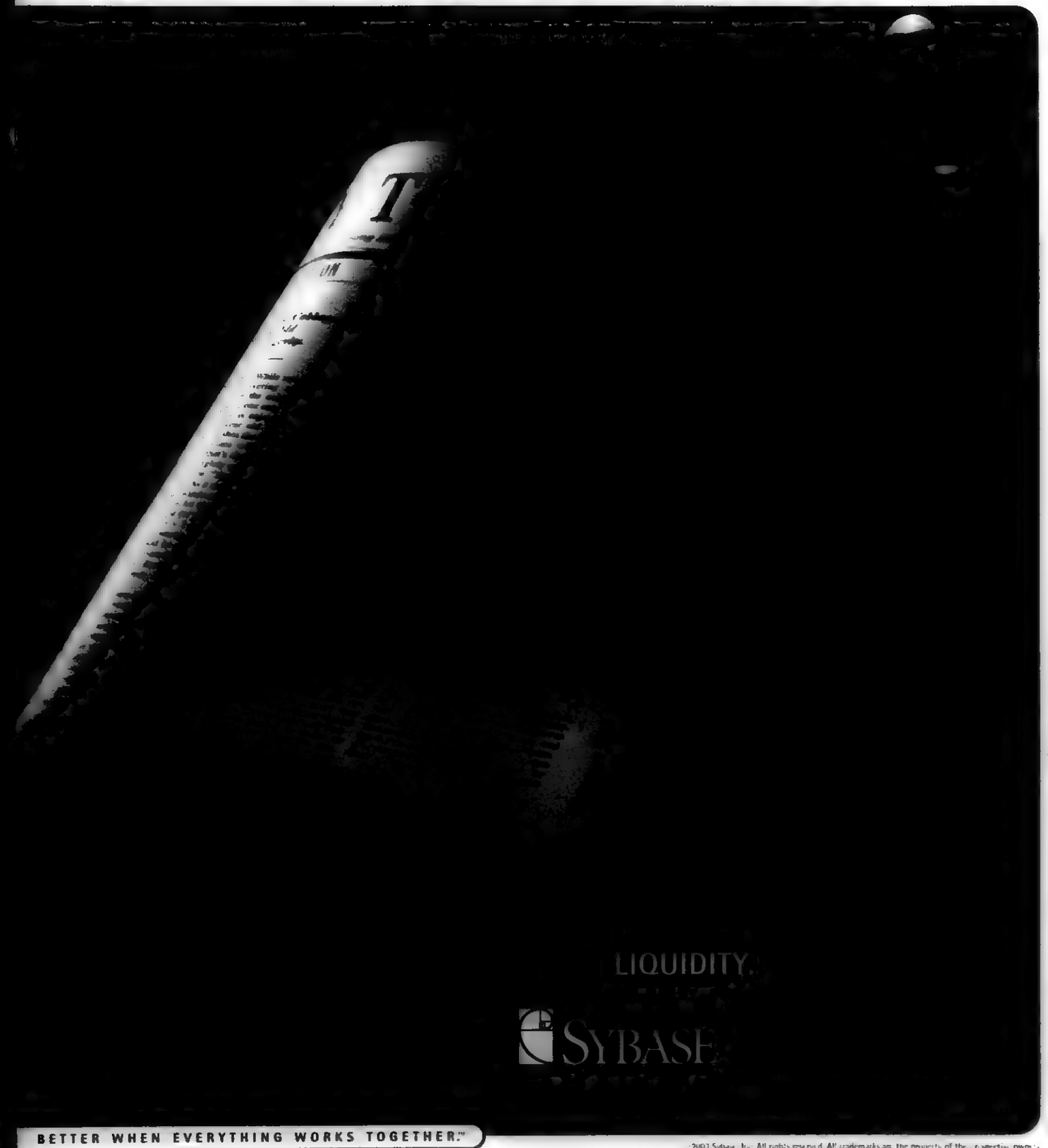

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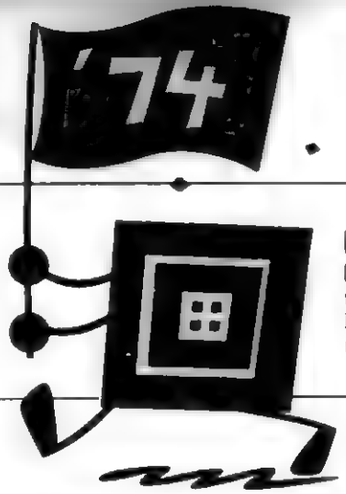

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QuickStudy: Presence Technology

In the Technology section: Instant messaging introduced us to presence technology, which lets network users know when other users are connected to the network and available to receive and respond to messages. **Page 36**

Microprocessors on the March

Future Watch: It's getting harder and harder to keep Moore's Law going, but chip makers keep finding new tricks to tease more performance out of silicon. **Page 25**

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6 **Microsoft expands** its Office family with new additions.

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7 **CRM still inspires caution.** Fearing repeats of past failures, companies roll out software slowly.

8 **Bug-fixing process improves.** The sendmail episode reveals some positive changes, but more remains to be done.

8 **SANS lauds Microsoft** for security efforts, presenting the vendor with three awards.

10 **Group seeks standards** for managing Web services.

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Blueprints for Network Security

SECURITY: Every company needs a plan for protecting its environment. Expert Marcia J. Wilson offers advice on how to create one. QuickLink 38303

Breaking the 'Concrete Ceiling'

CAREERS: Marguerete Luter and Mary Ann Wagner offer tips on how women can get ahead in IT — with ideas that apply to everyone. QuickLink 38771

Measure Site Activity With ASP

DEVELOPMENT: Learn how to use Microsoft's free Active Server Pages technology to monitor your Web site's active sessions, log-ins and page hits. QuickLink 38836

All Systems Down

STORAGE: From *CIO* magazine comes an account of one of the worst health care IT crises ever — and what CareGroup CIO John Halamka learned from it. QuickLink 38685

Wireless Checklist

MOBILE & WIRELESS: Chuck Gautney, CTO at Defywire Inc., lays out a number of points to consider before embarking on an in-house wireless strategy. QuickLink 38706

Back to School With the Mac

MACINTOSH: As Hunter College's film and media department integrates new Apple hardware and software, Yuval Kossovsky sets up a Netinfo catalog for lab users. Part 3 of an ongoing series. QuickLink 38615

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Breaking News QuickLink a1800

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Knowledge Centers QuickLink a2570

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AT DEADLINE

SCO Sues IBM For $1B Over Unix

The SCO Group filed a lawsuit in a Utah state court charging IBM with breaching a Unix license agreement and stealing trade secrets. Linden, Utah-based SCO, which owns the source code for Unix, claimed that IBM is illegally using Unix features as part of its Linux services business. SCO is seeking damages of at least $1 billion and threatening to revoke IBM's Unix license. An IBM spokesman said the suit "is full of bare allegations and no facts."

IBM Builds Data Workload Tools

In other IBM news, the company announced three tools designed to let systems automatically shift computing resources to meet increases in data processing demands. The new tools initially will work with the latest versions of IBM's DB2 database and WebSphere application server software. IBM said its IT services unit also plans to use the technology as part of its offerings.

SAP Late With Apps For Small Business

SAP AG added five industry-specific versions of business applications it has tailored for small and midsize companies. But the company confirmed that a planned U.S. rollout of general-purpose applications for those users has been delayed. SAP said it expects the mySAP Business One software, which had been due late last year, to be ready within the next few months.

Short Takes

MICROSOFT CORP. released a beta-test version of a corporate instant messaging and real-time collaboration tool, code-named Greenwich. . . . GROOVE NETWORKS INC., a software vendor in Beverly, Mass., said it received $36 million in new financing but laid off 20% of its workers.

Manufacturing Firms Expect Modest IT Budget Increases

Emphasis is on integration, supply chain and customer-facing projects

BY JAIKUMAR VIJAYAN
CHICAGO

Integration of back-end and plant-floor applications, as well as projects that build better links with suppliers and customers, is where many manufacturing companies will focus their IT spending this year.

Despite the ongoing recession, most manufacturers expect their IT spending to increase modestly this year, according to the results of a survey released by the National Association of Manufacturers (NAM) at last week's National Manufacturing Week trade show here.

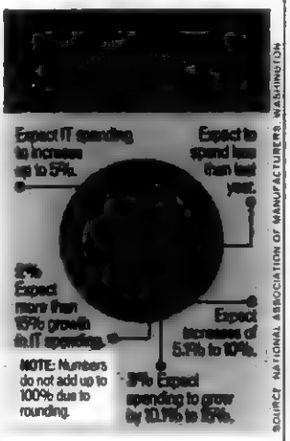
Nearly 70% of the 300 mainly small and medium-size manufacturers surveyed said they expect IT budgets to grow by up to 5% over last year. Another 8% said their IT spending is expected to grow between 5% and 10%.

Most of the spending will be directed at improving customer linkages as well as plant-floor and supply chain efficiencies, said Jerry Jasinowski, president of the Washington-based NAM.

Additionally, a lot of the resources that manufacturing companies acquired to deal with the Y2k rollover are rapidly becoming obsolete and due for revamps this year, Jasinowski said.

On Hold

"We were really on hold last year. But this year, we are expecting at least a 5% increase in IT spending," said Tony Raimondo, CEO of Behlen Manufacturing Co., a supplier of building material in Columbus, Neb. One of the bigger projects being implemented by Behlen this year is a bar-code system that will allow the collection of real-time data on products being assembled on the shop floor. Such projects are "key to unlocking productivity gains," he said.



SOURCE: NATIONAL ASSOCIATION OF MANUFACTURERS, WASHINGTON

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States Rush to Pass Laws to Fight Spam

Congress urged to preempt states by adopting a national antispam rule

BY PATRICK THIBODEAU
WASHINGTON

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Another major proponent of action is Microsoft Corp., which last month ran ads in newspapers saying that "new, strong laws are needed" to combat spam. The U.S. Federal Trade Commission is planning a three-day forum on spam next month, an event that's seen as a pivotal gathering of all sides in the debate.

NEW TOOLS
Corporate options for fighting spam are growing. Read more at our Web site.
QuickLink 38677
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The success of any legislation will depend on enforcement, said Michael Redman, information systems director at Nicholson Manufacturing Co. in Seattle. Washington has an antispam law, but Redman said he's seen little impact from it. "There is a substantial amount of legislation out there already," he said. "If it's ignored and not enforced, it doesn't do us any good."

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CRM Projects Continue to Inspire Caution, Users Say

Fearing failure, companies roll out software slowly

BY MARC L. SONGINI
CHICAGO

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Several conference attendees acknowledged that adoption of CRM tools by end users can be very slow. Many users are interested in CRM capabilities, but the technology "causes fear," said Shawn Kaplan, director of marketing and business development at New York-based financial data provider Reuters America Inc.

Reuters has rolled out Siebel Systems Inc.'s CRM applications internally and is now looking to provide CRM functionality to financial advisers who use Reuters data. But if CRM tools are provided as stand-alone applications, many users aren't going to bother to launch them, Kaplan said.

SOURCE: GARTNER INC. SURVEY OF 600 COMPANIES

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Starting Small

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But the Teradata software is still being used by only about 10 end users, Ellison said. "We have been taking baby steps," he noted. "In fact, it was probably more like a crawl."

AT DEADLINE

SCO Sues IBM For $1B Over Unix

The SCO Group filed a lawsuit in a Utah state court charging IBM with breaching a Unix license agreement and stealing trade secrets. Lindon, Utah-based SCO, which owns the source code for Unix, claimed that IBM is illegally using Unix features as part of its Linux services business. SCO is seeking damages of at least $1 billion and threatening to revoke IBM's Unix license. An IBM spokesman said the suit "is full of bare allegations and no facts."

IBM Builds Data Workload Tools

In other IBM news, the company announced three tools designed to let systems automatically shift computing resources to meet increases in data processing demands. The new tools initially will work with the latest versions of IBM's DB2 database and WebSphere application server software. IBM said its IT services unit also plans to use the technology as part of its offerings.

SAP Late With Apps For Small Business

SAP AG added five industry-specific versions of business applications it has tailored for small and midsize companies. But the company confirmed that a planned U.S. rollout of general-purpose applications for those users has been delayed. SAP said it expects the mySAP Business One software, which had been due late last year, to be ready within the next few months.

Short Takes

MICROSOFT CORP. released a beta-test version of a corporate instant messaging and real-time collaboration tool, code-named Greenwich. . . . GROOVE NETWORKS INC., a software vendor in Beverly, Mass., said it received $38 million in new financing but laid off 20% of its workers.

Manufacturing Firms Expect Modest IT Budget Increases

Emphasis is on integration, supply chain and customer-facing projects

BY JAIKUMAR VIJAYAN
COMPUTERWORLD

Integration of back-end and plant-floor applications, as well as projects that build better links with suppliers and customers, is where many manufacturing companies will focus their IT spending this year.

Despite the ongoing recession, most manufacturers expect their IT spending to increase modestly this year, according to the results of a survey released by the National Association of Manufacturers (NAM) at last week's National Manufacturing Week trade show here.

Nearly 70% of the 300 mainly small and medium-size manufacturers surveyed said they expect IT budgets to grow by up to 5% over last year. Another 8% said their IT spending is expected to grow between 5% and 10%.

Most of the spending will be directed at improving customer linkages as well as plant-floor and supply chain efficiencies, said Jerry Jasinowski, president of the Washington-based NAM.

Additionally, a lot of the resources that manufacturing companies acquired to deal with the Y2k rollover are rapidly becoming obsolete and due for revamps this year, Jasinowski said.

On Hold

"We were really on hold last year. But this year, we are expecting at least a 5% increase in IT spending," said Tony Raimondo, CEO of Behlen Manufacturing Co., a supplier of building material in Columbus, Neb. One of the bigger projects being implemented by Behlen this year is a bar-code system that will allow the collection of real-time data on products being assembled on the shop floor. Such projects are "key to unlocking productivity gains," he said.

"A down economy is the perfect time to invest," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc., a manufacturer of telecommunications equipment in Petaluma, Calif. "My budget is up, particularly capital. We're spending money on customer collaboration, demand planning, portfolio management and a human resources [system]," said Krauthamer. The company is also implementing a project to significantly reduce the amount of fiber it has to run for data communications.

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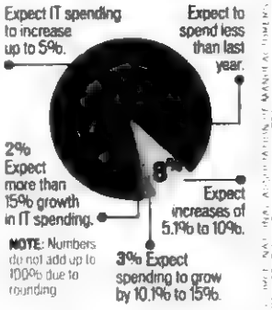
Manufacturers' IT Spending Plans for 2003



NOTE: Numbers do not add up to 100% due to rounding

SOURCE: NATIONAL ASSOCIATION OF MANUFACTURERS, WASHINGTON

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CRM Projects Continue to Inspire Caution, Users Say

Fearing failure, companies roll out software slowly

BY MARC L. SONGINI
CHICAGO

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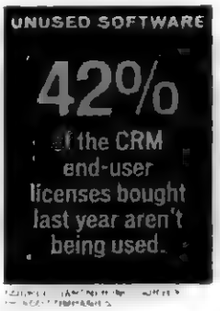

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Bug Disclosure, Fix Process Improving

Sendmail episode shows progress made

BY JAIKUMAR VIJAYAN

SEVERAL USERS welcomed the growing willingness of vendors and security researchers to work together to identify and fix software vulnerabilities in the wake of last week's disclosure of a major hole in a widely used e-mail protocol.

But they also expressed concern over the practice by some in the security community to release vulnerability information to certain users before making it available to the public.

Atlanta-based security vendor Internet Security Systems Inc. (ISS) and Emeryville, Calif.-based Sendmail Inc. last week disclosed the existence of a major buffer-overflow vulnerability in the sendmail mail-transfer agent, which handles more than 50% of all Internet e-mail traffic.

ISS, which first discovered the hole in early December, said it began in mid-January to work closely with the National Infrastructure Protection Center — now part of the U.S. Department of Homeland Security — to warn government and military agencies of the flaw.

The sendmail incident exemplified a welcome change in attitude relating to vulnerability discovery, disclosure and response, users said.

"The security community is becoming more responsible and is making better decisions with regard to when they should disclose a vulnerability," said Mike Tindor, vice president of network operations at First USA Inc., an Internet service provider in St. Clairsville, Ohio.

There is a growing realization that "making a vulnerability public without a fix is not in the industry's best interest," said Anthony DeVoto, a Windows NT administrator at Volvo Finance North America Inc. in Montvale, N.J.

"It's kind of like a car company coming out on the 6 o'clock news and saying your car is going to blow up and they don't know how to fix it," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc., a Petaluma, Calif.-based manufacturer of telecommunications equipment. "I think the software and security industry has matured to the point where it is unacceptable to put customers in a position of such vulnerability," he added.

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Meanwhile, software vendors, which continue to come under heavy criticism for developing buggy products, are getting "a little bit better" at disclosing and responding to bug reports, said Edward York, chief technology officer at 724 Inc., a Lampoc, Calif.-based hosting provider.

Groups such as the Organization for Internet Safety are trying to propose standard guidelines for reporting and responding to vulnerability information. And several security companies have voluntarily adopted policies governing the release of vulnerability information.

"The processes surrounding vulnerability disclosure have changed significantly during the past few years for the community as a whole," said Thor Larholm, a security researcher at PivX Solutions LLC, a network security consultancy in Newport Beach, Calif. Instead of making ad hoc disclosures, PivX has a 30-day grace period for vendors to fix a problem before the public is made aware of it.

Questionable Practices

Despite such progress, other issues remain, users said.

For instance, ISS's decision to prenotify several government and military agencies of the problem is understandable given today's heightened security concerns, users said. But it highlights a practice that can encourage "information segregation and concealment," said Paul Schmehl, adjunct information security officer at The University of Texas at Dallas.

Many security organizations — including the CERT Coordination Center at Carnegie Mellon University in Pittsburgh and ISS — routinely sell advance vulnerability information to paying subscribers. Strict nondisclosure agreements govern such prenotifications, said Dan Ingevaldson, a security researcher at ISS.

But "safe practice is that only the vendor should be notified [of a flaw] so they can test it and create a patch. Only then should the information be made available to anyone else," said York.

MORE ONLINE

A hacker site posted sendmail exploit code less than 24 hours after public disclosure of the vulnerability.
QuickLink a2960

ISS also reported a Snort vulnerability last week.
QuickLink a2960
www.computerworld.com

SANS Institute Lauds Microsoft Security Efforts

Patch automation, security tests cited

BY JAIKUMAR VIJAYAN

Microsoft Corp., long at the receiving end of widespread user criticism for buggy products, last week received a rare pat on the back for its security efforts from the SANS Institute.

SANS, a research organization for systems administrators and security managers in Bethesda, Md., gave Microsoft awards for demonstrating leadership in three security categories at the Fifth National Information Assurance Leadership Conference in San Diego.

The company won awards for leadership in providing automated security updates; providing security training for software developers; and providing testing software for security vulnerabilities.

Microsoft's award in the automated updates category — which it shared with Linux supplier Red Hat Inc. — was in recognition of the automated patching service for Windows XP and Windows 2000 Service Pack 3 and above. Microsoft's security training program for software developers earned the company its second award, while its extensive automation of its software testing process snagged the third one.

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>
> MATT KESNER, CTO, FENWICK & WEST

The awards were based on criteria and feedback from security administrators at 15 large institutions that SANS works with on a daily basis, said Alan Paller, director of research at SANS. Many of those who participated in the decision process were administrators working in organizations with more than 10,000 systems, Paller said.

"The idea of illuminating vendors who are doing things that are industry-leading grew out of a series of meetings with users who were complaining about vendors making security hard [to implement]," Paller said.

Word of Microsoft's awards was greeted with mixed feelings.

"'Microsoft' and 'security' in the same sentence is usually a joke," said Matt Kesner, chief technology officer at Fenwick & West LLP, a Mountain View, Calif.-based law firm. "I give them a lot of credit for making security a higher priority, but I would like to see a lot better fundamental design from them before I start handing out any awards," Kesner said.

"I think Microsoft has made great strides in security," said Paul Schmehl, adjunct information security officer at The University of Texas at Dallas. "They are ahead of some of the Unixes and at least on par with some others, [but] they still have a long way to go," he said.

The awards demonstrate the importance of looking at factors other than just total bug count when evaluating a vendor's security practices, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

"Counting the number of identified vulnerabilities alone is completely without merit," Lindstrom said. It's also important to gather information on factors such as a vendor's training practices, development processes and bug tracking methods, he said.

"Sometimes," Lindstrom said, "Microsoft gets a bum rap just because they are who they are."

If you're busy monitoring your servers, who's watching your business?

The new HP ProLiant DL740 8-way with hot-plug RAID memory.

- Ultradense 4u modular chassis with up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 6-64 bit/100 MHz PCI-X slots
- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.

The new HP ProLiant DL760 G2 8-way with hot-plug RAID memory.

- Up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 10-64 bit/100 MHz PCI-X, 1-64 bit 33 MHz slots
- Remote Insight Lights-Out Edition II (optional) for Remote Server Mgmt.

What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that predict, self-diagnose and fix many fault conditions. And now with hot-plug RAID memory exclusively from HP, you can add or replace DIMMs without turning your systems off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

At the end of the day, you'll have more control over your infrastructure, help avoid unplanned downtime and reduce overall maintenance costs. Not to mention freeing yourself up for more important things.

To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YPH.

invent

XEON

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BRIEFS

Airlines Agree to Sell Worldspan

Worldspan LP, which runs a computerized reservations system, said its airline owners have agreed to sell it to two investment firms. American Airlines Inc., Delta Air Lines Inc. and Northwest Airlines Inc. will sell Worldspan to a new company set up by Citigroup Venture Capital Equity Partners LP in New York and Teachers' Merchant Bank in Toronto.

Microsoft Signs App Lease Services Deal

Microsoft Corp.'s IT financing unit announced a deal to offload lease contract management services for users of its business applications to another company. The leasing functions will now be handled by De Lage Landen Financial Services Inc. in Wayne, Pa. The Microsoft Capital Corp. unit said it will continue to offer financing to corporate users and to small or midsize companies.

Peregrine Lowers Revenue by $509M

Peregrine Systems Inc. restated its financial results for the three fiscal years from April 1999 to March 2002, chopping the revenue it had reported by $509 million. That reduced the original three-year total of $1.34 billion by 38%. Peregrine, a San Diego-based vendor of asset management software, said about $259 million was "reversed for nonsubstantiated transactions."

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MARK HALL ■ ON THE MARK

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Until then, developers of Web services **will have to do the work themselves** to manage applications for things such as authentication, performance and service-level agreements. If they think of them at all. "Management is not something developers think of. It's an afterthought when people write apps," Smith laments. ■ That's why you don't need a developer to deploy the latest version of the Path Application Manager, or P.A.M. 3.5, which ships today. According to Path's Noy, sysadmins can do it after an application is in production. He claims P.A.M. 3.5's software behavior-recognition features should catch many management problems in Web services and other applications. Among the new features in P.A.M. 3.5 are controls that can identify **time-of-day, time-of-month and time-of-year** fluctuations in any program. ■ Once those Web services get written and widely deployed — managed or otherwise — few people have the slightest clue about how they will affect network performance. The engineers at Redline Networks Inc. in Campbell, Calif., have readied for delivery this week the E/X 3250 Enterprise Accelerator that adds **compression, load balancing and security for Web servers and inside the firewall.** CEO Roy Johnson argues that some Web services-based applications will require very large data structures or interaction among lots of different Web services, putting extra loads on Web servers and killing their performance — hence the 3250. Redline Vice President of Engineering Bill Crane boasts that the 3250's protocol scrubbing and Secure Sockets Layer certificates for road warriors **improves security by protecting Web servers from buffer overflows and unauthorized users.** ■ OpenVMS users cheered when HP said it had an **11-year life plan for the venerable operating system.** And on March 18, they can let loose a small whoop for the general availability of Version 6.2 of SightLine OpenVMS Power Agent from Fortel Inc. in Fremont, Calif. The performance monitoring and reporting tool will be able to handle OpenVMS clusters and distinguish among operational differences during different working hours. ■ Whatever your views on the looming war with Iraq, Ivan Eland, director of the newly created Center for Peace and Liberty at The Independent Institute think tank in Oakland, suggests that **IT may be at the center of an Iraqi war strategy** because Saddam Hussein learned from Vietnam, Lebanon and Somalia that "the Achilles' heel of the American military juggernaut is U.S. public opinion." Cyberattacks would be a likely way to undermine wavering U.S. support for the war. He adds, "It is difficult to say how successful the Iraqis would be, but they have had more than a year of U.S. blustering to put a plan into action." So, take a little extra time this week to secure your systems. ◗

Storage management gets a lift today from [illegible] in Boston with the release of its active storage management product, Astrum 1.5. The new version includes support for Microsoft Exchange 2000, Sybase Inc. databases and localization for German and French versions of Unix and Windows.

[illegible] in Alameda, Calif., will announce this week that it has landed a deal to manage the data monitoring of the world's largest offshore wind farm along the coast of Denmark.

Web Services Management Standard Sought

BY MATT HAMBLEN

More than a dozen IT vendors last week said they plan to work together to develop a standard way to manage Web services technologies used in distributed applications.

The list of participating companies includes systems vendors, such as IBM, Hewlett-Packard Co. and Sun Microsystems Inc., plus developers of management tools, such as BMC Software Inc., Computer Associates International Inc. and Novell Inc., according to a statement by the Organization for the Advancement of Structured Information Standards (OASIS) consortium in Billerica, Mass.

Microsoft Corp. wasn't on the list. A Microsoft official said Web services management is an important topic but added that the company has decided not to join the OASIS effort at this point.

"Simply put, management is the next major barrier to mainstream Web services adoption," said HP CEO Carly Fiorina during a speech at BEA Systems Inc.'s eWorld conference in Orlando. Fiorina also said HP has added Web services management tools to its OpenView software and created deployment and management consulting programs for Java-based Web services applications.

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Jason Bloomberg, an analyst at ZapThink LLC in Waltham, Mass., said the WSDM committee might be able to produce a standard within a year. Microsoft's absence isn't that significant for now, since it could adopt the standard once it's published, he said. ◗

BRIEFS

Airlines Agree to Sell Worldspan

Worldspan LP, which runs a computerized reservations system, said its airline owners have agreed to sell it to two investment firms. American Airlines Inc., Delta Air Lines Inc. and Northwest Airlines Inc. will sell Worldspan to a new company set up by Citigroup Venture Capital Equity Partners LP in New York and Teachers' Merchant Bank in Toronto.

Microsoft Signs App Lease Services Deal

Microsoft Corp.'s IT financing unit announced a deal to offload lease contract management services for users of its business applications to another company. The leasing functions will now be handled by De Lage Landen Financial Services Inc. in Wayne, Pa. The Microsoft Capital Corp. unit said it will continue to offer financing to corporate users and to small or midsize companies.

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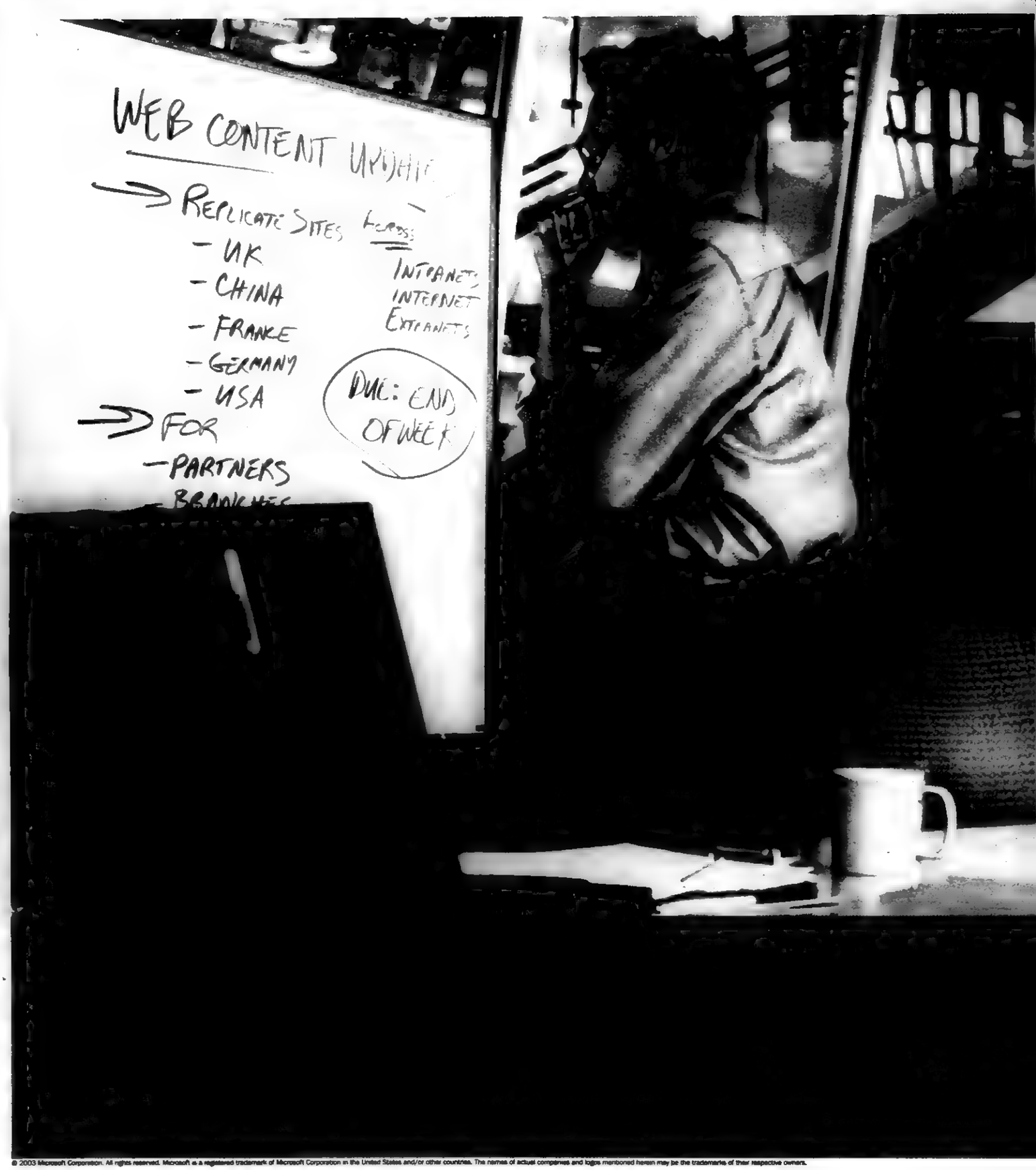

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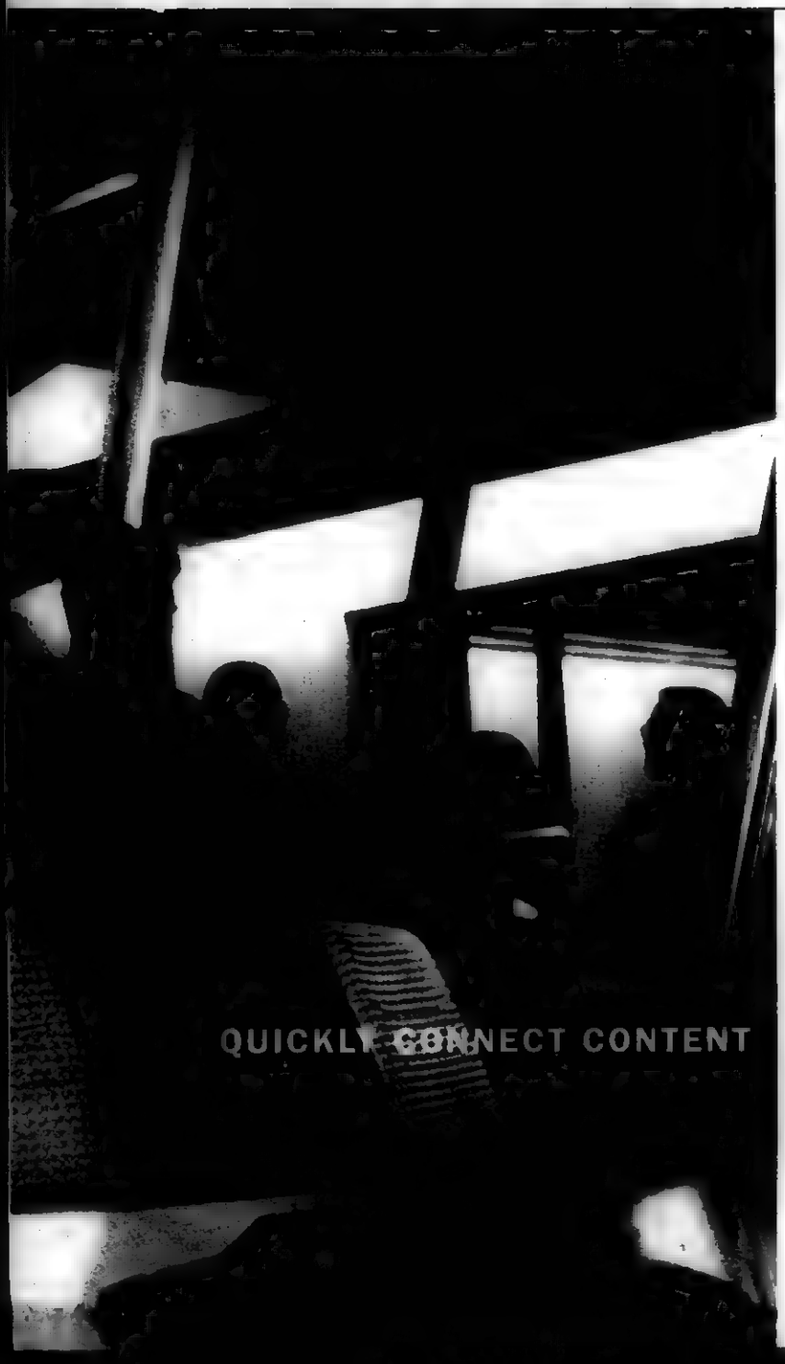

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BRIEFS

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3Com Sells Off Carrier Products

3Com Corp. announced a deal to sell the key assets of its CommWorks business unit to UTStarcom Inc. in Alameda, Calif., for $100 million in cash. CommWorks makes IP-based networking equipment for telecommunications carriers. Santa Clara, Calif.-based 3Com said it will retain a license to the technology.

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Aventail's remote-access devices to be used to expand networking choices

BY MATT HAMBLEN

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The reseller agreement made sense partly because the two companies share many global customer accounts, said John Sullivan, extranet product manager at AT&T. Sullivan wouldn't divulge the pricing for the new VPN service, which is due to be rolled out as early as next month. Aventail set a starting price of $20,000 on the EX-1500 when the SSL-based appliance was announced in January [QuickLink 35527].

Aventail currently offers its own SSL VPN managed service and will continue to do so. But Sullivan said the sales forces of both companies will be able to sell AT&T's version of the managed service, with AT&T acting as the first point of contact for users.

Weighing Options

New York-based Deloitte Consulting has used Aventail's SSL VPN service for the past two years to manage remote access to corporate data and e-mail systems for 15,000 workers worldwide, said CIO Larry Quinlan. Currently, the consulting firm relies mainly on WorldCom Inc. to provide remote-access network services.

The WorldCom deal, valued in the millions of dollars annually, will be re-evaluated within the next 12 months, Quinlan said. Deloitte officials "would like more integration between remote-access lines and the VPN," he said. But if they considered the joint AT&T/Aventail offering, "we would insist on some cost savings" compared with buying separate services, Quinlan added.

AT&T is already the market leader in providing VPN services that support the IPsec security protocol, according to Framingham, Mass.-based IDC. Unlike SSL, IPsec requires the loading of client software on end-user devices.

Sullivan said AT&T will continue to support IPsec in addition to offering the new SSL VPN service. There's "very little overlap" between the users of the two technologies, he said.

Although SSL VPNs are increasing in popularity among corporate users, the demand for IPsec VPN services should continue to show some growth in installations because that protocol offers stronger security algorithms than SSL does, said John Girard, an analyst at Gartner Inc. in Stamford, Conn. ▶

Vendors Team Up to Develop Remote-Authentication Device

Security appliance controls end-user access to networks

BY MATT HAMBLEN

Funk Software Inc. and Network Engines Inc. today will release a jointly developed security appliance for authenticating remote users connecting to corporate WANs as well as users on wireless LANs.

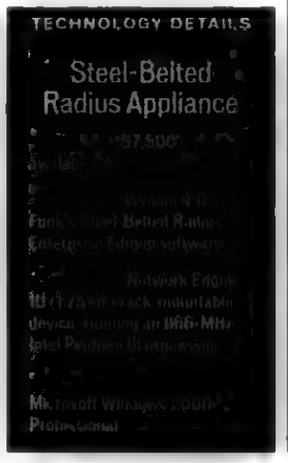
Canton, Mass.-based Network Engines built and will distribute the hardware, which runs remote end-user authentication and authorization software developed by Cambridge, Mass.-based Funk.

The combined product is a rack-mountable device that runs under Windows 2000 Professional, according to the two companies, which announced plans to collaborate on the appliance in January.

Size and ease of deployment were the reasons Care New England Health System in Providence, R.I., deployed an early version of the appliance last month, said Larry Pesce, a LAN/WAN specialist at the health care company.

Thus far, about two dozen end users have used the appliance for network authentication over dial-up laptop connections or to gain access to Care New England's 802.11 WLANs, Pesce said. Within weeks, the use of the device will be scaled up to handle about 1,000 medical personnel at three major facilities and other locations throughout Rhode Island, he added.

The appliance not only provides authentication services but also manages the configuration process, Pesce said. It would have taken several days or weeks to buy server hardware and configure it, taking up valuable time for Care New England's IT staff, he noted. But the new appliance "just worked out of the box, no headaches at all," he said.



The company bought and installed two of the appliances for about $30,000, which was 10% less than regular server hardware would have cost, according to Pesce. The appliance also takes up very little space in Care New England's cramped data center, he said.

Funk competes with major vendors such as Cisco Systems Inc. and Microsoft Corp., which also sell authentication tools that support the Internet Engineering Task Force's Remote Authentication Dial-In User Service (RADIUS) protocol. "But Funk often gets in the door for ease of use," said John Girard, an analyst at Gartner Inc. in Stamford, Conn.

The market for RADIUS-based remote authentication products and services is expanding, Girard said, adding that appliances combining hardware with software are fashionable now, partly because they provide all-in-one capabilities to users. ▶

Continued from page 1

BEA Tool

strict some of the code they write to BEA's runtime engine.

Craig Mapes, vice president of information systems and services at The Huntington National Bank in Columbus, Ohio, said his company will have to take a "deep dive" to see how much of the WebLogic Workshop tool relies on nonstandard Java.

"Is it the silver bullet, or is it going to lock us into something less open?" he said. "We don't want to be locked into anything proprietary. We've been down that path before."

For many users, one of the most appealing aspects of working in Java has been its promise to run on any operating system or application server, so long as the code conforms to standards vetted through the Java Community Process (JCP) established by the language's creator, Sun Microsystems Inc.

"Portability is the whole thing about Java to me. If we want vendor lock-in, we can go with Microsoft," said Marc Cox, a systems analyst at New York-based Teachers Insurance and Annuity Association – College Retirement Equities Fund.

The Need for Ease

But as a result of Java's growing maturity and acceptance, IT shops with less skilled developers are taking up the technology, and that makes the need for better tools more critical. Also, the knock that Java is too complicated has become a pressing concern for vendors that now must compete against Microsoft's year-old .Net technology.

"We, like our primary competitors, all have to introduce innovations to make the products easier to use," said Scott Dietzen, chief technology officer at San Jose-based BEA. "And some of those are in our classes."

Dietzen said BEA's key APIs — such as Web Services Metadata and a Java Rule Engine — are already moving through the Java's standards body. Others, such as Java Page Flow and Process Definition for Java, are pending. And some minor proprietary pieces may never make it to the JCP, he added.

"We take the most critical interfaces and get them into the standards process because that's where the investment protection is most needed," said Dietzen. "Putting 100% of our APIs into the Java standards process is too expensive. It would cost a huge amount of money, and the net return to customers is very small."

So BEA is instead striving to give customers "90-plus percent" investment protection, Dietzen said. Customers may have to do "a little bit of rework" to port code to another Java container, but that's "dramatically better" than any option they ever had, he said.

However, Mark Driver, an analyst at Gartner Inc., claimed that there is "so much proprietary plumbing inside of Workshop that there's no practical way to port the code to another vendor's products."

Driver said Gartner is advising BEA customers to limit the use of Workshop to tactical projects where a return on investment can be realized within two years, since the tool will likely change.

He didn't fault BEA's approach, and he praised the company's efforts to standardize its technology. "Any vendor who wants to innovate is going to have to become more proprietary, at least for a period of time until the standards catch up," Driver said.

But as several users pointed out, there's no guarantee that all of the technology will become a standard. And even if it does, there's no guarantee that it will be adopted by other vendors, such as IBM.

Robert Moffett, systems architect lead at United Parcel Service Inc.'s airlines division in Louisville, Ky., is evaluating BEA's WebLogic application server, integration product and workflow capabilities against similar products from BEA rival IBM.

Moffett said he likes the concept of the Workshop tool, which works across all BEA products. But he said he has concerns about being restricted to running code written with Workshop on only BEA products, especially since UPS has standardized on IBM's WebSphere portal software.

"Everyone's going to have to take a hard look at how [WebLogic Workshop] aligns with your architectural goals. It's a very conscious decision you need to understand that you're taking," said a Web development manager for a medical distributor who asked not to be identified. He added that he still finds the tool "compelling."

James Kline, a project manager at The ServiceMaster Co. in Downers Grove, Ill., said he expects that most of his company's new development will be on WebLogic, so portability isn't a huge concern.

David Gallaher, director of IT development for Jefferson County, Colo., said he needs the tool, which ships this summer, "to salvage all my old Cobol programmers and get them doing something productive in J2EE [Java 2 Enterprise Edition] without having to go over that really steep learning curve."

Gallaher said that if porting is ever needed, he can grab the code created with the tool, copy it and put it anywhere he wants. "It's still Java behind the scenes," he said. Gallaher added that he doesn't expect to make calls to many proprietary class libraries.

"Would I prefer that the tool was absolutely open? Absolutely. Can I live with it this way? Yeah," Gallaher said. "I mean, what's my alternative? Do it in Microsoft, where they control everything?"

Nonstandard Java Technologies in BEA's WebLogic Workshop Tool

TECHNOLOGY	DESCRIPTION	STATUS
Java Page Flow	New file format that contains the business logic, state and navigation flow of a Web application; built upon a Struts-based Web application programming model	To be submitted to Java Community Process.
Web Services Metadata for the Java Platform	Defines an annotated Java format that uses Java Language Metadata (JSR 175) to enable easy definition of Java Web services in a J2EE container.	JSR 181. Work in progress. Expert group formed last April.
Process Definition for Java	Defines an annotated Java syntax and APIs for programming business processes in Java.	JSR 207. Vote on acceptance of JSR due March 17.
Metadata Facility for the Java Programming Language	Allows classes, interfaces, fields and methods to be marked as having particular attributes.	JSR 175. Work in progress. Expert group formed last April.
Content Repository for Java	Specifies a standard API to access content repositories in Java 2 independently of implementation.	JSR 170. Expert group formed last month.
Portlet Specification	Defines a set of APIs for portal computing addressing the areas of aggregation, personalization, presentation and security.	JSR 168. Expert group formed last month.
Java Rule Engine API	Defines a Java runtime API for rule engines.	JSR 94. Public review period recently closed.

NOTE: A Java Specification Request (JSR) is the actual description of a proposed and final specification for the Java platform under the Java Community Process created by Sun Microsystems Inc. to evolve the technology.

SOURCES: BEA, JAVA COMMUNITY PROCESS

BEA Executives Provide Glimpse Into Company's Direction

BEA Systems will focus on security, application-level management and process-oriented programming in future product releases, company executives said last week.

Alfred Chuang, CEO of the San Jose-based software maker, told *Computerworld* that his company is building a security server. He said it will be sold as a separate product that can be hooked to non-BEA products.

"If you're not even a WebLogic shop – maybe you're a mainframe shop – you'll find it useful," Chuang pledged. He said he's not sure when the product will be ready for general release.

BEA in February acquired CrossLogix Inc., a privately held Redwood Shores, Calif.-based maker of enterprise authorization products. The CrossLogix technology will be part of BEA's ongoing security work, according to Rick Jackson, vice president of enterprise product marketing at BEA.

BEA will release an enhanced security framework that spans the products in its upcoming WebLogic Platform 8.1 – which include the application, portal and integration servers. The application server is due this spring, with the full platform to follow this summer.

– Carol Sliwa

MORE ONLINE

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ONE ON ONE

Computerworld interviews BEA CEO Alfred Chuang.

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BRIEFS

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Aventail currently offers its own SSL VPN managed service and will continue to do so. But Sullivan said the sales forces of both companies will be able to sell AT&T's version of the managed service, with AT&T acting as the first point of contact for users.

Weighing Options

New York-based Deloitte Consulting has used Aventail's SSL VPN service for the past two years to manage remote access to corporate data and e-mail systems for 15,000 workers worldwide, said CIO Larry Quinlan. Currently, the consulting firm relies mainly on WorldCom Inc. to provide remote-access network services.

The WorldCom deal, valued in the millions of dollars annually, will be re-evaluated within the next 12 months, Quinlan said. Deloitte officials "would like more integration between remote-access lines and the VPN," he said. But if they considered the joint AT&T/Aventail offering, "we would insist on some cost savings" compared with buying separate services, Quinlan added.

AT&T is already the market leader in providing VPN services that support the IPsec security protocol, according to Framingham, Mass.-based IDC. Unlike SSL, IPsec requires the loading of client software on end-user devices.

Sullivan said AT&T will continue to support IPsec in addition to offering the new SSL VPN service. There's "very little overlap" between the users of the two technologies, he said.

Although SSL VPNs are increasing in popularity among corporate users, the demand for IPsec VPN services should continue to show some growth in installations because that protocol offers stronger security algorithms than SSL does, said John Girard, an analyst at Gartner Inc. in Stamford, Conn.

Vendors Team Up to Develop Remote-Authentication Device

Security appliance controls end-user access to networks

BY MATT HAMBLEN

Funk Software Inc. and Network Engines Inc. today will release a jointly developed security appliance for authenticating remote users connecting to corporate WANs as well as users on wireless LANs.

Canton, Mass.-based Network Engines built and will distribute the hardware, which runs remote end-user authentication and authorization software developed by Cambridge, Mass.-based Funk.

The combined product is a rack-mountable device that runs under Windows 2000 Professional, according to the two companies, which announced plans to collaborate on the appliance in January.

Size and ease of deployment were the reasons Care New England Health System in Providence, R.I., deployed an early version of the appliance last month, said Larry Pesce, a LAN/WAN specialist at the health care company.

Thus far, about two dozen end users have used the appliance for network authentication over dial-up laptop connections or to gain access to Care New England's 802.11 WLANs, Pesce said. Within weeks, the use of the device will be scaled up to handle about 1,000 medical personnel at three major facilities and other locations throughout Rhode Island, he added.

The appliance not only provides authentication services but also manages the configuration process, Pesce said. It would have taken several days or weeks to buy server hardware and configure it, taking up valuable time for Care New England's IT staff, he noted. But the new appliance "just worked out of the box, no headaches at all," he said.

TECHNOLOGY DETAILS

Steel-Belted Radius Appliance

$7,500, available now

Version [illegible] Funk's Steel-Belted Radius/Enterprise Edition software

Network Engines' 1U (1.75-in.) rack-mountable device, running an 866-MHz Intel Pentium III processor

Microsoft Windows 2000 Professional

The company bought and installed two of the appliances for about $30,000, which was 10% less than regular server hardware would have cost, according to Pesce. The appliance also takes up very little space in Care New England's cramped data center, he said.

Funk competes with major vendors such as Cisco Systems Inc. and Microsoft Corp., which also sell authentication tools that support the Internet Engineering Task Force's Remote Authentication Dial-In User Service (RADIUS) protocol. "But Funk often gets in the door for ease of use," said John Girard, an analyst at Gartner Inc. in Stamford, Conn.

The market for RADIUS-based remote authentication products and services is expanding, Girard said, adding that appliances combining hardware with software are fashionable now, partly because they provide all-in-one capabilities to users.

Continued from page 1

BEA Tool

strict some of the code they write to BEA's runtime engine.

Craig Mapes, vice president of information systems and services at The Huntington National Bank in Columbus, Ohio, said his company will have to take a "deep dive" to see how much of the WebLogic Workshop tool relies on nonstandard Java.

"Is it the silver bullet, or is it going to lock us into something less open?" he said. "We don't want to be locked into anything proprietary. We've been down that path before."

For many users, one of the most appealing aspects of working in Java has been its promise to run on any operating system or application server, so long as the code conforms to standards vetted through the Java Community Process (JCP) established by the language's creator, Sun Microsystems Inc.

"Portability is the whole thing about Java to me. If we want vendor lock-in, we can go with Microsoft," said Marc Cox, a systems analyst at New York-based Teachers Insurance and Annuity Association – College Retirement Equities Fund.

The Need for Ease

But as a result of Java's growing maturity and acceptance, IT shops with less skilled developers are taking up the technology, and that makes the need for better tools more critical. Also, the knock that Java is too complicated has become a pressing concern for vendors that now must compete against Microsoft's year-old .Net technology.

"We, like our primary competitors, all have to introduce innovations to make the products easier to use," said Scott Dietzen, chief technology officer at San Jose-based BEA. "And some of those are in our classes."

Dietzen said BEA's key APIs — such as Web Services Metadata and a Java Rule Engine — are already moving through the Java's standards body. Others, such as Java Page Flow and Process Definition for Java, are pending. And some minor proprietary pieces may never make it to the JCP, he added.

"We take the most critical interfaces and get them into the standards process because that's where the investment protection is most needed," said Dietzen. "Putting 100% of our APIs into the Java standards process is too expensive. It would cost a huge amount of money, and the net return to customers is very small."

So BEA is instead striving to give customers "90-plus percent" investment protection, Dietzen said. Customers may have to do "a little bit of rework" to port code to another Java container, but that's "dramatically better" than any option they ever had, he said.

However, Mark Driver, an analyst at Gartner Inc., claimed that there is "so much proprietary plumbing inside of Workshop that there's no practical way to port the code to another vendor's products."

Driver said Gartner is advising BEA customers to limit the use of Workshop to tactical projects where a return on investment can be realized within two years, since the tool will likely change.

He didn't fault BEA's approach, and he praised the company's efforts to standardize its technology. "Any vendor who wants to innovate is going to have to become more proprietary, at least for a period of time until the standards catch up," Driver said.

But as several users pointed out, there's no guarantee that all of the technology will become a standard. And even if it does, there's no guarantee that it will be adopted by other vendors, such as IBM.

Robert Moffett, systems architect lead at United Parcel Service Inc.'s airlines division in Louisville, Ky., is evaluating BEA's WebLogic application server, integration product and workflow capabilities against similar products from BEA rival IBM.

Moffett said he likes the concept of the Workshop tool, which works across all BEA products. But he said he has concerns about being restricted to running code written with Workshop on only BEA products, especially since UPS has standardized on IBM's WebSphere portal software.

"Everyone's going to have to take a hard look at how [WebLogic Workshop] aligns with your architectural goals. It's a very conscious decision you need to understand that you're taking," said a Web development manager for a medical distributor who asked not to be identified. He added that he still finds the tool "compelling."

James Kline, a project manager at The ServiceMaster Co. in Downers Grove, Ill., said he expects that most of his company's new development will be on WebLogic, so portability isn't a huge concern.

David Gallaher, director of IT development for Jefferson County, Colo., said he needs the tool, which ships this summer, "to salvage all my old Cobol programmers and get them doing something productive in J2EE [Java 2 Enterprise Edition] without having to go over that really steep learning curve."

Gallaher said that if porting is ever needed, he can grab the code created with the tool, copy it and put it anywhere he wants. "It's still Java behind the scenes," he said. Gallaher added that he doesn't expect to make calls to many proprietary class libraries.

"Would I prefer that the tool was absolutely open? Absolutely. Can I live with it this way? Yeah," Gallaher said. "I mean, what's my alternative? Do it in Microsoft, where they control everything?"

Nonstandard Java Technologies in BEA's WebLogic Workshop Tool

TECHNOLOGY	DESCRIPTION	STATUS
Java Page Flow	New file format that contains the business logic, state and navigation flow of a Web application; built upon a Struts-based Web application programming model	To be submitted to Java Community Process.
Web Services Metadata for the Java Platform	Defines an annotated Java format that uses Java Language Metadata (JSR 175) to enable easy definition of Java Web services in a J2EE container.	JSR 181. Work in progress. Expert group formed last April.
Process Definition for Java	Defines an annotated Java syntax and APIs for programming business processes in Java.	JSR 207. Vote on acceptance of JSR due March 17.
Metadata Facility for the Java Programming Language	Allows classes, interfaces, fields and methods to be marked as having particular attributes.	JSR 175. Work in progress. Expert group formed last April.
Content Repository for Java	Specifies a standard API to access content repositories in Java 2 independently of implementation.	JSR 170. Expert group formed last month.
Portlet Specification	Defines a set of APIs for portal computing addressing the areas of aggregation, personalization, presentation and security.	JSR 168. Expert group formed last month.
Java Rule Engine API	Defines a Java runtime API for rule engines.	JSR 94. Public review period recently closed.

NOTE: A Java Specification Request (JSR) is the actual description of a proposed and final specification for the Java platform under the Java Community Process created by Sun Microsystems Inc. to evolve the technology.

ONE ON ONE

Computerworld interviews BEA CEO Alfred Chuang

QuickLink 36823
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BEA Executives Provide Glimpse Into Company's Direction

BEA Systems will focus on security, application-level management and process-oriented programming in future product releases, company executives said last week.

Alfred Chuang, CEO of the San Jose-based software maker, told *Computerworld* that his company is building a security server. He said it will be sold as a separate product that can be hooked to non-BEA products.

"If you're not even a WebLogic shop – maybe you're a mainframe shop – you'll find it useful," Chuang pledged. He said he's not sure when the product will be ready for general release.

BEA in February acquired CrossLogix Inc., a privately held Redwood Shores, Calif.-based maker of enterprise authorization products. The CrossLogix technology will be part of BEA's ongoing security work, according to Rick Jackson, vice president of enterprise product marketing at BEA.

BEA will release an enhanced security framework that spans the products in its upcoming WebLogic Platform 8.1 – which include the application, portal and integration servers. The application server is due this spring, with the full platform to follow this summer.

– *Carol Silwa*

MORE ONLINE

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Continued from page 1

Real-Time Data

system that would provide more rapid access to data, but it has yet to make any technology choices.

Top-level corporate executives increasingly want to keep a close watch on key business-performance indicators so they can take fast action when necessary, said Sateesh Lele, chairman of Global Data Systems USA, a San Jose-based IT services firm. "In order to do that, they need to have summarized, synthesized, real-time information," Lele said.

For example, if there's a drought in the Northeast, the use of real-time information to gauge demand for umbrellas could help executives at an umbrella maker do "dynamic pricing" in an attempt to boost sales, said Steve Andriole, a consultant at Cutter Consortium in Arlington, Mass., and a professor of IT management at Villanova University in Pennsylvania.

There are combinations of technologies that can help put business performance information in the hands of senior management more quickly, including middleware, business process integration tools, Web services applications and data mining tools. But they go only so far in speeding up the delivery of data, according to analysts. For instance, information stored in decision-support data marts is often up to a month old, Lele said.

In addition, many companies have rolled out enterprise resource planning systems that are tied to legacy applications populated with outdated information. "You still haven't solved your real-time problem," said Andriole, a former chief technology officer at Cigna Corp. in Philadelphia.

Some companies have made big strides toward achieving real-time data availability. Atlanta-based Delta Air Lines Inc., which has invested $1.5 billion in its IT infrastructure since 1998, has integrated its systems so tightly that there's just a one-second latency in exchanging data between some of its business units, said CIO Curtis Robb during a session at the Premier 100 conference.

> **"Every company I know of has to deal with the fudge factor."**
>
> **STEVE ANDRIOLE,** CONSULTANT CUTTER CONSORTIUM

Still, some of the challenges facing IT managers who are trying to install real-time data access capabilities extend beyond technology to issues such as the quality and timeliness of information. For instance, Chris McMahan, CIO at Wireless Retail Inc., a Scottsdale, Ariz.-based provider of wireless products and services to retailers, said a salesman might report that he sold 10 wireless devices in a week when, in fact, he sold eight and has two orders in the pipeline.

"Every company I know of has to deal with the fudge factor," Andriole said. "Some cynics say that real-time reporting is terrible because it gives you the ability to make wrong decisions faster."

How to Manage Real-Time Data

- Don't try to transform all operational data into real-time information. Instead, focus on areas where timeliness matters most, such as sales and inventory data.
- Be careful that you're not just delivering old or outdated information more efficiently to your CEO and other business executives.
- Don't rely too heavily on technologies such as EAI and Web services as agents of change. Cultural and business process issues are just as important, if not more so.
- Make sure that there's a business case for real-time reporting initiatives and that business leaders take ownership of them.

Inventory Costing Systems Pose Real-Time Data Challenges

Another problem hampering IT managers who are trying to make data available to business executives on a real-time basis is their companies' reliance on legacy accounting systems that are centered on so-called standard costing metrics.

Standard costing is an accounting technique that's widely used by manufacturers to predict the cost of product inventories for a full year based on the prices that are in place at the end of the previous year.

But applications that support the technique have limits, said Ralph Rio, an analyst at ARC Advisory Group Inc. in Dedham, Mass. For example, disk drives sold by a vendor may fetch $500 each at the end of one year – a price that will be built into the standard costing models in its accounting system. But if market conditions change and prices have to be cut sharply, the new information typically won't be reflected in the costing models.

That can be "a major problem" when it comes to using real-time information to react to changing market conditions, Rio said. To combat such problems, an emerging class of applications is able to accommodate real-time changes in costing data, he said.

Nevertheless, companies will likely have to also retain their legacy accounting systems in order to meet the U.S. Securities and Exchange Commission's financial reporting requirements, Rio added.

– Thomas Hoffman

Utility Turns to EAI Tools To Revamp Supply Chain

Integration software to support real-time data exchanges

BY THOMAS HOFFMAN

Southern Co., a $10.55 billion utility and energy services firm in Atlanta, is in the early stages of a multiyear enterprise application integration (EAI) effort aimed at bolstering revenue and lowering costs throughout its extensive supply chain operations.

As part of a project that began last year and is due to continue through 2006, Southern is pushing to add real-time energy trading capabilities and optimize all of its key supply chain functions, including warehousing and inventory and freight management.

To support the effort, Southern late last year installed business process integration software developed by Sunnyvale, Calif.-based Vitria Technology Inc. The details of the rollout will be announced this week. Southern plans to use Vitria's BusinessWare tools to provide real-time exchanges of purchasing data between its systems and those of its business partners through an energy trading network operated by Pantellos Group LP in The Woodlands, Texas.

"We're trying to manage the sourcing process from the raw materials phase all the way to the disposal of any assets that we've acquired," said Jacki Lowe, vice president of supply chain management at Southern, which is also using rival message-queuing middleware tools from IBM and Microsoft Corp. as part of the project.

Lowe said the EAI initiative is aimed at providing Southern's business executives with greater visibility into all of its supply chain operations. The project should also simplify some IT functions, she added.

For instance, Southern's accounting materials and procurement system links to 75 different work-order and accounting applications throughout the company. In turn, many of those systems are tied to applications at Southern's suppliers and other business partners.

But anytime a change is made to one work-order system, follow-on changes have to be made to the accounting systems to which it's connected, Lowe said. The use of BusinessWare should help minimize the changes "and reduce some of our support costs for those systems," she said.

Lowe declined to disclose how much Southern is investing in the EAI project, nor would she estimate the size of the payback and efficiency improvements that the company expects to gain.

Zarko Sumic, a Bellevue, Wash.-based analyst at Meta Group Inc., said a growing number of energy companies with extensive transmission and distribution businesses are beginning to understand the potential for using EAI technology to help make their operations more efficient.

Once BusinessWare is fully operational, Southern next quarter plans to begin developing interfaces to systems at some of its energy trading partners, Lowe said. The company expects to start processing transactions through the interfaces in June, she added.

AT A GLANCE

Southern's Supply Chain Push

COMPANY FACTS: Sells electricity and natural gas to 4 million customers in the Southeast; had revenue of $10.55B last year

BUSINESS CHALLENGE: Improving its supply chain by lowering costs and providing better reliability to customers

IT STRATEGY: Embarked on a multiyear EAI effort that includes the use of Vitria's business process integration tools and middleware from IBM and Microsoft

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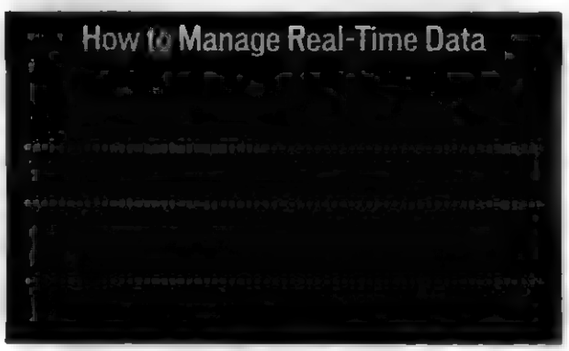

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Antitrust Suit Widens Cartridge Battle

BY PATRICK THIBODEAU

A North Carolina company that remanufactures toner cartridges has filed an antitrust lawsuit against printer maker Lexmark International Inc., broadening a legal fight that could affect the availability of low-cost cartridges.

Sanford, N.C.-based Static Control Components Inc. (SCC) claims that Lexmark is trying to monopolize the cartridge market. SCC's allegation comes after Lexington, Ky.-based Lexmark filed a suit in December charging that the remanufacturer illegally copied some of the chips used to mate cartridges to Lexmark's printers [QuickLink 36030].

Lexmark won the first round in a Feb. 28 ruling by a U.S. District Court judge in Kentucky. The judge issued a preliminary injunction that bars SCC from making the chips used in replacement cartridges for two of Lexmark's laser printers. SCC filed its antitrust claim that same day in Greensboro, N.C.

Congress Takes Notice

The legal battle is getting congressional attention because of Lexmark's attempt to protect its toner cartridges by citing the Digital Millennium Copyright Act (DMCA), a 1998 law aimed at stopping music and movie piracy.

In an interview, Rep. Rick Boucher (D-Va.) said the case illustrates the law's shortcomings and charged Lexmark with using the DMCA to "thwart competition" — a charge that Lexmark denied.

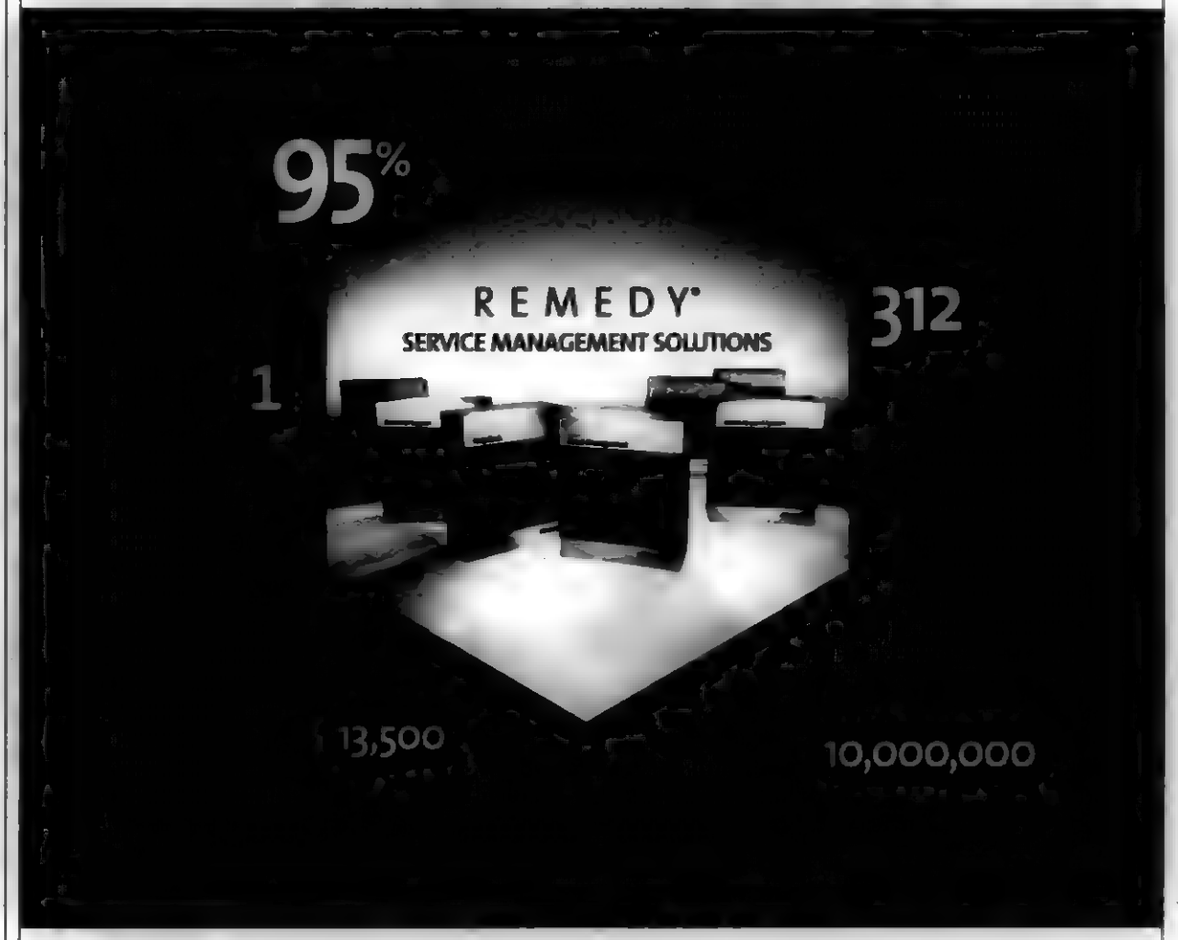
One of Lexmark's key complaints is that SCC, in reproducing the printer chips, violated the DMCA by circumventing "secret handshake" authentication software built into the devices by Lexmark.

But DMCA critics contend that such authentication protections could be applied to a range of software and hardware products. In January, Boucher reintroduced legislation that aims to change the DMCA's circumvention restrictions, and last week he sent a letter to House members citing his concerns about Lexmark's use of the DMCA.

In its suit, SCC claims that Lexmark's alleged anticompetitive practices are squeezing companies that remanufacture toner cartridges out of the market. To buttress that claim, SCC argued that about 35% of the toner cartridges sold for use with Hewlett-Packard Co.'s printers are remanufactured, compared with about 14% for Lexmark's.

Roger Rydell, a Lexmark spokesman, said the company "provides more choice in cartridges for laser printers" than any of its rivals.

Strength in Numbers.



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Dell's Storage Chief Pushes for Fast Growth

BY DON TENNANT
SCOTTSDALE, ARIZ.

As the executive in charge of Dell Computer Corp.'s storage unit, **Russ Holt** *manages what he calls an "emerging" business that already produces revenue of $1 billion per year. At a recent conference held here by Cambridge, Mass.-based Forrester Research Inc., Holt, vice president and general manager of Dell's Enterprise Systems Group, spoke with* Computerworld *about where Dell's storage foray is heading.*

Given that many companies are undergoing server consolidation by means of augmenting their storage resources, do you see Dell's storage group taking any business away from its server group? There is a trend toward consolidation, but we don't see it necessarily as fewer servers. There's no lack of necessity still for the computing capability and the applications, but from the CIO's perspective, it was becoming very difficult for him to manage that. What we've seen is a trend toward rack-dense or rack-optimized servers; the form factors have changed. And what we've typically found is that customers are adding new projects and applications for productivity, so it tends to offset the consolidation that's happening.

But you do see server consolidation as a driver for your storage business? Absolutely. It's an easier-to-manage, more effective use of disk space. You can have one administrator supporting 6TB as opposed to just being able to support 1TB before.

What percentage of Dell's business is storage at this point? We're over $1 billion in annual revenue for our external storage. Dell's total revenue is over $30 billion, so storage is a small portion right now. But we look at it in the whole context of our enterprise business, which now accounts for about 20% of our total revenue.

What will your storage business look like in five years? From the standpoint of product capabilities, it will just be to continue to monitor and adjust with the trends. We have a very complete portfolio of storage products right now.

What is your monitoring of the iSCSI trend telling you? The standard for iSCSI was just ratified a month ago [QuickLink 36334]. These emerging technologies tend to take off a lot slower than most analysts would like them to. I don't expect that iSCSI is going to replace Fibre Channel. However, there are some clear uses where iSCSI will provide some benefits. The first environment is in wide-area connectivity for SANs [storage-area networks]. Another use is providing [block-level data] support on network-attached storage [NAS]. Currently, NAS boxes are only file-based access.

How about the InfiniBand I/O technology? It's one of those products in the very early stages of standardization, so it's not something that's going to happen overnight. As the modular blade-type servers start to standardize a bit more, we think InfiniBand will play a key role in the system-level communication between servers. We don't see InfiniBand taking over storage interconnects like Fibre Channel; we don't see it taking over the network like IP. But it will be an important transport medium between modular servers.

So would your strategy be to let IBM and Sun test the InfiniBand waters or to jump in first? We're working on InfiniBand-related products ourselves; we won't necessarily wait for IBM or Sun to pave the way. But we're also very keen on delivering relevant technology. InfiniBand is relevant, but the timing is what we're working through right now.

How do you see your relationship for reselling EMC's Clariion midrange arrays evolving over the next few years? We entered into the relationship in October of 2001; the tenets that led us to the relationship hold and have been validated. [Dell's] view [is] that all technology is progressing along a standardization curve. The area where there's still a lot of complexity and a lack of standards is in the Fibre Channel SAN area. From a Dell perspective, that's not an area where we want to invest a lot of our own resources, because there aren't standards there. So we chose to partner with EMC.

What's going to be new from Dell storage-wise over the next year? You'll see Fibre Channel-connected ATA [Advanced Technology Attachment] drives coming from Dell and EMC in the first half of this year. That will allow customers to continue to put their business applications and mission-critical data on core Fibre Channel systems but have the capability for snapshots or mirroring [on] less expensive disks. That will progress to Serial ATA starting to show up in the latter part of the year and serial-attached SCSI devices about a year after that.

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To me, success is a 35 minute lunch.

At a restaurant, not my desk.

Means I'm not wasting time doing the same data management task again and again and again and...well, you get it.

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PATRICIA KEEFE

Iraqnophobia

WAR. IS THERE A MORE sobering word? A more terrifying prospect? Today, the threat hangs heavy in the air, clouding conversation, darkening our doorways and liable to fall upon all our heads at any moment.

As the Bush administration marches resolutely into the stiff wind of global disapproval, we're all steeling ourselves for the impact — of what we don't yet know.

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Although most of us won't be slinging an M-16 over our shoulders, the threat of war changes everything. Especially for IT. Sure, we've already spent the past two years operating under some very trying circumstances, so you might wonder how much tougher it can get.

That depends mainly on two things: how prepared you are to secure and defend your company's digital assets and infrastructure, and whether, and how long, we go to war.

Duct tape and plastic sheeting aside, there are real steps you can take. The key for IT leaders, notes French Caldwell, a research director at Gartner, is that in an era when events in the physical world are reflected online, systems connected to the Internet are particularly vulnerable. Take Delta Air Lines' estimate of 500 attempts daily to break into its systems or the recent theft of an estimated 8 million credit card numbers from Data Processors International. Remember the speed and reach of the Slammer worm.

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- A lengthy engagement is expected to bring spending and the economy to a virtual standstill while pushing oil prices skyward, negatively affecting corporate budgets.
- As the threat of physical and cyberterrorist attacks spirals, some companies may want to look into biometric physical security devices.

You never know when a war-related incident could give new meaning to the term *agile corporation*. As former cybersecurity czar Richard Clarke often reminded us, the nation is counting on the private sector to combat threats to our critical infrastructure. Don't be caught unaware.

PIMM FOX

Worse Than Death and Taxes?

THREE THINGS IN LIFE are certain: Death, taxes and lost data.

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The Securities and Exchange Commission's new Rule 17a-4 goes into effect in May. (There are also revised rules from the New York Stock Exchange.) It specifies communications compliance that covers e-mail, attachments, memos and instant messaging as well as routine phone conversations.

The quandary for IT departments is how to compile the arsenal of software and hardware tools necessary to capture, store and easily retrieve the oceans of data sloshing around a financial services firm. For example, Merrill Lynch had more than 57,000 employees in 36 countries at the beginning of 2002. That's a lot of people communicating in a variety of ways to many other individuals.

This communications tracking and management costs big bucks, according to Charles Brett, a senior program director at Meta Group. He estimates that a firm with 5,000 brokers generates about 20GB to 50GB of e-mail *per day* to be stored on nonerasable optical tapes. "Each WORM [write-once, read-many] tape holds about 9GB," Brett says. "So you might be looking at $150 to $500 a day, every day, and that's just the cost of the disks."

Obviously, there's storage, duplication and management as well. And you'll need search tools to check for keywords ("Get rich quick" comes to mind). Other costs must be considered as well. Brett estimates that companies can spend upward of $1 million just to get started.

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Are You Prepared for Today's Challenges?

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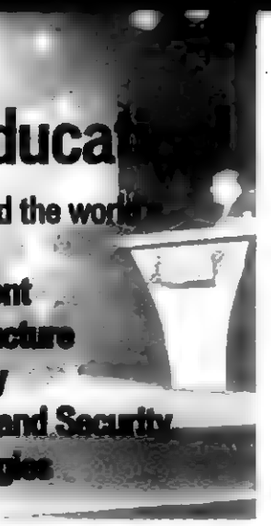

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Regis McKenna
Renowned Technology Advisor, Venture Capitalist and Author

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In "The Demo", you'll see over 50 SNIA member companies demonstrate the spectrum of solutions. You'll meet the experts, get your answers, and see the true value of SNIA technology specifications that reduce risks, increase interoperability, and provide common foundations to enable vendor choice. And you'll see the latest products with increased storage per square foot, new tools to automate management and to span more vendors, plus you'll see iSCSI in action.

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- A Primer delivering basic storage concepts, terminology and business applications.
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Chief Architect
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PIERRE BAUDET
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Vice President
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JOHN MCARTHUR
Group Vice President
IDC Storage Research

FRED VAN DEN BOSCH
EVP & CTO
VERITAS Software

Agenda Snapshot*

For details, updates, and to register visit **www.snwusa.com/expo**

*subject to change

Monday, April 14
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Primer
12:00pm-5:00pm	Golf Outing
1:00pm-2:00pm	SNIA Tutorial Sessions - choose from five different sessions
2:00pm-2:10pm	Break
2:10pm-3:10pm	SNIA Tutorial Sessions - choose from five different sessions
3:10pm-3:20pm	Break
3:20pm-4:20pm	SNIA Tutorial Sessions - choose from five different sessions
4:20pm-4:30pm	Break
4:30pm-5:30pm	SNIA Tutorial Sessions - choose from five different sessions
7:00pm-8:00pm	Pre Conference Networking Reception

Tuesday, April 15
(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:30am-9:15am	Opening Keynote: Regis McKenna
9:15am-12:00pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:45pm-4:00pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-6:30pm	Expo, Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 16
(General Conference - Day Two)

7:15am-8:15am	Continental Breakfast
8:30am-9:05am	Opening Keynote: David Chamberlain
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Expo, Buffet Luncheon
12:00pm-7:15pm	Interoperability and Solutions Demo Open
1:45pm-3:50pm	General Sessions
3:50pm-4:00pm	Break
4:00pm-5:00pm	Technical, Technical/Business and Business Tracks
5:15pm-7:15pm	Expo Open
7:30pm-9:00pm	Gala Evening

Thursday, April 17
(Tutorial and Workshop Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business and Business Tracks
11:45am	Conference Concludes

Register Today!

Options for IT End-Users*	Pre-Registration (through April 11th)	On-Site Registration (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	$1,095	$1,245
Total 4-day Package (Apr. 14, 15, 16, 17): (Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses; Expo, Meals and Receptions)	$1,490	$1,690

Options for IT Vendors**		
Total 4-day Package (Apr. 14, 15, 16, 17): (Available to Sponsoring Vendors and their Resellers/Integrators; Industry Consultants and Storage Solutions Implementors)	$1,490	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

* See IT End-Users description on the Registration Application on the reverse. ** See Non-Sponsoring Vendor description on the Registration Application on the reverse.

Submit your nomination today at
www.snwusa.com
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nanette_jurgelewicz@computerworld.com

Travel and Accommodations

IDG Travel is the official travel company for Storage Networking World. They are your one-stop shop for exclusive discounted rates on hotel accommodations.

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Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Palmer Course at Wildlire, located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Leger at **1-888-820-8277**

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- Call our Customer Service Line at 800-883-9090
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* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

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City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, April 14th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining/Oil/Gas
- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
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Your personal IT spending authority (All IT products and services):
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- ❑ Less than $500,000

Your personal IT spending authority (Storage products and services):
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- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
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- ❑ VP/GM/Director
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In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Fall 2003 Storage Networking World* conference, if written notice is received by March 31, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by March 31, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events (subject to change)

Monday, April 14, 2003
- Pre-Conference Golf Outing
- Pre-Conference Networking Reception
- Tutorial Sessions

Tuesday, April 15, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition

Wednesday, April 16, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition
- Gala Evening

Thursday, April 17, 2003
- Tutorial Sessions

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THORNTON MAY

Save the Suits From Themselves

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What leads me to this line of thinking is some work I've been doing with Hal R. Varian, dean of the School of Information Management and Systems at the University of California, Berkeley. While conducting focused research in the financial services market, we found the highest mental crime areas to be the following:

- Information opportunity: Determining where IT money should be spent.
- Application IQ: Spending the money on the right technologies.
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In recent years, the ability to purchase technology has run ahead of the typical organization's ability to extract maximum value from what it's been buying. The "whisper number" (the one no one likes to publicly acknowledge) for annual IT waste is around $75 billion. These are dollars spent yearly on failed IT projects. IT managers are certainly not blameless in this annual value sinkhole, but we frequently forget that for every dollar wasted, there were users — let's call them "Suits" — who were very close to the center, where choices were made and value was determined.

The unspoken dirty secret in IT waste: "It's not the technology. It's the Suits who are funding the technology." For the longest time, IT managers had a credibility problem with the business. But in reality, the inverse is true; the business has a credibility problem with IT.

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Teleworking Loses Some Face Value

UNFORTUNATELY, since most companies still don't have a formal teleworking plan in place, most managers still view telecommuting as a perk that is an exception rather than the rule [QuickLink 36517]. After six years of successful telecommuting in the afternoons, I lost my last job because the conditions for retraining in the new system required daylong face time.

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Thornton May is a long-time industry observer, management consultant and commentator. Contact him at

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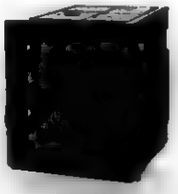

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[1]IBM eServer pSeries 650 (8 processors, POWER4+, 1.45 GHz, 1.5 MB L2 cache per 2 processors, 64 GB memory) was certified by SAP on 1/16/03 with the following SAP Standard 4.6C SD application benchmark results: 1,220 SD benchmark users, 1.95 sec. average dialog response time, 122,670 fully business processed line items/hour, 368,000 dialog steps/hour, 6,130 SAPS, CPU utilization of 96% with DB2 v8.1 and AIX 5L version 5.2. Sun Microsystems Sun Fire V880 (8 processors, UltraSPARC III, 900 MHz, 8 MB L2 cache, 32 GB memory) was certified by SAP on 5/17/02 with the following SAP Standard 4.6C SD application benchmark results: 600 SD benchmark users, 1.98 sec. average dialog response time, 60,330 fully business processed line items/hour, 181,000 dialog steps/hour, 3,020 SAPS. CPU utilization of 99% with DB2 v7 and Solaris 8. Results posted at http://www.sap.com/benchmark. ²U.S. list price as of 2/28/03 for p650 Express Configuration with AIX 5L, 2-way 1.2 GHz POWER4+. Prices are subject to change without notice. Reseller prices may vary. IBM, the e-business logo, AIX 5L, DB2, eServer, POWER4+, pSeries and e-business on demand are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. UNIX is a registered trademark of The Open Group. Other company, product and service names may be trademarks or service marks of others.

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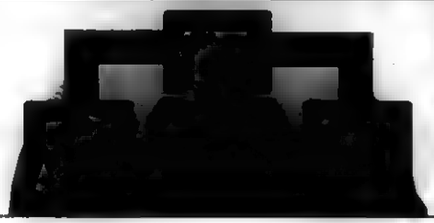

Compression Relieves Congestion
WAN traffic compression appliances promise to let network managers increase loads without upgrading WAN links. Users tell us how well they work. **Page 30**

SECURITY MANAGER'S JOURNAL
When Bad Things Happen To Good Demos
A vendor's slick security product presentation shows Vince Tuesday that it doesn't have a clue what users want and need — or technology mature enough to deliver it. **Page 32**

OPINION
And Here's the Pitch
The beginning of baseball's spring training has Nicholas Petreley thinking about what might happen in a software World Series. **Page 37**

MICROPROCESSORS MARCH ON

Chip makers will have achieved 10 GHz and 1 billion transistors in five years, but progress is getting harder. By Gary H. Anthes

FOR MORE THAN THREE DECADES, microprocessors have doubled in power every 18 to 24 months. That progress will continue for another 10 years or so, chip makers say; then some new technology may have to be found to replace the silicon semiconductor.

Unfortunately, the companies that make microprocessors and use them to build computer systems can't just catch a free ride on the back of Moore's Law. As silicon transistors grow smaller — there will be a billion on a single chip in five years — chips become exponentially more expensive to design, manufacture and test. And the laws of physics intrude: In the mysterious realm called "deep submicron," for example, power dissipation gets nearly impossible to control, and cosmic rays cause random processing errors.

"The power-dissipation problem will prevent the further scaling after 10 years. Improvements will come about from system-level integration rather than transistor-level enhancements," says Bijan Davari, technology vice president at IBM's microelectronics division.

About 60% of the total performance gains in microprocessors have come from higher clock frequencies resulting from smaller and faster transistors. The balance have come from process-

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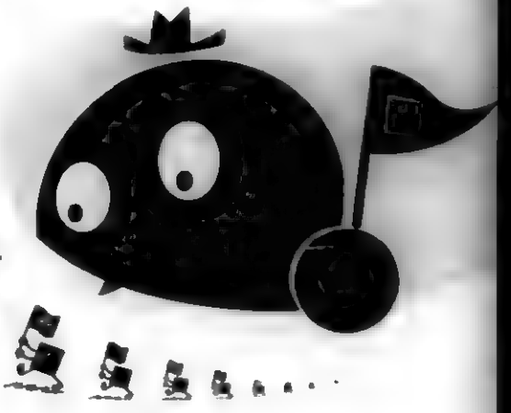

MICHAEL BARTALOS

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Continued from page 25

ing architectures that allow the execution of more than one instruction per clock tick. A microprocessor can do that by predicting the flow of a program through several branches of program logic or by executing instructions "speculatively" — before they are needed. But pushing those tricks further is becoming difficult and expensive.

"We've gone from being able to execute two instructions at a time to eight or more," says James Hoe, a professor of electrical and computer engineering at Carnegie Mellon University in Pittsburgh. "But we are at the limit. The architecture is not scalable." Hoe says microprocessor developers will increasingly rely on the following ambitious schemes to find "parallelism" in programs and job streams:

- **Multithreading:** Breaking a single program into multiple instruction streams, or threads, to be processed simultaneously. Each thread could handle a data packet or transaction, for example.
- **Simultaneous multithreading:** A technique that makes a single physical processor appear to software as two processors, so two programs can execute simultaneously, boosting total throughput. Intel Corp. calls it "hyperthreading."
- **Chip multiprocessing:** The placement of two or more physical processor "cores" on one chip. The cores can run independently but share some resources. IBM is shipping a dual-core Power4 processor, and Sun Microsystems Inc. is expected to unveil one later this year in its UltraSPARC IV. Intel will introduce a dual-core Itanium chip in 2005.
- **Runtime optimization:** Using a combination of special processor circuits and a dynamic runtime compiler to continuously analyze program behavior and reorder instructions for better performance. While this doesn't make the processor run faster, it does improve what the user cares about: throughput.

"It's becoming exponentially expensive to find more parallelism in a single instruction stream," says Justin Rattner, an Intel senior fellow and director of microprocessor research. "So there will be increasing emphasis on thread-level parallelism, the number of threads per processor and the number of processors per chip."

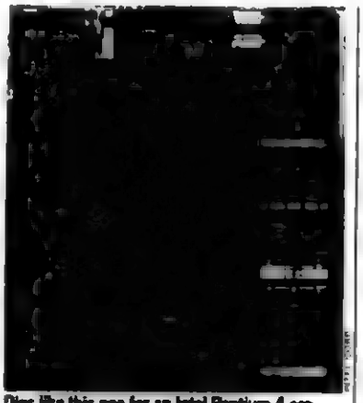
Rattner says Intel is also doing research on processors and compilers that together optimize program performance in real time. "We are looking at program-visible instrumentation so the compiler has access to [runtime conditions]," he says. "This is on the fly; this is the compiler in the loop."

The technique has improved performance by a factor of two to four, Rattner says. Improvements in basic semiconductor technology will triple microprocessor clock speeds in five years, he predicts. But those clock improvements plus improved exploitation of parallelism by various means will boost total throughput by a factor of six to seven, Rattner says.

Multithreading and chip multiprocessing will be especially important in servers, because they routinely handle workloads — transaction-processing, Web and database applications — that are inherently threaded.

Desktop PCs are more likely to run single-user, single-threaded applications. As a result, the relentless race for higher processing speeds on the desktop may soon be meaningless, says Kevin Krewell, a senior analyst and editor of MicroDesign Resources' "Microprocessor Report" newsletter.

"In servers, more power and scalability are always welcome," he says. "But on the desktop, what do you do with 3 GHz, 4 GHz, 5 GHz? There could be a plateau, when we get the 'good enough' processor." Krewell says designs for desktop processors, and especially notebooks, will increasingly go after other things, such as low power consumption, low mass and quiet operation.



Dies like this one for an Intel Pentium 4 are used to fabricate microprocessors.

In the Silicon Trenches

While the microprocessor vendors work to boost throughput, at another level they toil to find ways to dodge the laws of physics. Current silicon processors have circuit features that are 130 nanometers (nm) wide. Future generations, coming at two-year intervals, will shrink that to 15 nm or so — about as low as you can go in silicon. Getting there won't be easy.

"As we go from 130 nm to 90 nm to 65 nm and then to 42 nm, the standby power dissipation is the single most important problem at the silicon and circuit design level," says IBM's Davari. The leakage of power, which is wasteful and generates heat, increases "dramatically, exponentially," he says.

IBM and other companies are turning to "strained silicon," a technique that boosts performance and lowers power consumption by stretching silicon molecules farther apart, allowing electrons to flow though the transistors up to 70% faster. Chip makers are also experimenting with new materials and methods for making "gates" — which control the electrical flow through a transistor — smaller, faster and more efficient. "These things all started as performance solutions, but now they are solving power problems," Davari says.

Davari says IBM may eventually extend its existing dual-core architecture to hundreds of processors on a chip. It will also integrate dynamic RAM with logic on a single chip, greatly reducing CPU-memory communication delays, increasing throughput and lowering power consumption. And it will move application-specific functions, such as encryption, video compression or speech processing, from software or off-chip hardware to the processor chip, he says.

Dual-core processor chips will bring performance gains, but there may be cost drawbacks, Krewell says. The question is whether software vendors will view a dual-core processor as one or two processors for licensing purposes. "Intel convinced Microsoft that hyperthreading is one processor, although it looks to the software like two processors," he says. "But as you put two cores on there, then four cores, will vendors still consider it one processor?"

PROCESSOR PROGNOSTICATIONS

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SIZE MATTERS

High-end servers today contain 64-bit processors, while desktops and notebooks run 32-bit CPUs, as do many low-end servers. Most servers need, or would at least benefit from, the 4GB-plus memories that a 64-bit address space permits. Vendors disagree on the timing, but it's reasonable to think that desktop PC users will someday also want 4GB of memory.

It will be more than five years before desktop PCs are routinely powered by 64-bit processors, says Justin Rattner, director of microprocessor research at Intel. In the meantime, Intel's 64-bit Itanium line for servers and the 32-bit x86-based processors for desktops and notebooks will move ahead independently.

In contrast, Advanced Micro Devices Inc. says it will move its entire line of microprocessors to 64 bits in 2004. Its new Opteron chip for servers, to be introduced next month, will be able to run both 32- and 64-bit software. Servers with 32-bit processors will be obsolete in a year, and desktop users will want 64 bits in three to five years, "when 4GB of memory will be pretty cheap," says Fred Weber, chief technology officer for computation products at AMD.

The companies' different outlooks on the migration to 64 bits can perhaps be explained by their very different processor architectures. AMD has built instruction-set compatibility between its 32-bit processors and its 64-bit processors. Code can be easily ported from one to the other and will perform well on either, AMD says. IBM and Sun have built a similar compatibility into their 32- and 64-bit processors. Intel chose to go a different route: The 64-bit Itanium line is an entirely new architecture with a different instruction set from the old x86 architecture, which the company now calls IA32. The Itanium performs poorly in 32-bit-emulation mode, analysts say, and code can't be ported from IA32 to Itanium without recompiling and testing.

"If you are moving from x86 to Itanium, it's a big job," says Kevin Krewell, editor of "Microprocessor Report." "That's why Intel has been helping – with a lot of development money – software vendors to recompile for Itanium."

Nevertheless, he says, there are advantages to Intel's separate architectures: Banias for mobile, Pentium for desktop PCs, Xeon for workstations and low-end servers, and Itanium for larger servers. Each can be tailored and tuned to meet different objectives. The much-smaller AMD can't afford to do that, Krewell says.

– *Gary H. Anthes*

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- **Multithreading:** Breaking a single program into multiple instruction streams, or threads, to be processed simultaneously. Each thread could handle a data packet or transaction, for example.
- **Simultaneous multithreading:** A technique that makes a single physical processor appear to software as two processors, so two programs can execute simultaneously, boosting total throughput. Intel Corp. calls it "hyperthreading."
- **Chip multiprocessing:** The placement of two or more physical processor "cores" on one chip. The cores can run independently but share some resources. IBM is shipping a dual-core Power4 processor, and Sun Microsystems Inc. is expected to unveil one later this year in its UltraSPARC IV. Intel will introduce a dual-core Itanium chip in 2005.
- **Runtime optimization:** Using a combination of special processor circuits and a dynamic runtime compiler to continuously analyze program behavior and reorder instructions for better performance. While this doesn't make the processor run faster, it does improve what the user cares about: throughput.

"It's becoming exponentially expensive to find more parallelism in a single instruction stream," says Justin Rattner, an Intel senior fellow and director of microprocessor research. "So there will be increasing emphasis on thread-level parallelism, the number of threads per processor and the number of processors per chip."

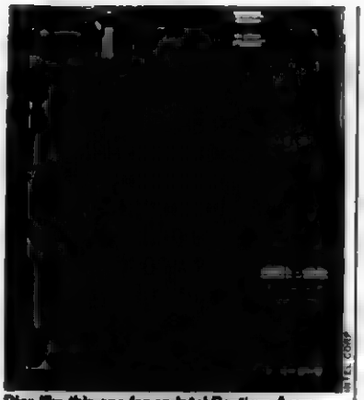
Rattner says Intel is also doing research on processors and compilers that together optimize program performance in real time. "We are looking at program-visible instrumentation so the compiler has access to [runtime conditions]," he says. "This is on the fly; this is the compiler in the loop."

The technique has improved performance by a factor of two to four, Rattner says. Improvements in basic semiconductor technology will triple microprocessor clock speeds in five years, he predicts. But those clock improvements plus improved exploitation of parallelism by various means will boost total throughput by a factor of six to seven, Rattner says.

Multithreading and chip multiprocessing will be especially important in servers, because they routinely handle workloads — transaction-processing, Web and database applications — that are inherently threaded.

Desktop PCs are more likely to run single-user, single-threaded applications. As a result, the relentless race for higher processing speeds on the desktop may soon be meaningless, says Kevin Krewell, a senior analyst and editor of MicroDesign Resources' "Microprocessor Report" newsletter.

"In servers, more power and scalability are always welcome," he says. "But on the desktop, what do you do with 3 GHz, 4 GHz, 5 GHz? There could be a plateau, when we get the 'good enough' processor." Krewell says designs for desktop processors, and especially notebooks, will increasingly go after other things, such as low power consumption, low mass and quiet operation.



Dies like this one for an Intel Pentium 4 are used to fabricate microprocessors.

In the Silicon Trenches

While the microprocessor vendors work to boost throughput, at another level they toil to find ways to dodge the laws of physics. Current silicon processors have circuit features that are 130 nanometers (nm) wide. Future generations, coming at two-year intervals, will shrink that to 15 nm or so — about as low as you can go in silicon. Getting there won't be easy.

"As we go from 130 nm to 90 nm to 65 nm and then to 42 nm, the standby power dissipation is the single most important problem at the silicon and circuit design level," says IBM's Davari. The leakage of power, which is wasteful and generates heat, increases "dramatically, exponentially," he says.

IBM and other companies are turning to "strained silicon," a technique that boosts performance and lowers power consumption by stretching silicon molecules farther apart, allowing electrons to flow though the transistors up to 70% faster. Chip makers are also experimenting with new materials and methods for making "gates" — which control the electrical flow through a transistor — smaller, faster and more efficient. "These things all started as performance solutions, but now they are solving power problems," Davari says.

Davari says IBM may eventually extend its existing dual-core architecture to hundreds of processors on a chip. It will also integrate dynamic RAM with logic on a single chip, greatly reducing CPU-memory communication delays, increasing throughput and lowering power consumption. And it will move application-specific functions, such as encryption, video compression or speech processing, from software or off-chip hardware to the processor chip, he says.

Dual-core processor chips will bring performance gains, but there may be cost drawbacks, Krewell says. The question is whether software vendors will view a dual-core processor as one or two processors for licensing purposes. "Intel convinced Microsoft that hyperthreading is one processor, although it looks to the software like two processors," he says. "But as you put two cores on there, then four cores, will vendors still consider it one processor?"

PROCESSOR PROGNOSTICATIONS

Read a forecast of how the competition among microprocessor vendors will play out over the next few years:

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SIZE MATTERS

High-end servers today contain 64-bit processors, while desktops and notebooks run 32-bit CPUs, as do many low-end servers. Most servers need, or would at least benefit from, the 4GB-plus memories that a 64-bit address space permits. Vendors disagree on the timing, but it's reasonable to think that desktop PC users will someday also want 4GB of memory.

It will be more than five years before desktop PCs are routinely powered by 64-bit processors, says Justin Rattner, director of microprocessor research at Intel. In the meantime, Intel's 64-bit Itanium line for servers and the 32-bit x86-based processors for desktops and notebooks will move ahead independently.

In contrast, Advanced Micro Devices Inc. says it will move its entire line of microprocessors to 64 bits in 2004. Its new Opteron chip for servers, to be introduced next month, will be able to run both 32- and 64-bit software. Servers with 32-bit processors will be obsolete in a year, and desktop users will want 64 bits in three to five years, "when 4GB of memory will be pretty cheap," says Fred Weber, chief technology officer for computation products at AMD.

The companies' different outlooks on the migration to 64 bits can perhaps be explained by their very different processor architectures. AMD has built instruction-set compatibility between its 32-bit processors and its 64-bit processors. Code can be easily ported from one to the other and will perform well on either, AMD says. IBM and Sun have built a similar compatibility into their 32- and 64-bit processors. Intel chose to go a different route: The 64-bit Itanium line is an entirely new architecture with a different instruction set from the old x86 architecture, which the company now calls IA32. The Itanium performs poorly in 32-bit-emulation mode, analysts say, and code can't be ported from IA32 to Itanium without recompiling and testing.

"If you are moving from x86 to Itanium, it's a big job," says Kevin Krewell, editor of "Microprocessor Report." "That's why Intel has been helping – with a lot of development money – software vendors to recompile for Itanium."

Nevertheless, he says, there are advantages to Intel's separate architectures: Banias for mobile, Pentium for desktop PCs, Xeon for workstations and low-end servers, and Itanium for larger servers. Each can be tailored and tuned to meet different objectives. The much-smaller AMD can't afford to do that, Krewell says.

– Gary H. Anthes

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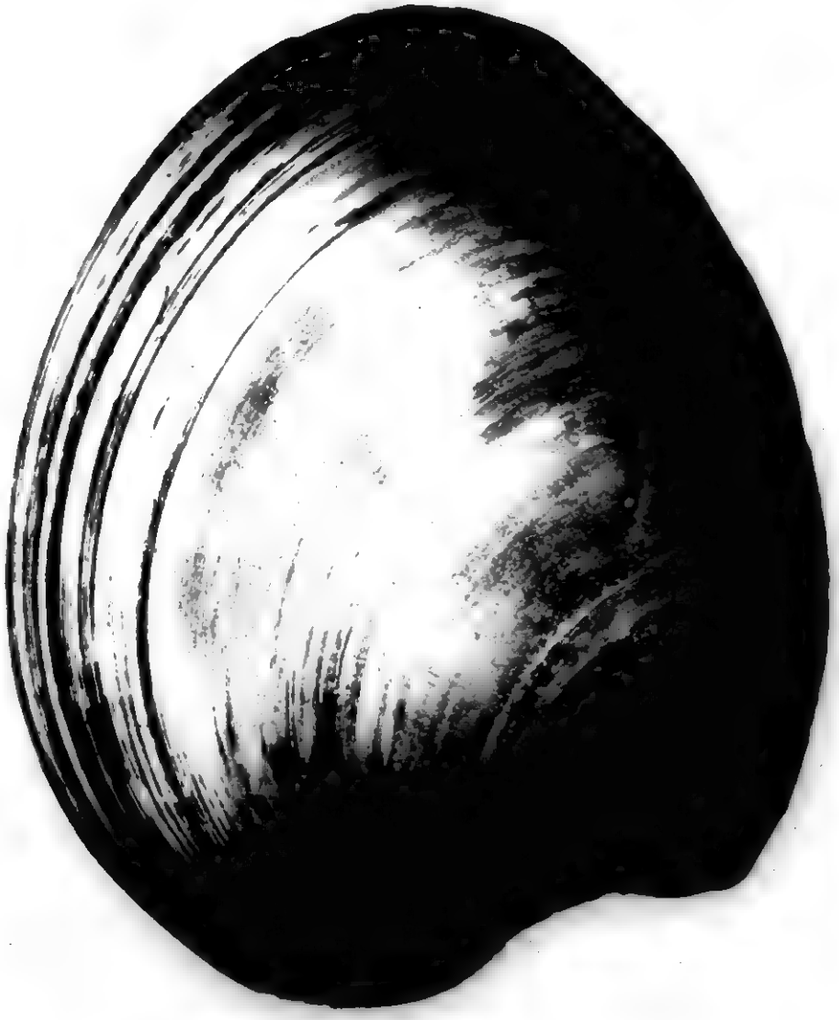
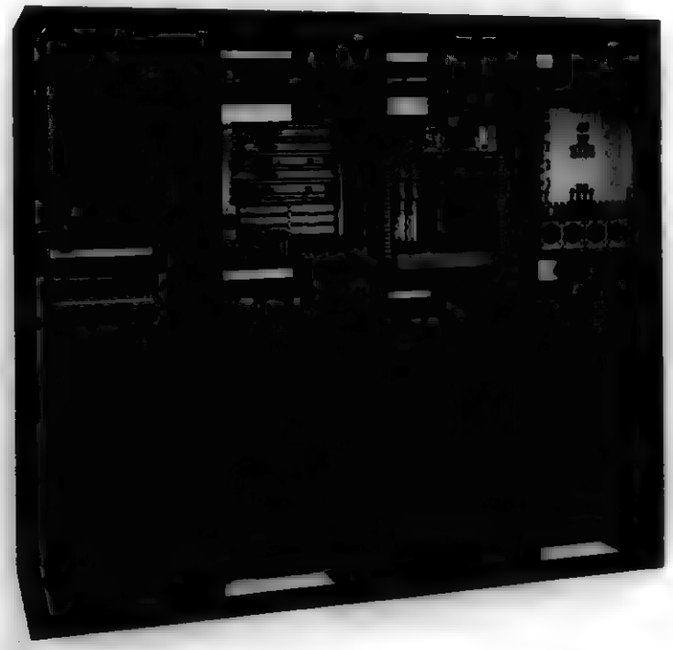


I AM A NETWORK.

I CAN TURN SHELLS INTO MEDICINE. I HAVE THE POWER TO MOVE CLINICAL TRIALS ONLINE SO NEW DRUGS GET TO MARKET FASTER. I HAVE THE POWER TO PROTECT A PATIENT'S PRIVACY. I CAN USE THE POWER OF E-LEARNING TO LET DOCTORS SHARE RESEARCH WITH OTHER DOCTORS. I THINK SHARING IS CARING. I AM MORE THAN A NETWORK.



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TRAFFIC

COMPRESSION RELIEVES CONGESTION

WAN traffic-compression devices can free up bandwidth on busy links, eliminating expensive service upgrades. By Matt Hamblen

QUAKER CHEMICAL Corp. faced a dilemma. The Conshohocken, Pa.-based company wanted to bring a bandwidth-intensive enterprise resource planning (ERP) system online without making costly upgrades to its frame-relay links between five locations in Europe and the U.S. So Bubba Tyler, vice president and CIO, tried installing wide-area network traffic-compression appliances in each location. The devices freed up enough bandwidth to meet the needs of the ERP application. In fact, they performed so well that Tyler is considering reducing the size of the existing connections.

Companies with far-flung operations are increasingly turning to traffic compression appliances as lower-cost alternatives to upgrading the bandwidth of WAN links. The technology behind these appliances isn't all new, but corporate IT budget constraints and a return on investment in as short a time as one year have made the devices an increasingly attractive option.

Some of the compression algorithms used in these appliances have been around for a decade or more and have been available as add-on software or hardware to WAN routers from Cisco Systems Inc. and others. For example, a compression card can be added to Cisco's 2600 router for $995 or to its 3660 and 3700 series routers for $2,000.

But with IT focusing on cost savings, several small WAN compression appliance vendors have jumped in with plug-and-play products that they claim are more efficient and easier to configure. The vendors claim that their tools improve throughput by a factor of two to 10 and boast higher compression rates than compression-enabled switches.

Cisco dismisses the claims. "We've seen interest in compression for years but have never seen the market take off," says Kip Sides, manager of product marketing at Cisco. The reason: the "expense of deploying and managing it, and the benefits aren't really that significant," he says. "We could, over time, see a reasonable benefit to new technologies, but we are skeptical."

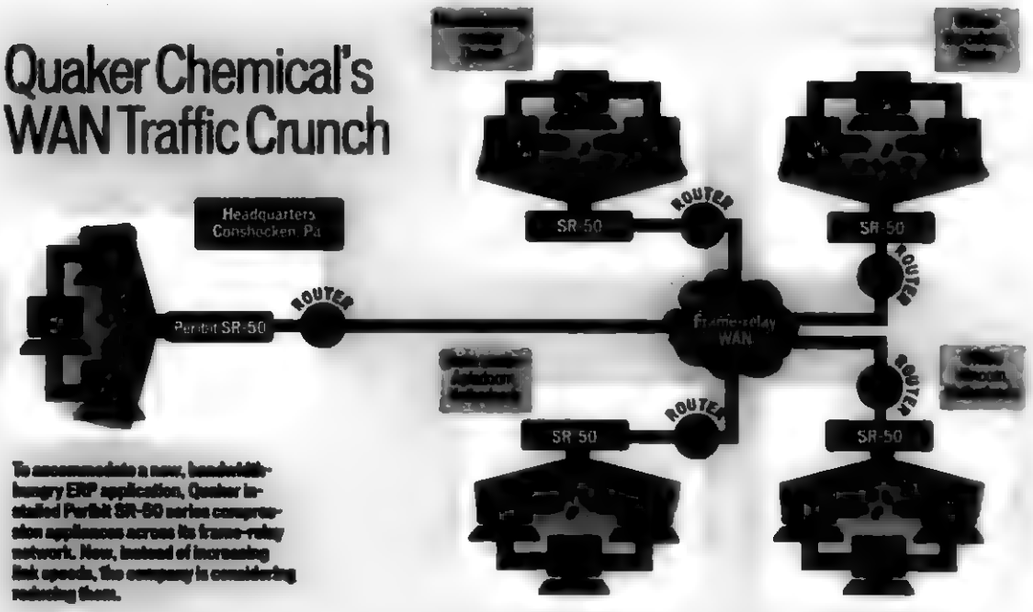
Some users and analysts disagree. Cisco seems focused on providing bigger, more comprehensive networking platforms rather than compression add-ons, says Mark Fabbi, an analyst at Gartner Inc. in Stamford, Conn.

Quaker Chemical's Tyler says he didn't want to go through the time and complexity of setting up his Cisco gear for compression, opting instead for appliances from Peribit Networks Inc. in Santa Clara, Calif. "We could spend days or maybe weeks tuning the Cisco switches and have to use other equipment to do the analysis, or we could just plug in the [Peribit] SR-50s and be up and running," he says.

The results speak for themselves, says Tyler. "We now estimate we won't have to add any bandwidth for our ongoing growth in the ERP and other applications we have on the drawing board," he says. Instead, Tyler is considering reducing the committed information rate on some frame-relay links, which currently range from 256K to 1.44M bit/sec. The SR-50 appliances sell for $6,000 each, but he says it would have cost him three to five times that amount to increase bandwidth, depending on the link.

GeoLogistics Corp. connected 29 branch offices to its global data center in England using Accelerator 1800 de-

Quaker Chemical's WAN Traffic Crunch



To accommodate a new, bandwidth-hungry ERP application, Quaker installed Peribit SR-50 series compression appliances across its frame-relay network. Now, instead of increasing link speeds, the company is considering reducing them.

vices from Expand Networks Inc. at each site and two Accelerator 4800 boxes at the data center, says international network manager Morey Straus. The Santa Ana, Calif.-based global freight logistics provider began adding the devices from Roseland, N.J.-based Expand in 2001, when bandwidth demands started rising as as result of a move from dumb terminals to PCs and thin clients.

"When I first heard about Expand, my initial reaction was that it was probably just more Cisco compression, which gives you maybe a 15% improvement," says Straus. "But with Expand, we've been getting between three to four and a half times the throughput. It's a world away from Cisco compression." Straus says the system paid for itself in three months. His average cost to double the port speed from 64K to 128K bit/sec. on one link was $8,000. He equipped each site with an Expand appliance for less than $2,000; the two boxes at the data center cost $20,000.

Dreyer Medical Clinic in Aurora, Ill., deployed Accelerator boxes on each end of four 56K bit/sec. point-to-point circuits in northeastern Illinois, says Stephen Hart, network and systems administrator.

"We didn't want to upgrade the lines, since it costs from $600 to $2,300 a month to install a T1," he says. The eight appliances, which have been deployed for about two years, cost $12,000, plus $250 annually per appliance for support, he says. Hart says the boxes paid for themselves in less than one year.

Dreyer has since installed Citrix Systems Inc. thin-client applications, which he says could be a "network hog," but the system has been able to support that, he says. "We get up to nine times the performance increase, and there are no data integrity issues," he notes. Most users have no idea the system is in place, he says. "I never get a call saying the system is running fast today, but it prevents a slowdown."

The Secret Sauce

All the vendors use similar technologies that find common bit or byte patterns, replace them with much shorter markers that refer to the original data and transmit those to the recipient. All appliances expand on older, well-established compression technologies such as Lempel-Ziv-Stac, named after its creators. But that doesn't mean the appliances are standardized — or interoperable. Current offerings require the installation of identical compression appliances on each end of a WAN link, usually inside the corporate firewall, to avoid security problems.

Expand uses at least two different compression algorithms. Its appliances sort headers by type of traffic, such as file transfer protocol, and remove redundant information common to each traffic type. They then use a bit pattern-recognition algorithm that determines data stream patterns and caches those on both sides of the WAN.

Peribit has patented a technique it calls Molecular Sequence Reduction (MSR) that's based on pattern-recognition algorithms previously used to study DNA, says Amit Singh, Peribit's co-founder and chief scientist. He claims that MSR holds tens to hundreds of megabytes of patterns, while other devices examine only a 2KB window of data before moving to the next window. MSR also has a built-in "adaptive dictionary" of patterns that puts greater value on the most frequent and largest patterns seen in data streams.

Peribit makes the highest performance claims, but analysts are dubious about the company's claims of technological superiority. "Peribit has made lots of noise about its DNA connection, but its technology is not significantly different than Expand's, [and] Expand has been more successful with customers," says Thomas Mendel, an analyst at Giga Information Group Inc. in Cambridge, Mass. Expand's aggressive pricing may help explain that. Peribit responded in January with the introduction of a new low-end model, the $2,900 SR-20.

WAN traffic appliances remain a niche market dominated by small players. Peribit has been shipping products for just 15 months and boasts 100 customers worldwide, and Expand claims to have more than 500 customers.

Both vendors and analysts expect more users to turn to these devices, but they differ in growth estimates. Jef Graham, president and CEO of Peribit, expects WAN traffic-compression sales to shoot to $5 billion in coming years. "That's overstated by a magnitude of 10 or more," counters Fabbi. Mendel puts that market, which is mainly held by Peribit and Expand, at about $20 million, and he says it will expand to $50 million in mid-2004.

But Mendel also warns that the vendor landscape could completely change in the next two years. He expects the market for stand-alone compression appliances to last perhaps another two years before the functions are absorbed into the next generation of routers offered by Cisco and others. That means an IT manager should deploy only if he expects an ROI in a year or less. "If you can't calculate an ROI of 12 months or less, don't do it," he says.

COMPRESSION DECISION

Quaker's Bubba Tyler discusses the pros and cons.

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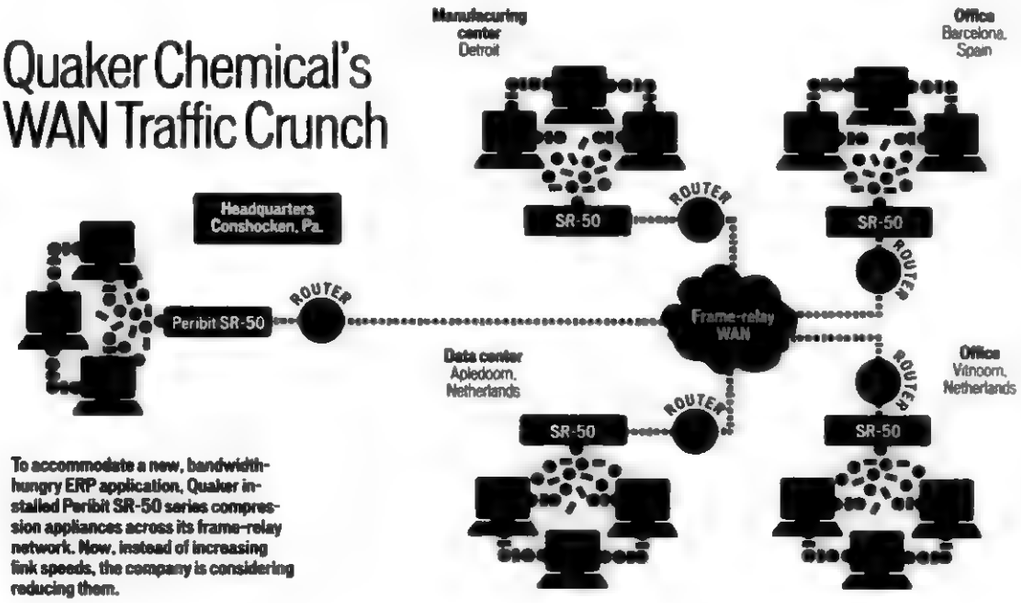
Quaker Chemical's WAN Traffic Crunch



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COMPRESSION DECISION

Quaker's Bubba Tyler discusses the pros and cons

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When Bad Things Happen to Good Demos

A slick security product demonstration only serves to prove that vendors often don't think enough about what security managers need. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

"HOW MUCH MONEY do you have in your budget? You have to be aware that this is very expensive software."

Ah, the not-so-sweet sound of the sales pitch.

Much of my work as a security manager is like that of a juggler, always keeping balls in the air. My daily goal is to deal with the next falling ball, be it a virus attack, a new e-commerce project or some suspected abuse.

This week, however, I was able to lift my gaze for a few days to think about future needs and meet with vendors. And once again, a slick product demonstration showed all too clearly one vendor's fundamental inability to understand our needs.

Two Challenges

We are meeting with vendors to address two challenges. First, we need to better manage the volume of security data we gather. Our antivirus applications, vulnerability data, intrusion-detection systems, firewalls, routers, operating systems and everything else we touch produce valuable security data, but in different formats.

It's expensive to train our staff to understand this modern-day Tower of Babel, and it takes up costly extra time when we must deal with incidents. If we could automatically translate and link security events, we would reduce costs and further improve our defenses.

The second challenge is to step up monitoring beyond our signature-based approach to detect unusual or anomalous behavior that doesn't match a known signature. Given that the SQL Slammer worm is reported to have taken less than 10 minutes to infect every vulnerable system on the planet, it's clear that waiting for an update from a vendor isn't going to work on its own.

Pulling together diverse security information is a common problem, and many vendors have products to address it, including the vendor whose salesman finished up his session with that pitch I quoted in the beginning of this article. I looked into this area a few years ago, and the products were very immature. I was hoping that the latest versions would have something interesting to offer.

We invited several vendors to demonstrate how their software could save us time, effort and cost.

> **The product ran and worked, which in some ways was the curse of their presentation. If they had stuck with PowerPoint screenshots, we wouldn't have seen what made the whole thing useless to us.**

The vendor I mentioned previously certainly put on a good show. Its salespeople arrived with an entire network in a suitcase and proceeded to unpack and set up servers, clients and a hub. The product ran and worked, which in some ways was the curse of their presentation. If they had stuck with PowerPoint screenshots, we wouldn't have seen what made the whole thing useless to us.

Poor Display

The tool pulled in an enormous range of data, stored it in a database, correlated root causes and generated alerts on them. It sounded good.

However, the front-end software had an awful graphical user interface. It was clunky and slow — an unpleasant thing to force on my analysts, who would use it day in and day out.

The procedure that addressed the detection of correlated events was particularly bad. A window popped up that displayed an identification. But when I'm presented with an alert indicating that a whole series of linked things has happened, I want to see the details of all the underlying events and the reasoning used to link them, so I can understand how to respond. The sales team understood this, so they had cut and pasted the ID into a SQL report and run a report against the database.

But the whole point of this application was to reduce my team's manual work. Why couldn't we just click? Apparently, we could add our own scripts to take the action we wanted when an ID was raised.

But isn't the point of buying software to get something that does the work for me? If I wanted a framework, I'd just send all the money I have to BMC or Tivoli.

Then came the deal-killer. If you wanted to see whether new events had occurred within that correlation, the tool couldn't tell you. Instead, you had to rerun the report. So you might get an ID for a few innocuous linked events and discount it, and unless you continually reran the report to check, a bunch of horrible events could be added under your nose. My team has enough problems keeping up with the raw data without adding another layer of work.

Not to worry, though. Apparently, these "minor" issues will be resolved in the next version. If a product saves me a lot of money, then I'll pay a lot for it. It's simple, really. In this case, I don't have to worry how expensive this tool might be, since I won't be buying it.

It looks like I won't be saving money by automating our processes just yet. I'm sure some managed-service providers have ways to do this well. But since that's the core of their business, I doubt they'll sell it to me on a CD.

Perhaps the new generation of anomaly-detection software will have something worth emptying my budget into. But I had best be off to meet with more vendors before all those balls I'm juggling start coming back down.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

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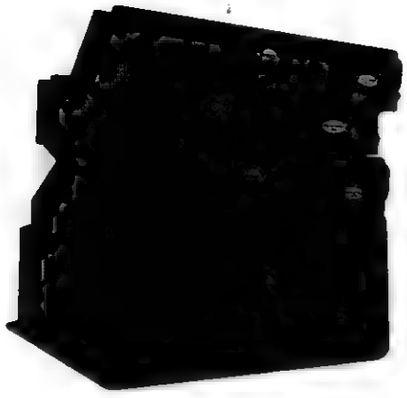

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Presence Technology

DEFINITION

Presence technology allows a network user to know when another user is connected to the network and thus available to receive and immediately answer a communication. Instant messaging, pioneered by America Online, is the first and best-known example of a presence technology.

BY RUSSELL KAY

IN TODAY'S INFORMATION economy, digital technologies let us easily communicate with colleagues and customers around the world. E-mail has given us an asynchronous communications medium that helps free us from the strictures of time-zone differences. We can send a message at any time and get a reply at the other person's convenience.

But there can be times when we may need a quick answer from, say, any of a dozen people, and it takes a while just to find one of that dozen who is available.

QUICK STUDY

With the growing use of instant messaging (IM) technology, such as America Online Inc.'s AOL Instant Messenger (AIM) and Microsoft Corp.'s Messenger services, we now have a better alternative.

If we have those dozen people on our "buddy list," we can tell at a glance if any of their computers are logged onto the network and whether they've been active recently. We can tell if Judy in engineering is open to communications, and we can send her a quick IM to ask a question. Her reply by IM or phone can resolve the problem efficiently.

Although AIM started as a consumer-grade technology, it was quickly adopted by many businesses that saw its advantages in enabling quick communications and providing presence information.

The rapid growth in its use brought competition, notably from Microsoft and Yahoo Inc., which made their own products that interoperated with the AIM servers. However, AOL soon managed to shut them out, and the result for the past several years has been a plurality of competing networks of IM products that can't talk to one another.

Compatibility? Interoperability? Standards? Not yet, but there's hope for the near future (see box below). One potential complication is that in September 2002, AOL received a U.S. patent on IM technology. To date, AOL has given no indication that it intends to charge its competitors with infringement.

A Wider Presence

The traditional model of IM is widening rapidly as more people carry handheld wireless devices and as cellular telephones perform more functions.

LM Ericsson Telephone Co., Motorola Inc. and Nokia Corp. formed the Wireless Village Initiative to build presence technology into their mobile-phone services (also called m-presence capability). Officially known as the Instant Messaging and Presence Services Solution (IMPS), this should let users know if the people they're trying to contact are available, even before they pick up the phone. You'll only have to push a few buttons to see if the other person's phone is turned on and if that person is on the phone, in a meeting or even at lunch.

There's even discussion of using Global Positioning System technology in future versions of m-presence to let you know where a person is even before you make the phone call. This is similar to recent moves to incorporate location data into cell phone transmissions for law enforcement and public safety purposes.

Once that capability is in place, extending it to other devices and other inquiries is a potential next step. But before that can happen, we need more and better interoperability among messaging networks. ●

Kay is a Computerworld *contributing writer in Worcester, Mass. You may contact him at russkay@charter.net.*

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Standardizing IM and Presence

THOUGH MANY INTERNET standards make IM and presence technology possible, there aren't yet any definitive standards across the industry. However, the incompatibility of current IM products, which has resulted in three major silos of users, may be coming to an end.

The Internet Engineering Task Force's (IETF) recently approved a new working group to focus on the Extensible Messaging and Presence Protocol (XMPP).

According to the group's charter (on the Web at *www.ietf.org/html.charters/xmpp-charter.html*), "XMPP is an open, XML-based protocol for near real-time extensible messaging and presence. It's the core protocol of [Denver-based Jabber Inc.'s] Jabber Instant Messaging and Presence technology, which is currently deployed on thousands of servers across the Internet and is used by millions of people worldwide."

Session Initiation Protocol (SIP), a signaling standard for setting up and managing communications sessions between different media, is one of two key protocols for presence technology [QuickLink 35318].

The other important protocol is SIP for Instant Messaging and Presence Leveraging Extensions, which isn't yet an IETF standard but still serves as a uniform way to add presence.

– Russell Kay

Getting the Messaging

PUBLIC SERVICES: These include AOL Instant Messenger, MSN Messenger and Yahoo Messenger. These products:
- Are available to everybody.
- Are often free.
- Use a centralized, third-party server to relay messages.

PRIVATE SERVICES: These three providers of public IM systems also have enterprise versions designed for corporate use: AOL Enterprise AIM, Yahoo Messenger Enterprise Edition and Microsoft Messenger Connect for Enterprises. These products offer:
- Secure IM
- Message logging
- Enterprise-class service
- Corporate control of messaging servers and policies

COLLABORATION TOOLS: These collaboration systems include presence technology:
- IBM Lotus Sametime software
- Groove Networks Inc.'s Groove Workspace
- Microsoft's Windows Server 2003

PRESENCE TECHNOLOGY PRODUCT VENDORS:
- **Bantu Inc.**, Washington, www.bantu.com
- **Comverse Inc.**, Wakefield, Mass., www.comverse.com
- **Dynamicsoft Inc.**, East Hanover, N.J., www.dynamicsoft.com
- **FaceTime Communications Inc.**, Foster City, Calif., www.facetime.com
- **Inventiv Corp.**, Alexandria, Va., www.inventiv.com
- **Jabber Inc.**, Denver, www.jabber.com
- **NotePage Inc.**, Hanover, Mass., www.notepage.com
- **PresenceWorks Inc.**, Alexandria, Va., www.presenceworks.com
- **Vayusphere Inc.**, Mountain View, Calif., www.vayusphere.com

BRIEFS

SCO Group Ships OpenServer 5.0.7

The SCO Group Inc. has released Version 5.0.7 of its OpenServer Unix operating system, with enhanced hardware support, integrated open-source tools and a new SCO Update Service. It's available in Enterprise, Host and Desktop versions and includes Universal Serial Bus 2.0 integration and new driver support. It supports Intel Corp.'s Pentium 4 and Xeon chips, as well as Athlon XP and MP chips from Advanced Micro Devices Inc. Lindon, Utah-based SCO has priced the operating system starting at $899.

Datastick Rolls Out Bluetooth Software

Datastick Systems Inc. in Santa Clara, Calif., last week announced new software that will use Bluetooth wireless technology to connect manufacturing-floor sensors to Palm Inc. handhelds. The software, Datastick Connection Plus BT for ICHM, runs on Palm's Tungsten T and m500 series handhelds with Palm's Bluetooth card. The software is available on a Bluetooth-enabled manufacturing-floor sensor from Oceana Sensor Technologies Inc. in Virginia Beach, Va. Pricing wasn't disclosed.

Vendors Bring Office to Linux

Tarantella Inc. and CodeWeavers Inc. are partnering to offer secure Web access to Microsoft Office and other Windows applications hosted on Linux servers. St. Paul, Minn.-based CodeWeavers will offer a new Internet-optimized version of CodeWeavers CrossOver Office Server Edition, which allows Linux to run Windows applications in a distributed thin-client environment. The software will be available next month as part of Tarantella's Enterprise 3. Pricing starts at $2,360 for 25 users from CodeWeavers and $150 per user from Santa Cruz, Calif.-based Tarantella.

NICHOLAS PETRELEY

And Here's The Pitch

"WELCOME, FOLKS, to the first game of the software World Series, with Microsoft going up against the Customer. I'm Harv Coney, doing the play-by-play with my co-host, Hank Kee.

"Bill Gates is the lead-off hitter for Microsoft, with Jean Paoli on deck. Bill will be facing right-hander Mark Kett tonight. Mark is famous for his Linux-ball, which has given Gates trouble all season. What do you think Bill's going to do tonight, Hank?"

"It's hard to say, Harv. Bill is a good switch-hitter. Remember back in 1996 when Microsoft played Unix Expo in New York? He got an infield single by saying Windows NT was basically the same thing as Unix. But he's almost sure to go for a Unix slam tonight."

"Here comes the first pitch. And it's a Linux-ball, high and inside. Bill swings and misses with a comment about how hard it was for Microsoft to compete when IBM put all its resources behind OS/2!"

"Wow, I don't think anyone saw that coming, Harv. Everyone knows our batboy supported OS/2 more than IBM did."

"Good point, Hank. Now here's the windup. And the pitch. Bill swings and misses with the 'too many incompatible versions of Linux' comment. That's Strike 2. Kett fidgets on the mound. And here's the windup for the 0-2 pitch. He fires another Linux-ball, this time straight down the middle! Bill hits the ball down the left-field line with the comment that 'Linux is like Unix, which is like building a 747 by committee.'

"Left fielder Reggie Stir gets a bead on the ball and catches it easily with the old joke about how Windows is like an attractive plane that explodes in midair without warning. One out; and that brings up Jean Paoli."

"Harv, Jean's had a pretty good batting average against the press with XML this year, but his overall average is low, especially against pennant contenders."

"Here's the first pitch to Paoli. It's a Linux-ball low and outside for Ball 1. Kett works quickly; he winds and deals. It's an OpenOffice change-up. Paoli swings with Office 11 and hits it right to the shortstop, Sunny Micro — who boots the ball! Paoli rounds first base as Sunny finds the handle and throws it to Dot Org at second. Now the runner's hung up between first and second! He's got nowhere to go, and Dot runs him down and tags him for the second out."

"I suspected Jean might get himself into a pickle. If he's lying about opening up the Office document format, there'll be a backlash from customers. If he really opens up the document format, the free OpenOffice will import those documents and draw away customers."

"That's right, Hank. Well, it's up to the next batter, Pat Ent, to give Microsoft a little life this inning. Wait, it looks like Microsoft is sending in Dee R. Emm to pinch-hit for Pat. Dee spends most of her free time promoting digital rights."

"Right now she has to worry about Kett's privacy-ball, Harv. She's been batting under .100 against that pitch all season. But she's had her scouts out researching everything they can find out about Mark Kett and his pitching strategy, and I hear she has a pretty detailed database on Mark — including what he does in his personal life."

"Here comes the first pitch. It's a Media Player-ball low and inside. Emm hits it with a list of all the DVDs Kett has watched over the past six months, but it's out of reach in foul territory. Kett's into his windup; he delivers — and it's way out of the strike zone. Wow, that was almost a wild pitch, Hank. Dee seems to have unnerved him with that last swing."

"Maybe she hasn't listed *all* of the DVDs."

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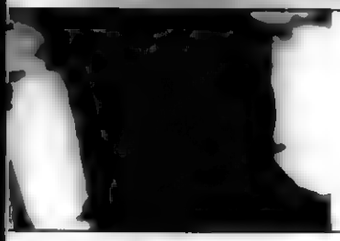

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General Motors farms out nearly all of its IT operations, while Bank One has brought most of its IT work back in-house. Their CIOs tell how business needs and the economy guided their IT decisions. **Page 42**

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OPINION
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Breaking Outsourcing Boundaries

Forget following the conventional rules. Focus on the idiosyncrasies of your business.

By Kathleen Melymuka

OUTSOURCING IS OFTEN A DIRTY WORD among the IT ranks, but CIO George Lin has used it to boost morale at Documentum Inc., a maker of enterprise content management software in Pleasanton, Calif.

When most companies outsource, Lin says, they "keep the core and outsource the context." But Lin gives employee satisfaction equal weight in the outsourcing decision. That has prompted him to keep in-house some areas that many would consider "context" and outsource some that are "core."

"If everybody else is outsourcing something, maybe you should too, but it really depends from company to company," says Lin, whose unconventional approach has made his IT group a model for out-of-the-box thinking at the company.

Lin isn't alone. Iconoclastic IT leaders are learning that when it comes to outsourcing, thinking about the idiosyncrasies of your business is much more important than following the rules. For example, the IT help desk is often the first thing to go because it plays a supporting role that's not seen as adding value. But an early attempt at outsourcing taught Lin that the help desk is the business's window to IT.

"No matter how good your back-end operation is, it's only as good as it's perceived at the help desk," Lin explains. "So if you outsource that without thinking it through, you can create an internal perception that customers are not getting the best service."

Lin's philosophy also led him to outsource Documentum's worldwide network, a core technology for the company, which is dispersed geographically. Senior network engineer Stan Wolf was spending too much of his time manually rerouting traffic among company sites when the Internet or frame-relay network connections failed.

"He was pulling his hair out trying to keep the network working," Lin recalls. And because the company was growing rapidly, the addition of more sites would soon make things worse.

Lin outsourced networking responsibility to Virtela Communications Inc. in Greenwood Village, Colo., which provides and manages a virtual private network across 39 Documentum locations. Each site now has a single primary connection for Internet and wide-area network (WAN) access and a fallback Digital Subscriber Line service in case of failure.

Virtela manages everything, including the last-mile connection and the various intricacies of each site.

The virtual private network has increased bandwidth at the sites by 25% to 100%, decreased latency by 10% and cut WAN costs by half. But most important, Lin says, "we gave the network guy back his sanity. Now, instead of worrying about lights and switches, he's really leveraging his skill set to help the business."

"It can be a big career boost for people when you outsource those things where you can't add value as an internal IT worker," says Julie Giera, an ana-

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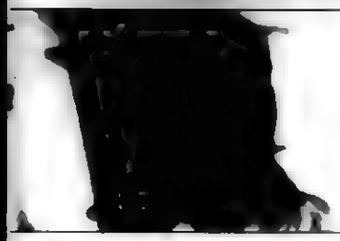
BETH AFFOUMADO



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WATCH

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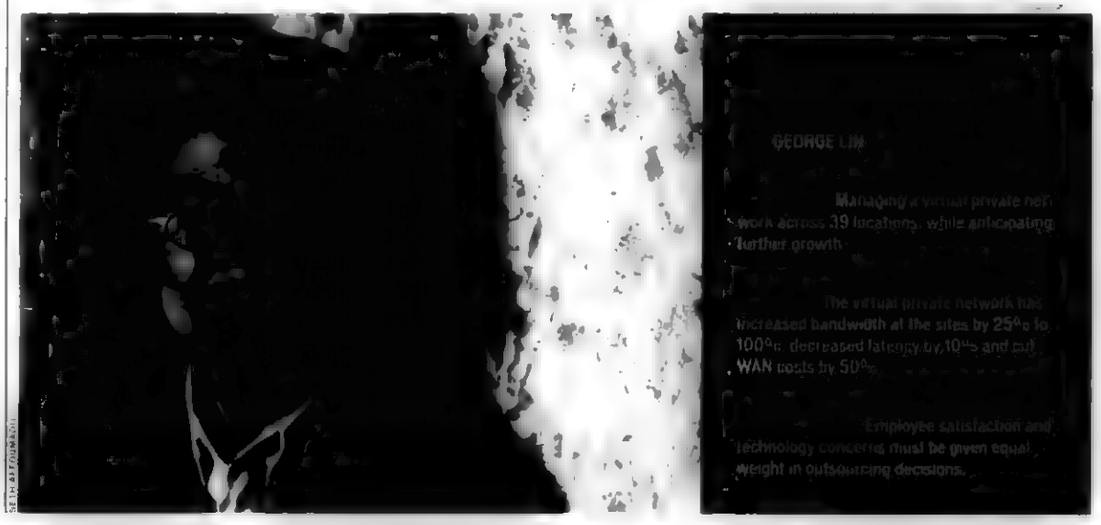

Continued from page 39

lyst at Giga Information Group Inc. in Cambridge, Mass.

Wolf agrees. "This frees me up to focus on business requirements and overall service delivery to internal customers," he says.

Moreover, Lin's unconventional approach has made IT a model department. "Outsourcing has been a very critical component of our strategy," says Documentum CEO Dave DeWalt. "I showcase George and his operations to our customers."

All in the Family

Early in 1998, Y2k preparations and other large initiatives were straining human resources at Allstate Insurance Co. in Northbrook, Ill. Nearly 50% of the IT workers were contractors. "It was extremely expensive and getting more and more difficult to manage," says Mike Scardina, assistant vice president for finance. Contractor turnover was also a problem. "People would walk out the door with two to four years of Allstate knowledge," he says. Allstate had to find a way to keep its intellectual capital and lower costs.

The solution was to bring outsourcing in-house. Allstate's parent company, The Allstate Corp., developed its own offshore outsourcing operation, Northbrook Technology of Northern Ireland Ltd. in Belfast. "We went to Belfast and found the cost structure, language accessibility, culture and time zone all extremely advantageous," says Scardina.

Initially, Northbrook performed maintenance and low-contact development work that didn't require much interaction with the U.S. group. But in its third year, the group is dealing more directly with users in the U.S., maintaining or developing more than 60 Allstate systems, including Unix administration, security, financial and infrastructure applications, and technology for agents, call centers, underwriters and claims. Costs have been reduced by more than half.

Northbrook also has been a source of skills in newer technologies that are harder to find in the U.S. marketplace, such as speech recognition. "It's a great resource for us," says Chief Technology Officer Cathy Brune. "And we don't have to think twice about the contract or developing a whole new relationship," because the people are employees of the parent corporation.

The six-hour time difference gives Brune additional flexibility for shift work, but it also allows real-time communication during the day.

"It's pretty clever," says Giga's Giera. "I think you're going to see this continue as a trend. Just as companies moved manufacturing offshore because it's cheaper to make sneakers in China, programming and IT can be another business process to move offshore."

But it's not for everybody, she adds, citing a large bank in New York that created a subsidiary in India that failed because business units resisted sending work out. "The key is to have executive support, enough work to support it and an incentive for the business units to use the offshore facility," she says. "Otherwise, it won't succeed."

It's also important to treat such outsourcing arrangements as business — not family — relationships, says Stuart Kliman, a director at Vantage Partners LLC, a consulting firm in Boston that specializes in helping companies institutionalize their relationship management capabilities. "You shouldn't assume just because you own [the outsourcing unit that] you will work effectively with them," he says. "I would attend to the core organizational working relationships with as much if not more discipline than I would with a traditional provider."

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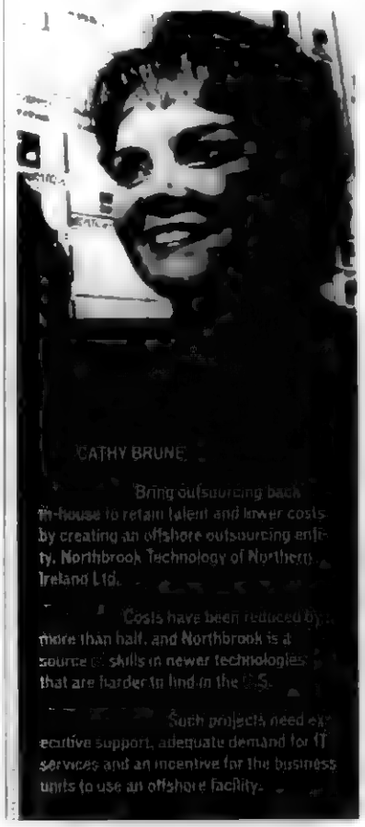

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The Hybrid Approach

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"They focus on improving the technology platform," Rosenberg says. "Our internal IT people focus on issues closer to the customer." For example, the IT group is currently integrating the core system with a new customer relationship management system from Talisma Corp. in Kirkland, Wash. "Banking data and information will be flowing in real time," says Rosenberg. "It requires real-time linkage, so our folks are working on that."

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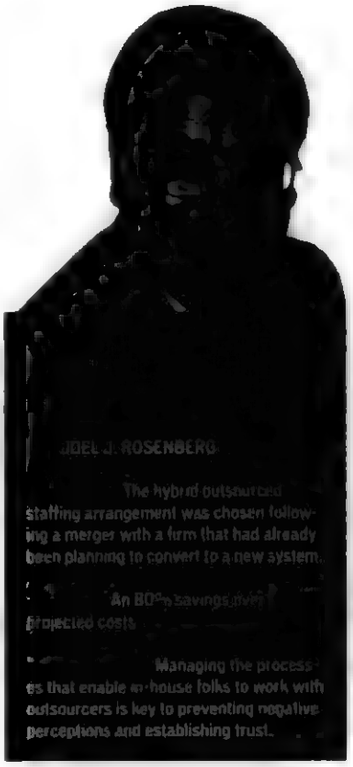

It's also economical. After a recent merger with a financial institution that was planning to convert to a new system, the new partner was drawn into the hybrid arrangement, partly because it was expected to deliver 80% savings over projected costs.

Kliman applauds the practicality of hybrid outsourcing, but he notes that this type of relationship brings challenges. "Companies in this situation should really pay attention to the processes they put in place to enable their in-house folks to work effectively with the outsourcers," he says. "If they don't manage that well, negative perceptions and trust problems could lessen the value."

Keeping your priorities straight is the key to successful outsourcing, says Documentum's Lin. "Outsourcing should improve the agility of the business and the agility of the IT organization and make it more effective," he says. "When it's done right, outsourcing is a win for everybody. If you realize cost savings, that's a bonus."

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Continued from page 39

lyst at Giga Information Group Inc. in Cambridge, Mass.

Wolf agrees. "This frees me up to focus on business requirements and overall service delivery to internal customers," he says.

Moreover, Lin's unconventional approach has made IT a model department. "Outsourcing has been a very critical component of our strategy," says Documentum CEO Dave DeWalt. "I showcase George and his operations to our customers."

All in the Family

Early in 1998, Y2k preparations and other large initiatives were straining human resources at Allstate Insurance Co. in Northbrook, Ill. Nearly 50% of the IT workers were contractors. "It was extremely expensive and getting more and more difficult to manage," says Mike Scardina, assistant vice president for finance. Contractor turnover was also a problem. "People would walk out the door with two to four years of Allstate knowledge," he says. Allstate had to find a way to keep its intellectual capital and lower costs.

The solution was to bring outsourcing in-house. Allstate's parent company, The Allstate Corp., developed its own offshore outsourcing operation, Northbrook Technology of Northern Ireland Ltd. in Belfast. "We went to Belfast and found the cost structure, language accessibility, culture and time zone all extremely advantageous," says Scardina.

Initially, Northbrook performed maintenance and low-contact development work that didn't require much interaction with the U.S. group. But in its third year, the group is dealing more directly with users in the U.S., maintaining or developing more than 60 Allstate systems, including Unix administration, security, financial and infrastructure applications, and technology for agents, call centers, underwriters and claims. Costs have been reduced by more than half.

Northbrook also has been a source of skills in newer technologies that are harder to find in the U.S. marketplace, such as speech recognition. "It's a great resource for us," says Chief Technology Officer Cathy Brune. "And we don't have to think twice about the contract or developing a whole new relationship," because the people are employees of the parent corporation.

The six-hour time difference gives Brune additional flexibility for shift work, but it also allows real-time communication during the day.

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All or Nothing

GM and Bank One take opposite approaches to outsourcing. By Thomas Hoffman

DANIEL LEVIN

INSOURCING VS. OUTSOURCING. It's the great debate these days for many IT executives who are struggling to cost-justify the most effective way to run their IT operations.

But experts say it's not a question of right or wrong, but of which strategy best fits a company's business model.

General Motors Corp. and Bank One Corp. answered the question by taking divergent paths. Along with the business rationales behind their strategic choices, the CIOs at the two companies offer up some of the tough lessons they have learned along their separate ways.

GM's Third Wave

For many people in the IT industry, GM has become synonymous with outsourcing. The $186.6 billion auto giant purchased Electronic Data Systems Corp. in 1984 from Ross Perot and outsourced virtually all of its IT operations to the Plano, Texas-based IT services provider under a precedent-setting 10-year, $40 billion agreement.

In 1996, GM spun off EDS to operate as a stand-alone company and began redistributing some of GM's IT work to other services firms such as IBM, Cap Gemini Ernst & Young and Accenture Ltd. During its 12-year exclusive arrangement with EDS, GM encountered its share of problems in the relationship, but the automaker's commitment to an outsourced model remains fervent.

"If you don't put a model in that works, it makes it look like outsourcing doesn't work," says Ralph Szygenda, GM's CIO since June 1996. He insists that most companies that switch from an outsourced to an in-house approach "typically don't have the right model in place to manage outsourcing." As a result, they mistakenly end up blaming outsourcing as a discipline.

Szygenda acknowledges that "GM had done things wrong in outsourcing its work, but we changed the model; we didn't go back and insource." Early outsourcing mistakes that GM later corrected include contracting a single source for services and farming out management and IT architecture responsibilities to a third party.

Today, in what he calls the company's third wave of outsourcing, Szygenda and his team of 1,700 IT employees manage GM's outsourcing relationships with a multitude of vendors, including all of the major outsourcing companies. The GM IT group also oversees the various vendors' relationships and alignment with GM's eight global operating groups and major subsidiaries, including GMAC Financial Services, Hughes Electronics Corp. and GM Locomotive Group.

During the first wave of outsourcing, by contrast, GM handed all of its IT activities over to EDS. "Pricing was too high because there wasn't any competition," says Szygenda.

Even if a single outsourcer has the best intentions to get the job done, there's no incentive for it to complete tasks within budget and scope, because there's no threat of it being replaced, he notes.

GM has also learned that it's a mistake to outsource strategic management of its IT environment and architecture to a third party, which is what it did under the original agreement with EDS. After Szygenda was brought in and launched the second wave in 1996, he brought strategic IT management and information systems architecture in-house to be driven by GM. Szygenda put in place two layers of IT management at the start of the third wave. These managers report to him and oversee GM's relationships with outsourcers and the business units that they support.

"Every CIO who reports to me has a budget that they're measured against," says Szygenda. The outsourcers all

have to work within the framework that GM has devised, and while they're required to understand the GM businesses that they support, "they don't direct the business," Szygenda says.

Szygenda and his lieutenants believe that GM's existing outsourced model works well for a company its size because it brings the auto giant improved speed and agility for IT decision-making and execution. For example, before GM brought Kirk Gutmann over from Navistar International Corp. in 1997 to be global product development information officer, GM's global operations were bloated, the quality of its vehicles was sagging, and it was taking nearly four years for the company to bring a new vehicle to market.

By tapping into a group of specialty IT service providers, including Microsoft Corp. and Hewlett-Packard Co., and automating many of GM's operations, Gutmann has been able to help remove more than $1 billion from GM's costs and reduce the time to market for GM vehicles to 18 months.

GM's revised outsourcing approach of deploying a wide variety of IT vendors instead of a single vendor such as EDS "has allowed us to shift resources more quickly," says Gutmann. Syzgenda says it has also helped bring about double-digit gains in GM's engineering productivity, in part through GM's savvy use of technology.

GM has driven other hefty bottom-line benefits from its outsourcing model. In 2001 and 2002, GM achieved its first consecutive years of market-share gains in 25 years. The company has also cut $800 million annually from its IT costs for the past seven years. Still, Szygenda is the first to acknowledge that GM's outsourcing model wouldn't work for all companies. "There is no one answer for any company. You have to go in and decide what is best for that company," he says.

Depositing IT at Bank One

Chicago-based Bank One has taken a considerably different approach to managing its IT operations. In 1998, it signed a six-year, $1.4 billion contract with AT&T Solutions to manage the bank's voice and data networks and build an IP-based networking platform.

As part of that agreement, the bank also inked a seven-year, $420 million pact with IBM to manage most of its data center operations, including help desk support. At the time, Bank One, then called Banc One, was in the process of merging with First Chicago NBD Corp.

Since then, a lot more than the name has changed. The bank brought in a new CEO, Jamie Dimon, a tech-savvy veteran of Citigroup Inc., and CIO Austin Adams, the former CIO at First Union Corp. in Charlotte, N.C. The bank also negotiated to end its original contracts with AT&T Solutions and IBM before they were due to expire.

Today, Bank One is intent on maintaining a ratio of 90% in-house IT staff and 10% contractors, most of whom are application developers. Compare that with a 70%-to-30% ratio just two years ago. The key driver behind the change is the dramatic shift in the IT labor market since the go-go days of the dot-com craze, when Bank One was having trouble recruiting skilled IT workers.

"If we would have approached [IT and telecom workers] about working for a bank four years ago, they would have laughed at us," says Adams, who in March 2001 joined the bank, which has $277 billion in assets. "The world has changed a lot in the last three or four years. We've been able to attract a lot of technology talent from firms that have been challenged over the last couple of years."

One of the key accomplishments under the insourced IT model was a $500 million system conversion project that put all of the bank's transaction-related systems, including deposit, loan and treasury systems, on a single platform. The project started in 2001 and was completed in four stages, wrapping up in November 2002. The bank expects the conversions to help it cut $200 million in annual operating costs, improve customer service and give it the ability to more quickly implement new products and services.

Adams insists the decision to rescind the outsourcing agreements with IBM and AT&T Solutions last year wasn't a result of dissatisfaction with either vendor. In fact, the bank still does business with both, he says.

"It's not an issue with an entity; it's philosophical about how we want to do business," says Adams. "We feel strongly that technology is a key part of our company, and our ability to drive that is key and something that we want to more directly control."

It also has to do with containing costs. Adams says the business case for outsourcing those IT and networking functions no longer exists for Bank One. For instance, he notes that the incremental cost for a company its size to buy hardware, software and services directly from manufacturers and service vendors "is significantly lower" than the premiums it would have to pay an outsourcer to provide those resources.

Adams acknowledges that there's a lot of divergence among CIOs over outsourcing. In Bank One's case, he says, "we have a CEO who's very technology-literate and very supportive of us and our ability to manage this space." That helps explain why Bank One has recruited 1,800 IT professionals during the past 17 months, bringing its IT staff to 4,000 people.

Although Adams and Bank One remain committed to insourcing, he wouldn't rule out outsourcing some of its IT functions under the right circumstances. "I wouldn't bury my head in the sand if there was a better value proposition," he says. "It isn't a philosophy embedded in stubbornness but more about the environment and the business case and the economic conditions." ■

Savvy Tips

- **An outsourcing model needs effective checks and balances.** GM compiles report cards for all the vendors it works with, grading them in 20 areas.
- **Competition is key.** Using multiple vendors is critical to motivating them to strive for quality and keep costs down.
- **Don't outsource control** of your company's IT architecture or business processes.
- Make sure that there's a **strong business case** for outsourcing specific IT functions.
- **Management controls** – including project tracking and management systems – are keys to success.
- **One outsourcing model** won't work for every company.

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Predictable Surprises

Here's how to spot IT disasters in the making

Q&A

"You're never too old to be surprised." That was the response of then-Chairman Jack Welch when the European Commission vetoed General Electric Co.'s proposed $42 billion acquisition of Honeywell Inc. in 2001. But **Michael D. Watkins**, *an associate professor of business administration at Harvard Business School, argues that Welch had no business being surprised. In an article in this month's issue of* Harvard Business Review, *Watkins and co-author Max H. Bazerman posit that the institutional blind spots that scuttled Welch's deal are common throughout business and government. Watkins told Kathleen Melymuka how those same flaws can blindside an IT manager to disasters he should have seen coming.*

What's the difference between a true surprise and a problem that could have been predicted? There are many surprises that are bolts from the blue and can't possibly have been predicted. But if you ask senior managers in all kinds of companies whether there are problems they know about that probably are going to get worse and have the potential to flash into major disasters, the answer almost invariably is yes. Should a reasonable leader have recognized, prioritized and mobilized against the problem? If the answer is no, then hold them blameless; but many problems can be identified and dealt with.

You found three common causes of failure that can help managers avoid predictable surprises. What are they? The causes are psychological, organizational and political. Psychological vulnerabilities are flaws in the way people interpret information and make decisions. There's a well-understood tendency, for example, to exist in a state of denial, to stick with the status quo because it's comfortable or because you think that something with a very low probability is never going to happen.

Can you give an example? The Slammer worm. This was a well-recognized vulnerability in systems. The patch had been available forever. But apparently many IT mangers did not do what was necessary to deal with it. It was an entirely predicable surprise.

As an IT manager, how would I recognize psychological bias in my IT department? People tend to harbor illusions that things are better than they are: "We'll get by." It can become a group rationalization. Watch out when you hear people say, "We think it's going to be OK."

If I hear that, what do I do about it? Push back hard: What if it isn't OK? Test the assumptions people are making. Do they hold up? What have they done to test them? Make sure they're not giving undue weight to evidence that supports their preconceptions. Discover what's beginning to happen that, if left unchecked, will be a big problem. Take preventative action. Put on your "myself-a-year-from-now" hat and ask, "What will I be sorry for if I don't do?"

Tell me about organizational vulnerabilities. Those have to do with the way an organization processes information and puts together a picture of what's going on. The key problem is a tendency to silo information. Different people have different pieces of the puzzle, but they never get put together until after the fact. The 9/11 disaster is an example.

What can I do about organizational vulnerabilities? You need a mechanism for sharing information. Sometimes, it requires a cross-functional team put in place to look at emerging issues and trends. The best antidote is a leader forcing a certain kind of information integration that doesn't normally happen.

And what about political vulnerabilities? Political issues have to do with the ability of focused, dedicated special interests to advance their causes or prevent action at the expense of broader interests. In IT, it could be some group absolutely dedicated and focused on preventing having some legacy system taken away. They could be concealing information to protect a piece of overall architecture that is ripe for disaster. They're not going to let you touch their baby till something blows up.

How do you recognize that? Any time you have a fiefdom, you get into this. People are willing to suboptimize the whole in return for a legacy system getting protected too long. They can actually prevent implementation of surprise-avoidance.

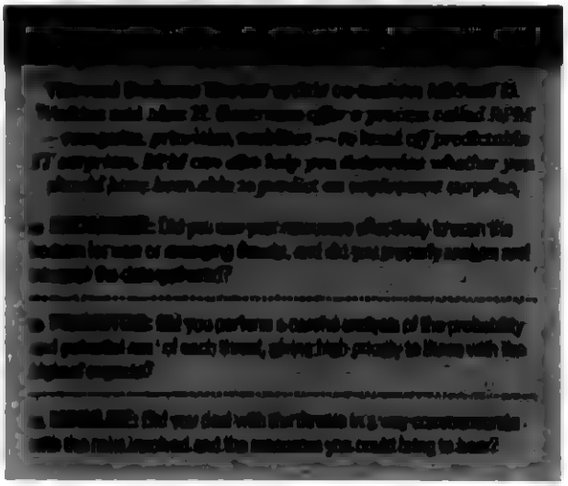
What can I do? Look hard at incentives, and figure out how to alter them so people have more of a reason to cooperate. People often feel if they don't protect what they're working on, their own performance will suffer. You have to convince people to look more broadly, and you have to punish empire-building. If people are letting politics get in the way of the overall organization, you have to clamp down hard.

You recommend some practical "surprise-avoidance initiatives," the first being to ask people what dangers they see brewing. Isn't that obvious? Yes. But it's surprising how seldom people do it, and it's not obvious how you go about doing it. You need to get the right group and get them to work through an exercise, and that's not easy to do.

Why not? Really focusing on problem-avoidance means taking time away from productivity. It's hard to carve out time to engage in that. People see it as a luxury they can't afford right up to the point where they're spending 24/7 dealing with some disaster that was foreseeable.

Once you've identified surprises in the making, how do you prioritize them? You array the threats and look at [their] likelihood and costs and multiply those. Sometimes, that doesn't catch very-low-likelihood but high-cost threats, so it gets back to incentives. You need to create a structure where others see it as in their interest to attack these threats. Put people on notice that if they fail to prevent a preventable problem, they'll be held culpable.

Why is coalition-building important to confront threats effectively? Unless you've got full authority, which never happens, you're in the world of coalition-building. As an IT manager, if you see an emerging problem and you also see organizational resistance to tackling it, you've got to find the pocket of people who agree with you. Ask your customers what would happen if XYZ were to occur. Build momentum around an initiative to tackle the problem. ■



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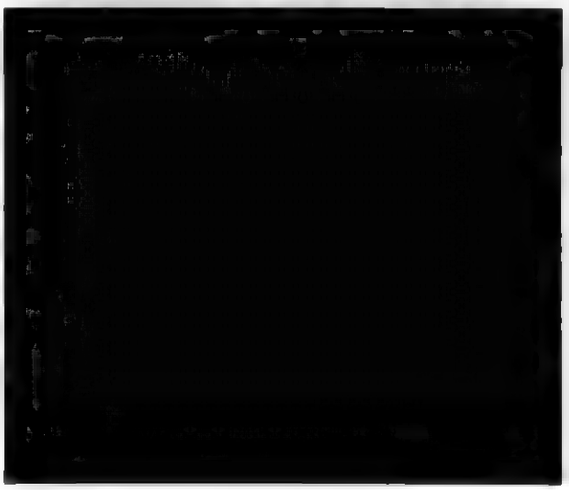

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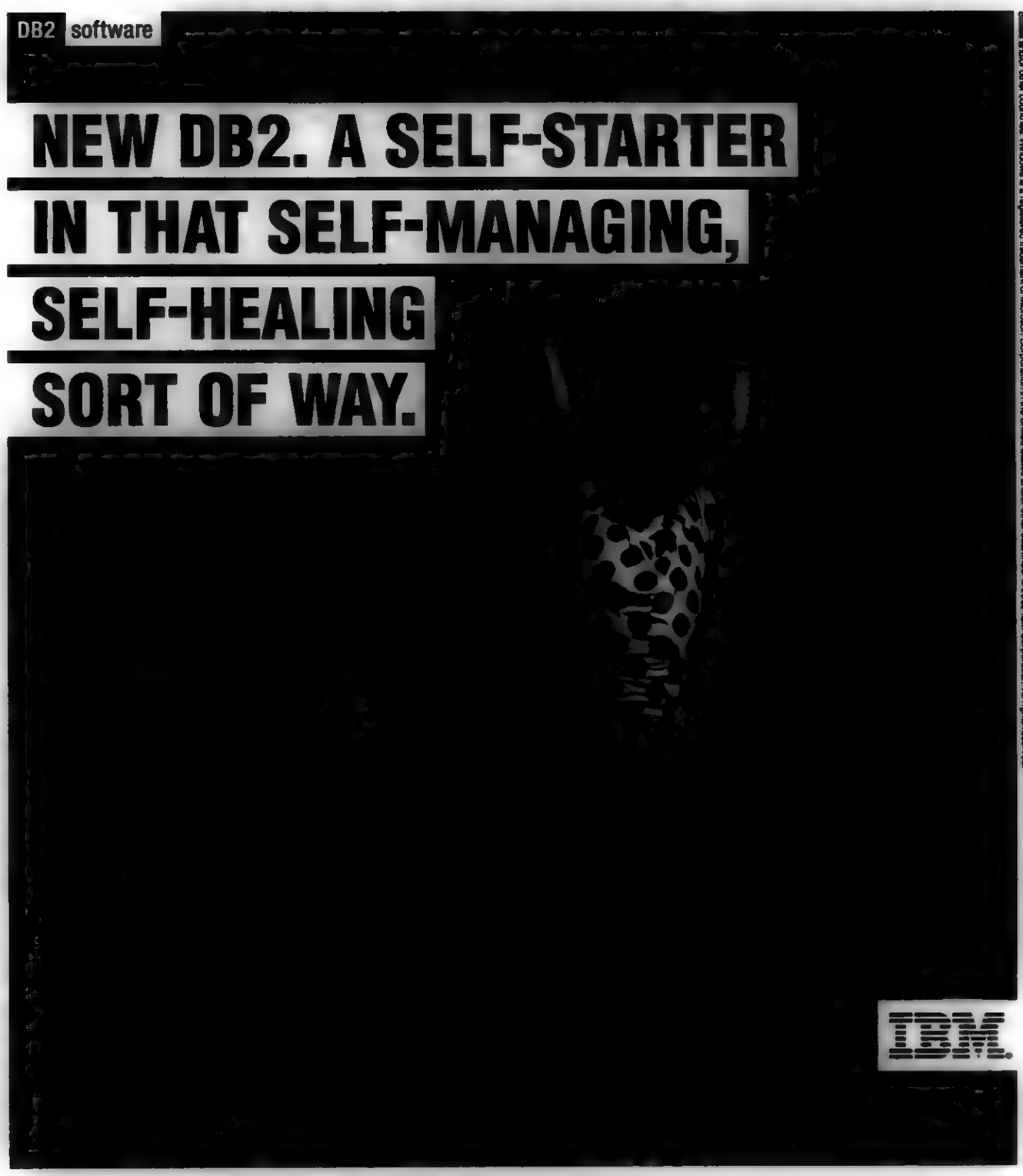

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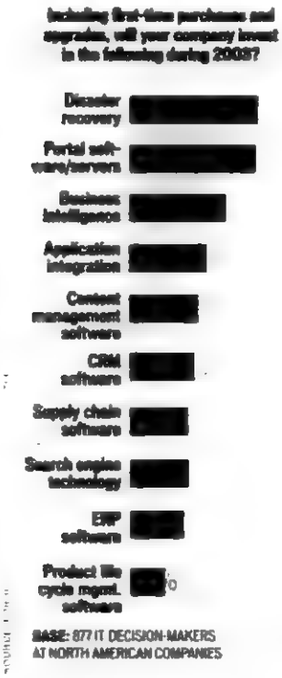
BRIEFS

US Airways Keeps EDS

US Airways Group Inc. has accepted a revised outsourcing contract with Electronic Data Systems Corp. that it had threatened to cancel. Terms of the new deal weren't disclosed. Under a 25-year contract signed in late 1997, EDS provides the airline with data processing and telecommunications services for reservations, ticketing, baggage tracking, and flight and data security. The original agreement was valued at about $200 million per year. US Airways, which has been under Chapter 11 bankruptcy protection since August, had accused EDS of failing to honor the contract's "most favored customer" clause by providing better terms to American Airlines Inc.

IT Spending Sluggish

According to recent survey results from Forrester Research Inc., only 27% of North American IT decision-makers said they will increase their staffs this year. And although 35% said they will increase IT spending by an average of 1.9% in 2003 – a decline from 2.3% in 2002 – the amount of IT being outsourced will inch up from 13% last year to 16% for 2003.



BART PERKINS

Look Before You Leap to Outsource

MOST MAJOR CORPORATIONS are considering outsourcing everything from the corporate cafeteria to IT and beyond. Outsourcing is often touted as an easy way to achieve more functionality for less money, with less aggravation.

But how do these deals actually turn out? Customer-satisfaction researchers at a major IT outsourcer report that most outsourcing relationships deliver less-than-expected results, often leaving both sides disillusioned by the end of the first year.

If you want to pull the plug on your outsourcing deal, be aware that doing so is difficult and expensive at best — outsourcing is primarily a one-way street. You can avoid many outsourcing pitfalls by doing your homework before you negotiate a contract:

1. Define explicit outsourcing boundaries. Many outsourcers will try to persuade you to outsource most or all of IT. Most corporations are willing to outsource commodity functions, but not the areas that give the corporation its competitive advantage. Don't allow yourself to be pushed into outsourcing more than you have determined is appropriate. And never outsource one piece at a time without a master plan.

2. Understand your motives for outsourcing. Before entering into an outsourcing agreement, ruthlessly assess your motives. Are you primarily seeking to cut costs, improve service or allow management to focus on the business? Or has your company simply decided that IT isn't a core competency and just wants to get rid of the aggravation? Being clear about your reasons will allow a fair evaluation of the outsourcing deal after the first year.

3. Carefully analyze and understand your cost structure. Identify and remove inefficiencies before outsourcing; otherwise, only your outsourcer will benefit. Evaluate your cost structure in sufficient detail to have leverage over your outsourcer. Beware of any outsourcer that offers to cut your costs *x*% without doing any analysis!

And if your outsourcer uses the new "utility" pricing for on-demand computing, make sure you understand all the implications — there's not a lot of industry experience with it yet.

4. Analyze the total cost of outsourcing. Before you weigh the price of outsourcing against your current costs, start with the outsourcer's bid, then add the costs of preparing and evaluating a request for proposals, the migration/switching costs and the cost of managing the outsourcer.

5. Assess the hidden effects of outsourcing. Outsourcing imposes discipline on your organization. Shifts in architectural direction can be more difficult. Unplanned changes become expensive and may not occur in the time frame you desire. Adapting to the rigorous processes required by an outsourcer may be difficult in some corporate cultures.

6. Closely examine security and privacy. The new cyberdisclosure laws will essentially make security breaches at your outsourcer equivalent to security breaches at your own company. You will be equally responsible whether your customers' data is compromised, stolen or hacked at your site or the outsourcer's site. Your exposure and liabilities are significantly multiplied — investigate carefully.

7. Communicate honestly with your staff. Outsourcing generates apprehension, and rumors will fly. Unless you have a compelling message and communicate candidly, your best people may walk out the door.

8. Design a viable exit strategy. Supplier failures are occurring at an alarming rate. Explore options and fallback positions before you need them.

9. Make sure initial stakeholders on both sides remain accountable. Many outsourcing arrangements fail because the original stakeholders disappear and their replacements are often far less committed to the deal.

10. Consider offshore options. Advances in communications technology have made offshore outsourcing increasingly viable. Costs can be significantly lower. But understand the impact of international travel, language difficulties and time-zone differences on your business.

The foundation of successful outsourcing is clearly understanding what you are outsourcing and why. Outsourcing can be an excellent solution, but it's not a panacea. Don't follow the outsourcing lemmings blindly over the cliff. Make sure you fully understand what, why, when where, who — and how much. ◗

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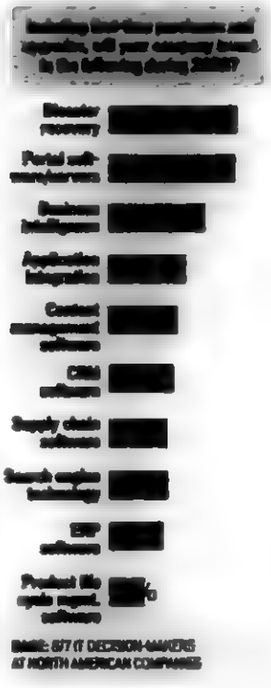

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

BASE: 677 IT DECISION-MAKERS AT NORTH AMERICAN COMPANIES

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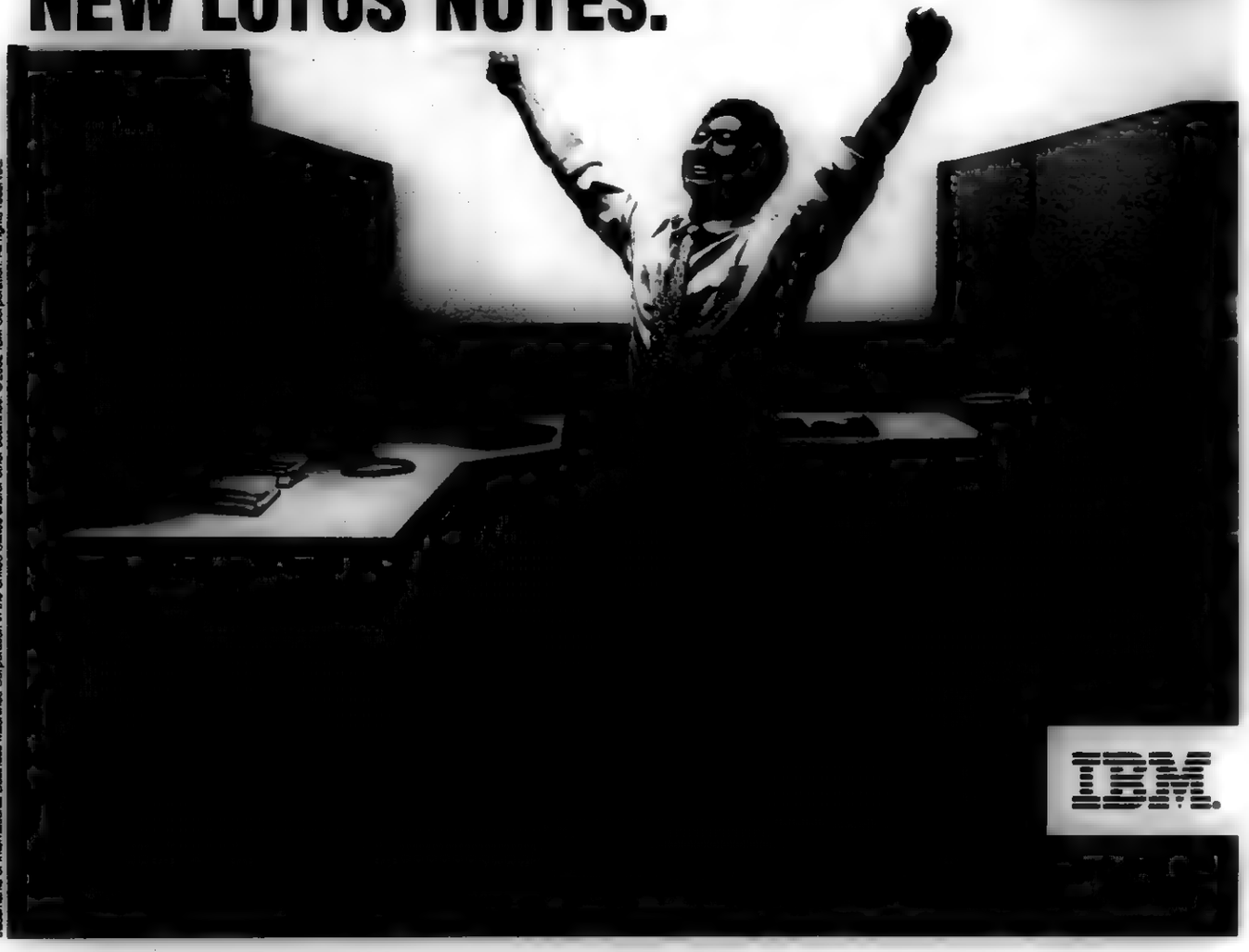

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Application Engineer/Industrial Software needed w/exp to analyze, design & develop industrial automation applications using Step 7 a programming language for SIMATIC S7 PLC'S and SIMATIC NET for configuring SIMATIC Industrial Networks. Provide system integration in the field of factory & process based on PLC (Programmable Controllers) & SCADA (Supervisory Control and Data Acquisition) systems. Design & engineer Control System hardware & related software development. Perform testing & trouble shooting. Send resume to: Control Infotech Inc. 1119-1D, Crab Orchard Drive, Raleigh, NC 27606.

System Administrator wanted to install, configure, support and maintain networks. Bachelor's degree in a Computer related field and 2 yrs. experience in job offered or in Systems Administration in a Telecommunication environment. Experience must include TCP/IP, Ethernet and SQL. Please e-mail resumes to Rebecca.gustamante@radianz.com (subject: Code 0313).

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Initiate, engage, develop, & manage business relationships & partnerships. Prospect generation, preparation & presentation of solutions & proposal preparation & finalization. MBA/Masters in Business/ Computers & 1 yr. exp. Must be willing to travel, use UNIX, Windows, SEI CMM & ISO Concepts. 40.0 hrs./wk. 9:00 AM - 6:00 PM Applicants send cover letter and resume to: SRA Systems Limited, 1945 Cliff Valley Way, #270, Atlanta, GA 30329, ATTN: M. Ankarath

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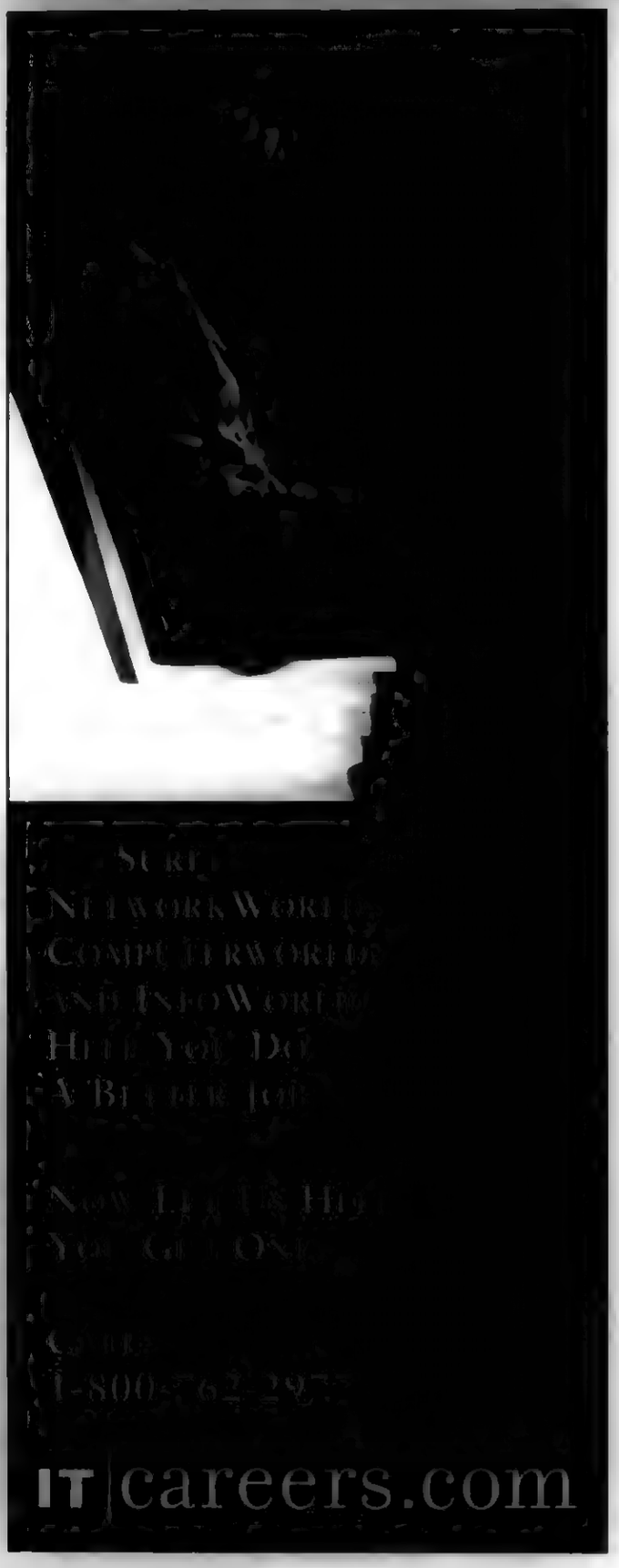

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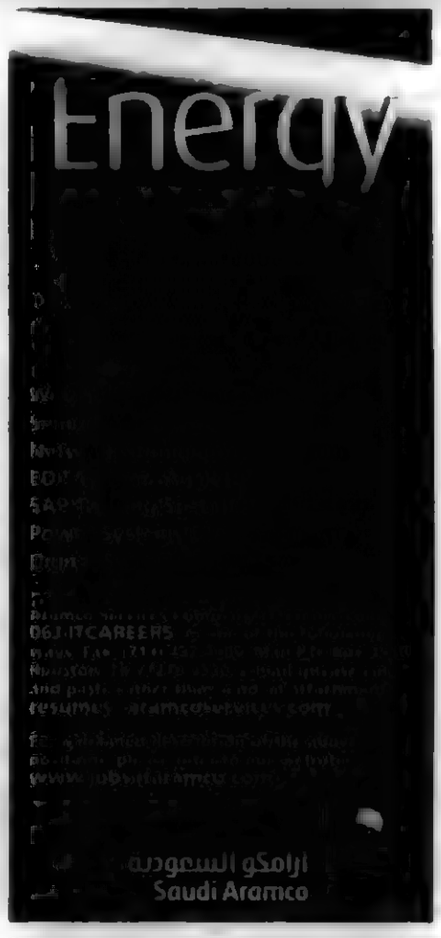

Web Application & Client Server Specialist (Sr. Programmer/Analyst). Web Applic & Client Server Specialist (Sr Prgmr/Analyst) pos works w/clients of ISSI to dsgn & modify tech architecture of client systms, & oversee implmtn. Pos dsgn & dvlp applics & detailed s/ware modules to meet specific reqmts using ASP, MS VB, SQL Server, Client Server, HTML, & C++. Pos serve as project leader. BS or foreign equiv in CS, CE, EE, or MIS + 4 yrs exp in job offd or as Prgmr (or MS + 2 yrs exp.) Exp to incl 1 yr as team leader or mgt + VB, SQL Server, Client Server, ASP, C++, Active X. 40 hrs/wk, $61,214/yr. Must have proof of legal auth to work in US. Send resume to IA Workforce Center, 215 Watson Powell Jr. Way, Suite 100, Des Moines, IA 50309-1727. Please ref to JO: IA11101645. Employer paid ad.

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IT Developer 3, Charlotte, NC. Wachovia Corp. Create doc. detailing hardware & software infrastructure interdependencies of each component & IVR appl dev standards for EIVR environ. Reqs BA in CIS & 3 yrs exp in the pos. OR Software Eng or Comp. Consultant. The 3 yrs reqd exp must incl work w/IVR application design, dev., implementation & work in high-volume call center (2-3 million calls/mos.). 1 yr of reqd exp must incl. IVR sys. w/PBX switches (i.e. Cisco/Geotel ICM, Aspect ACD, SL1, SL100 & AT&T G3) & IVR sys. w/SpeechWorks ASR software or similar software package. M-F, 8-5. Send resume to Randall Buck, Wachovia Corporation, 1525 West W.T. Harris Blvd, NC 0775, Charlotte, NC 28262-0775. No phone calls.

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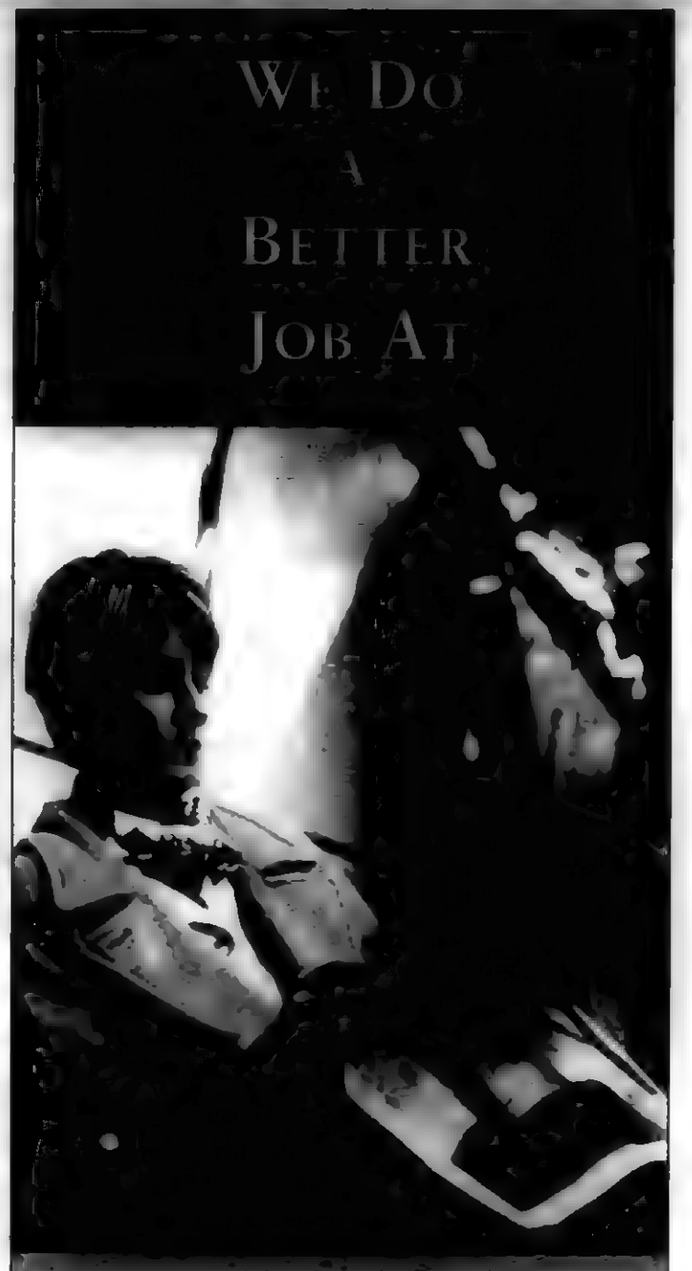

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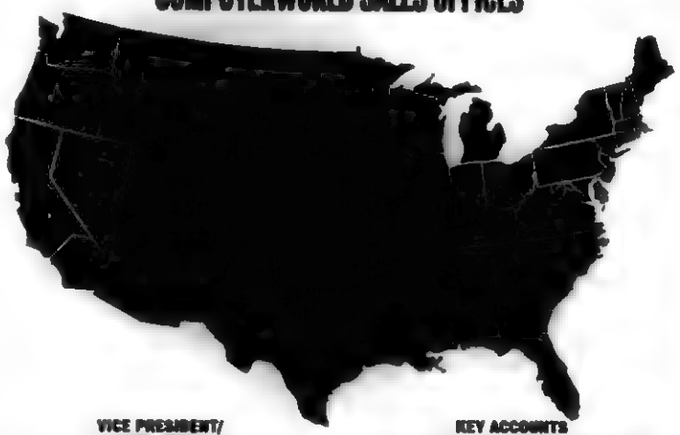

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Companies

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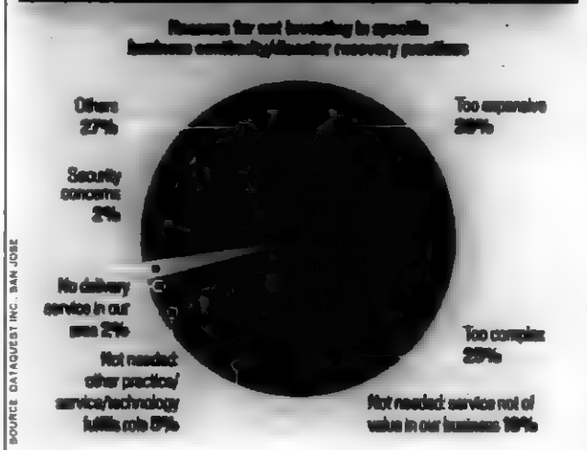
Why Disaster Planning Isn't Funded



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ROLE-PLAYING

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States

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The states are also being pushed into using enterprise architecture by the Bush administration, which wants interoperability with state systems, said Howard Stern, senior vice president of FSI.

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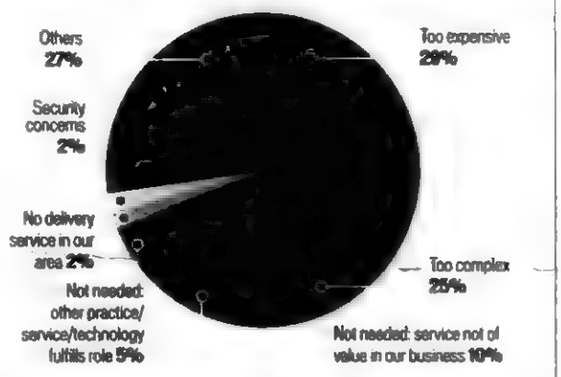
Why Disaster Planning Isn't Funded

Reasons for not investing in specific business continuity/disaster recovery practices



SOURCE: DATAQUEST INC., SAN JOSE

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Correction

In the Newsmaker Q&A in last week's issue, Qwest Communications International Inc., which sold its application service provider division to Corio Inc. last fall, was misidentified as Quest Software Inc., a maker of application management tools.

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Patch It Right Now

HAS YOUR SENDMAIL BEEN PATCHED? Are you sure? If the answer is no, stop reading this and get it taken care of. Not later today. Not later this minute. You're already a week behind, and hackers have had exploit code working since last Tuesday. There are no workarounds. Your firewall won't protect you. Your virus scanner won't protect you. A properly patched sendmail server that's upstream from your site *will* remove the fangs from a malicious e-mail message that exploits this security hole — but do you really want to depend on the kindness of strangers?

You can't afford that risk. So find out. And if you have sendmail systems that haven't been patched or upgraded, do it right now!

How bad is this mess? Between 50% and 75% of all e-mail on the Internet is handled by sendmail servers. The bug that creates the security hole is about a decade old, which means if you're using sendmail, you *do* have the bug.

And since it took less than 48 hours for two separate groups of hackers to come up with working attacks on this security hole after it was officially announced, you can reasonably expect attacks to show up on the Internet pretty quickly, too.

Worse still, you may already have been hit by one. A successful attack won't leave any evidence on your system log. Which means someone who's just testing the technique may already have tried it on your unpatched sendmail systems, and you have no way of knowing.

The good news — yes, there is some good news here — is that this is one very subtle security hole. It's no simple buffer-overflow problem, like so many we've heard about. In this case, the buffer that lets the bad guys in is checked to make sure it doesn't overflow. Trouble is, there's a bug in one of the checking routines. And if a bad guy exploits that coding error — but *only* if the bad guy knows *exactly* how to exploit that specific coding error — sendmail is vulnerable.

Which explains why it took 10 years for anyone to spot the problem, and why it was Internet Security Systems in Atlanta that spotted it, not some malicious adolescent in his bedroom. The problem was buried deep in code that has been available to security experts and nasty crackers alike — and until now, no one spotted it.

That's how far we've come on security: We now have so many researchers digging so deep and looking so carefully that we're finding security holes we once would have called unfindable. We're no longer finding bugs just in newly released software. We're finding and fixing the flaws deep in the bedrock of our IT infrastructure. And that makes us much safer.

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So make it a priority. Subscribe to a security service if you think you need it. If you don't, put someone on your staff in charge of scanning security sites and news groups for patches you need to install.

Then come up with a plan to implement those patches and fixes fast. And make sure the most critical of them can be implemented on an emergency basis.

Because finding deep, fundamental security holes like the one in sendmail really does make us safer. But the price of better security is greater risk — at least until we apply those patches. ▶

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

But It's Better Than the Fax

IT pilot fish is suddenly responsible for phone service, so she asks long-distance provider for a list of phone numbers currently getting service. And gets it – as a blurry 29-page fax. Could you please send it in electronic form? fish asks. "An hour later, I received an e-mail with the file attached," says fish. "It was a Word document with 29 pages of screenshots of the spreadsheet containing our phone numbers."

SHARK TANK

There's Two?

This user complains she can't log on – her Shift key isn't working. True enough, says pilot fish, the left-hand Shift key on her laptop is dead. Is your other Shift key broken too? fish asks. "Other Shift key?" says user blankly. "Oh!"

Could Be . . .

This intranet application ran fine for two months, but now it's crashing the server, so pilot fish opens an error ticket. Four days later, server admins return his ticket marked "Solved," adding, "We watched the error log for four days, and no further entries were written into it, so we assume the problem has disappeared." Sighs fish, "Is it possible that's because the application has not been running for four days?"

Why Not Oil It?

This printer has a paper jam, and it's squeaking too, user tells help desk pilot fish. "What I found when I got there wasn't what I expected," fish says. "A mouse had made the printer casing his home and was partially caught in the rollers. After carefully removing all doors and panels that might block the way, I shook the printer casing and set it on the floor – after which the mouse left the printer."

That Seems Clear Enough

Pilot fish sends self-loading update CDs to field staff every month. But this time, it's more complicated, so fish includes a note that says in big, bold letters at the top, "You must follow these instructions!" Says fish, "I've had about 20 calls that go like this: Have you got the instructions? Yes, I have them in my hands. Have you read them? Click. Dial tone. So far, none have rung back for further instructions."

Where Great Ideas Come From

Consultant pilot fish is on the phone with vendor's support tech, but having trouble – tech keeps throwing out the vendor's internal jargon instead of industry-standard terms. Maybe you could write a dictionary of your terms and customers could study it to make these tech support calls more meaningful, fish suggests sarcastically. "That's a great idea," tech chirps. "I'll talk to my boss about it!"

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FRANK HAYES ■ FRANKLY SPEAKING

Patch It Right Now

HAS YOUR SENDMAIL BEEN PATCHED? Are you sure? If the answer is no, stop reading this and get it taken care of. Not later today. Not later this minute. You're already a week behind, and hackers have had exploit code working since last Tuesday. There are no workarounds. Your firewall won't protect you. Your virus scanner won't protect you. A properly patched sendmail server that's upstream from your site *will* remove the fangs from a malicious e-mail message that exploits this security hole — but do you really want to depend on the kindness of strangers?

You can't afford that risk. So find out. And if you have sendmail systems that haven't been patched or upgraded, do it right now!

How bad is this mess? Between 50% and 75% of all e-mail on the Internet is handled by sendmail servers. The bug that creates the security hole is about a decade old, which means if you're using sendmail, you *do* have the bug.

And since it took less than 48 hours for two separate groups of hackers to come up with working attacks on this security hole after it was officially announced, you can reasonably expect attacks to show up on the Internet pretty quickly, too.

Worse still, you may already have been hit by one. A successful attack won't leave any evidence on your system log. Which means someone who's just testing the technique may already have tried it on your unpatched sendmail systems, and you have no way of knowing.

The good news — yes, there is some good news here — is that this is one very subtle security hole. It's no simple buffer-overflow problem, like so many we've heard about. In this case, the buffer that lets the bad guys in *is* checked to make sure it doesn't overflow. Trouble is, there's a bug in one of the checking routines. And if a bad guy exploits that coding error — but *only* if the bad guy knows *exactly* how to exploit that specific coding error — sendmail is vulnerable.

Which explains why it took 10 years for anyone to spot the problem, and why it was Internet Security Systems in Atlanta that spotted it, not some malicious adolescent in his bedroom. The problem was buried deep in code that has been available to security experts and nasty crackers alike — and until now, no one spotted it.

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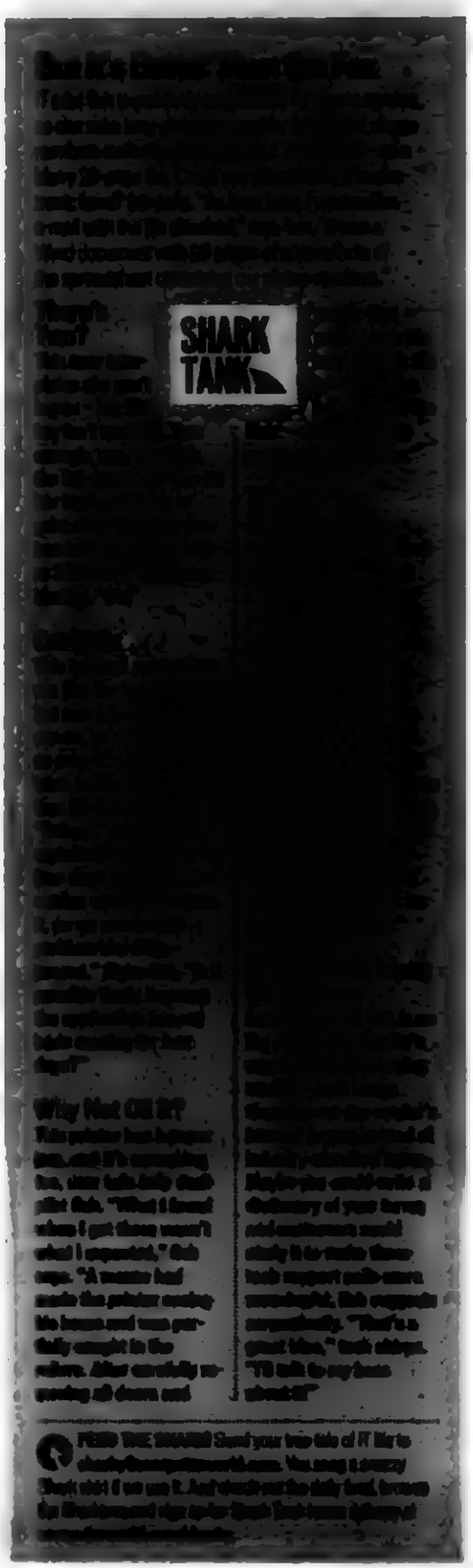

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Your competitive advantage.

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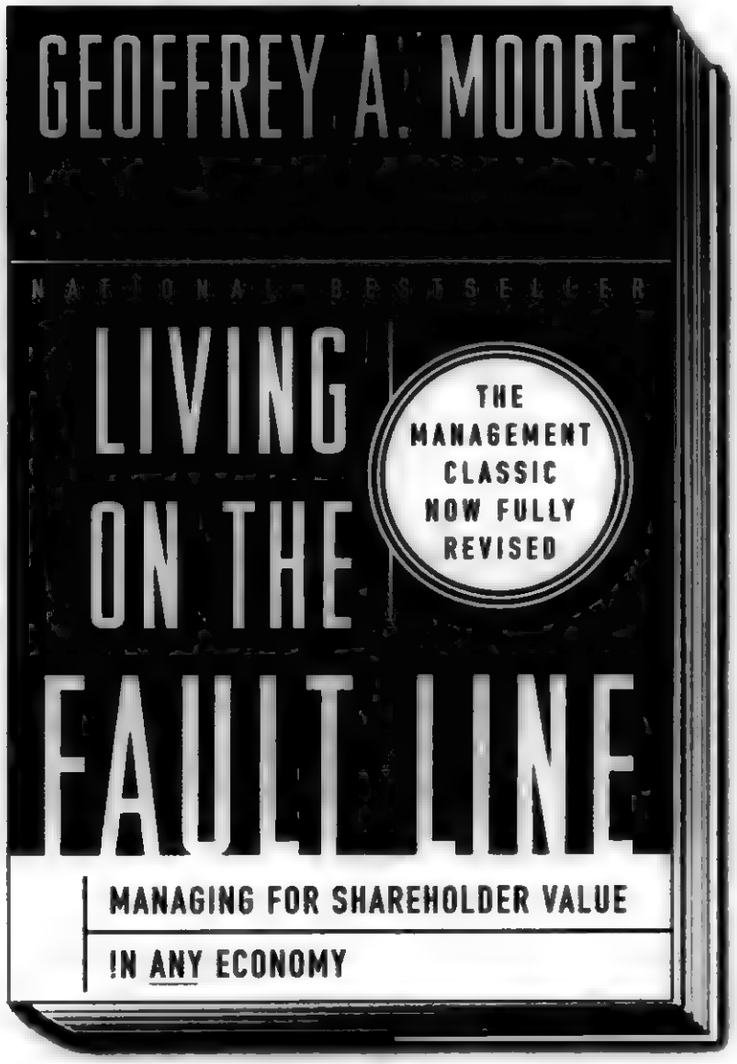

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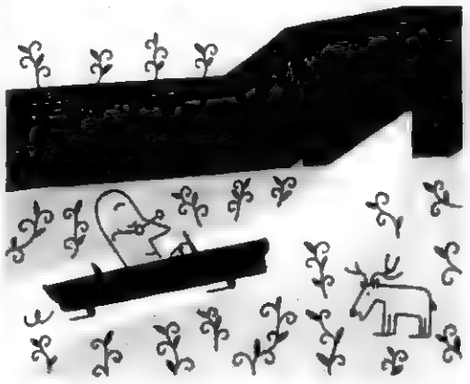
In the Slow Lane



SPECIAL REPORT

Far from the leading edge, thousands of IT managers are trying to figure out how to exploit the Linux phenomenon, switch from IBM's older operating systems to z/OS or upgrade from Microsoft's aging Windows NT Server. Here's a rare look at those users on the lagging edge. Stories begin on page 27.

Online Exclusive
Five things every IT manager should know about Linux
QuickLink 38148
computerworld.com

CYRIL CABAY

Billions Needed to Meet Drug Bar-Code Mandate

FDA order targets drug makers, but hospitals will have to pay for underlying IT infrastructure

BY BOB BREWIN

The Food and Drug Administration last week mandated that drug companies put bar codes on all drugs dispensed in hospitals as a means of reducing medication errors. Hospitals welcomed the prospect of error reduction, even though as an industry they will have to spend billions to deploy the technology.

IT SPENDING

The regulations apply only to drug manufacturers and not to hospitals. But as a practical matter, hospitals will need bar code readers and the networks and systems to support them. The FDA put the cost of deploying those systems at about $7.2 billion.

Hospitals don't appear to be balking at the hefty price tag, because many see it as a worthwhile investment.

Richard Coorsh, a spokesman for the Federation of American Hospitals, a Washington-based association of large, investor-owned hospital companies, said his organization has solidly backed the bar-code regulations. "We believe it will improve care and save lives," he said.

The FDA requirement for standard bar codes will save money for hospitals that have already started to deploy medication management systems, according to Jane Englebright, vice president of quality at HCA Inc. in Nashville. In testimony at an FDA hearing last year, Englebright said the lack of standard bar codes required hospitals to repackage and add

Bar Codes, page 61

IBM Expands Content Offerings

Software upgrade ties electronic documents to CRM applications

BY CRAIG STEDMAN
SOMERS, N.Y.

IBM last week announced upgrades of two content management tools and said it will ship additional features later this year as part of an effort to broaden its support for managing corporate information other than relational data.

Janet Perna, general manager of IBM's data management division, said at a briefing here that the company's flagship DB2 database is being used under the hood of the content management technologies. But the DB2 product line now "means much more than the database," she added.

For example, IBM in September shipped Version 8 of its DB2 Content Manager package, which was rewritten from the ground up to improve scalability and add features such as tighter ties to DB2 and to the company's WebSphere Application Server software. Last week, IBM said it plans to release another

IBM, page 61

IT Systems at U.S. Borders Found Lacking

Nation challenged to build infrastructure to support biometrics

BY DAN VERTON
WASHINGTON

The prospect of war in Iraq has raised new concerns about the Department of Homeland Security's progress in deploying the IT infrastructure needed to improve border security.

Testifying at a Senate Judiciary Subcommittee hearing last week, Asa Hutchinson, the department's undersecretary for border and transportation security, said the DHS would likely meet the Dec. 31 deadline for deploying a new entry/exit system at the nation's airports and seaports. But he said the 2004 and 2005 deadlines for deploying the full array of IT systems along the land borders with Canada and Mexico could prove too difficult and expensive to meet.

Border Security, page 16

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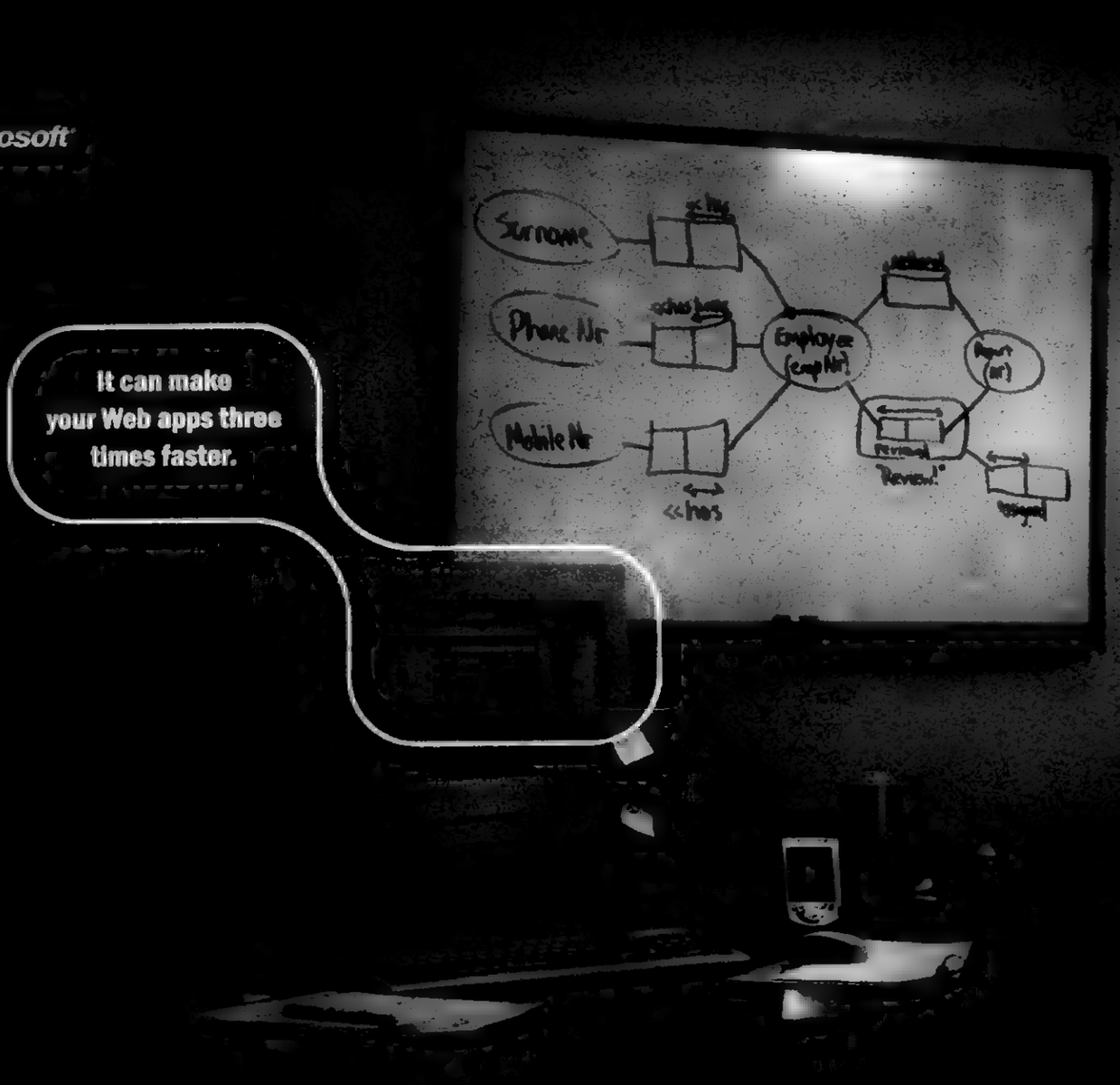

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In the Slow Lane

Leading-edge users have already moved to Linux, z/OS and the latest Windows. Then there's the rest of us. This special report provides useful information for the legions of lagging-edge users who are new to Linux or haven't yet moved to the latest versions of the server operating systems from IBM and Microsoft.

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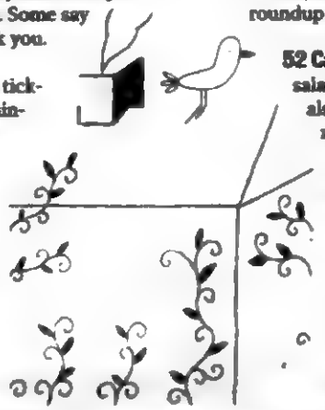
50 The Almanac: The "meta operating system," books about Windows Server 2003 and information on the latest patents are included in this eclectic roundup of OS research and resources.

52 Careers: A look at skills, training and salary information for Linux professionals. **ONLINE:** Linux adoption is on the rise, but don't expect to see a hiring boom in the field. The ease of learning Linux means existing personnel are being retrained. QuickLink 38581

54 The Next Chapter: In a collection of predictions about server operating systems, pundits say that the OS will become vital to Web services. And that Linux will become hugely successful, but fragmented like Unix.



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Is Linux good enough for your organization? Columnist Timothy Witham outlines five points to keep in mind as you weigh your options.
QuickLink 38585

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The SCO Group's senior vice president of technology walks you through a few simple approaches for using Linux and Unix together to strengthen your corporate IT strategy.
QuickLink 38584

Learn to Make Platforms Get Along
Avanade's Christopher Barry offers advice on how to get application development and infrastructure platforms to work together.
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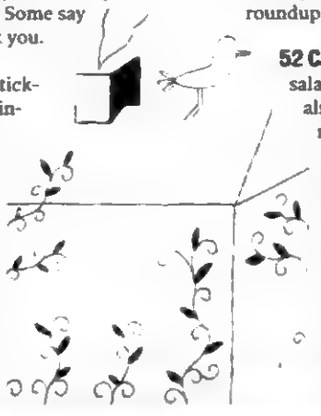

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Avanade's Christopher Burry offers advice on how to get application development and infrastructure platforms to work together.
QuickLink 36660

AT DEADLINE

Symbol Says SEC May File Charges

Symbol Technologies Inc., a maker of bar code scanners and other wireless devices, said it was notified that the U.S. Securities and Exchange Commission may push for civil charges against the company as part of an accounting investigation. Holtsville, N.Y.-based Symbol also delayed until June a planned restatement of its financial results dating back to 1999.

Intel Rolls Out Ethernet Devices

Intel Corp. today will announce a series of Ethernet networking devices, including a Gigabit Ethernet controller for PCs and a 10 Gigabit Ethernet network interface card for servers. The interface card costs $7,995 and is designed to connect LAN-based servers to corporate networks so they can run bandwidth-hungry applications such as imaging, according to Intel officials.

White House Taps Coca-Cola IT Exec

Bush administration officials said that the president plans to name Robert Liscouski, currently director of information assurance at The Coca-Cola Co. in Atlanta, to be assistant secretary of infrastructure protection within the new U.S. Department of Homeland Security. Liscouski's appointment could be announced as early as this week, sources said.

Short Takes

IT consulting firm ACCENTURE LTD. said it laid off about 700 employees, primarily in the U.S. The cuts reduced the company's workforce by 1%, but Accenture said it expects a net increase in head count during its current fiscal year. . . . WORLDCOM INC. said it wrote off $79.8 billion worth of financial goodwill and other assets as part of its bankruptcy proceedings.

Intel Launches Centrino; Wi-Fi Support Still Lags

Mobile technology can access only older 802.11b nets

BY BOB BREWIN

INTEL CORP. launched its much-heralded Centrino mobile technology last week. But unless users are willing to accept relatively slow Wi-Fi access, they will have to wait until the next quarter to get notebooks certified by Intel as Centrino-compatible.

Centrino consists of a newly designed, low-power-drain Pentium-M chip set and a PRO/Wireless mini-PCI card that handles Wi-Fi connectivity. Intel will offer four standard versions of the Pentium-M running at speeds of 1.6, 1.5, 1.4 and 1.3 GHz.

Intel has touted the Wi-Fi capabilities of its Centrino architecture and has made high-profile partnerships with Wi-Fi public-access networks and operators [QuickLink 36929]. But Centrino's built-in Wi-Fi can access only older 802.11b wireless networks, which transmit raw data at a rate of 11M bit/sec. It doesn't support the Wi-Fi 802.11a or 802.11g standards, both of which provide 54M bit/sec. data speeds.

"We had originally planned to introduce Centrino with dual-band, both 'a' and 'b,' " Daniel Francisco, an Intel spokesman, said on Friday. "We announced in December that the dual band would be delayed due to us having to do some additional engineering on 'a.' We will have dual-band [802.11 a and b] out by the end of the second quarter of 2003. As for 'g' we believe an a/b/g tri-band solution makes sense, and we'll look at it when the 'g' specification is completed." The Wi-Fi Alliance expects to start certifying 802.11g products this summer.

Rich Redelfs, president and CEO of Atheros Communications Inc., a wireless LAN chip manufacturer in Sunnyvale, Calif., said notebook vendors have the option of using the Pentium-M processor that's at the heart of the Centrino technology with Atheros 802.11a/b WLAN chip sets now, and with 802.11g or combined 802.11a/b/g chip sets in the near future.

Major hardware manufacturers that have signed on to use the Atheros 802.11 chip sets include Hewlett-Packard Co., IBM, Toshiba Corp. and NEC Corp. But Intel — which is backing the Centrino launch with a $300 million advertising campaign — won't allow manufacturers to slap a "Centrino-compatible" logo on their products unless they incorporate both the Pentium-M processor and its Wi-Fi module. IBM and HP, in addition to offering the Atheros option, are among the top-tier notebook vendors that offer fully compatible Centrino products.

Many large enterprise users view Wi-Fi as a business essential. Tony Scott, chief technology officer at General Motors Corp., said he plans to support thousands of traveling workers with Wi-Fi. Scott called the increase in battery life promised by Centrino a "great step forward" and noted that GM intends to upgrade wireless LANs in its plants from 802.11b to 802.11g.

Analysts expect Intel to eventually incorporate all three Wi-Fi standards into the Centrino architecture, and they view that as the beginning of the end of outboard Wi-Fi packaged in a PC Card. Keith Waryas, an analyst at IDC in Framingham, Mass., said the use of PC Cards for wireless LAN connectivity "will eventually go away" as Centrino-equipped notebooks replace older models.

INTEL'S CENTRINO TIMELINE

OCT 2000 — Announces development of the "Banias" low-power mobile processor.

DEC 2002 — Forms Cometa Networks with AT&T Corp. and IBM to develop a nationwide Wi-Fi network.

JAN 2003 — Changes name of mobile processor architecture from Banias to Centrino.

MARCH 2003 — Launches Centrino with an 802.11b mini-PCI card.

Q2 2003 — Expects to offer an 802.11a/b mini-PCI card on Centrino.

Announces that Banias will use a mini-PCI card that can support only 802.11b Wi-Fi because of engineering problems with a chip meant to support the 802.11a standard.

Microsoft Steers Apps Toward Collaboration

BY MARC L. SONGINI

Microsoft Corp. this week will detail plans to push out technology designed to simplify software integration and to support increased collaboration capabilities for users of its business applications.

At its Convergence 2003 conference in Orlando, Microsoft will try to sell users on the idea that its applications can be used to integrate various business processes, said Lynne Stockstad, general manager of global solutions at Microsoft's business solutions unit. For example, companies could link their employees and business partners in automated workflows that support customer relationship management (CRM), supply chain operations and other activities, she said.

As part of the strategy, Microsoft will unveil integration and user-interface enhancements to simplify development of collaborative applications, Stockstad said. She was sketchy on the details but did say the plan includes adding an end-user portal or a similar role-based interface that will give workers a view of the business functions relevant to their jobs.

Mixing It Up

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Companies at that level often are plagued by continued reliance on repetitive manual processes that bog down productivity, such as having to copy customer information from one application to another, Jones said. Adding a portal isn't a unique step on Microsoft's part, but it could help end users do their jobs more efficiently, she said.

APPLICATION-AWARE

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BY JAMES NICCOLAI

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On April 1, the company will introduce per-processor licensing terms for eight server products to provide a fairer option for customers that use partitioning, said Rebecca LaBrunerie, head of Microsoft's licensing program. Under the new system, businesses will pay for only the processors that the software runs on, rather than for every processor in a partitioned server, she said.

The change could lead to significant cost savings for customers that use partitioning to segregate applications running on a single multiprocessor server, said Alvin Park, an analyst at Gartner Inc. in Stamford, Conn. Some of those customers have complained that Microsoft's current pricing system requires them to pay a license fee for each processor on their servers, even though the software may not actually be running on all of them, Park said.

Using partitioning to cut licensing costs can be complex from a technology standpoint, but the new model offers the potential for big savings for some customers, Park said. The issue mainly affects customers that consolidate single- or dual-processor servers onto larger systems as a way of cutting hardware and systems management costs, he said.

LaBrunerie said the new model will be "a lot more fair and logical" than the current system for customers that use partitioning. Server consolidation is a growing trend among businesses seeking ways to cut IT costs, and the new pricing seeks to address that, she said.

More Flexibility

John Bielec, CIO at Drexel University in Philadelphia, said the new pricing structure will likely help the university cut costs as it continues to replace and consolidate servers.

The new pricing "will give us flexibility in terms of moving [Microsoft server applications] from smaller to larger servers and not getting hit with larger costs" for licensing, he said. Drexel uses two of the affected Microsoft server products, SQL Server 2000 and BizTalk Server 2002. Drexel replaces about one-third of its hardware annually, Bielec said, adding that he expects the savings from the new pricing structure to be reflected in his budget after July 1.

The model eventually will be extended to Microsoft's Windows 2000 server operating system, LaBrunerie said. The company recently acquired technology from Connectix Corp. in hopes of providing software that will let a single Windows server act as a series of separate machines. Microsoft will discuss pricing changes for Windows 2000 when that virtualization software is released, LaBrunerie said.

The new model will also apply to earlier versions of the eight Microsoft products affected by the change, although the company won't offer refunds to customers that have already paid for software they're running on partitioned servers. Those customers will be able to reuse licenses that are freed up by the new system, Microsoft said. For example, under the current model, a user running SQL Server on a partitioned eight-way server is paying for eight processor licenses, even though the software might be running on only four processors. When the new model kicks in on April 1, that customer will have four unused SQL Server licenses in hand, LaBrunerie said.

The changes apply only to customers on per-processor licenses and don't affect the client/server access license model, Park said. ◗

Niccolai writes for the IDG News Service. Computerworld's Todd R. Weiss contributed to this report.

SAP Bundles R/3, Other Apps in New ERP Release

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Announced at the CeBIT 2003 conference in Hanover, Germany, mySAP ERP is the newest release of SAP's flagship R/3 software. The product bundles R/3 with applications that were previously sold separately, including SAP's portal and business-to-business marketplace software.

Deborah Schmidt, global vice president of enterprise solutions at SAP, said mySAP ERP users will also get built-in functions from other applications, such as tools for analyzing human resources and financial data. SAP is exploiting the NetWeaver integration technology it announced in January to add functionality to the ERP software without requiring users to buy licenses for all the pieces of its mySAP suite, Schmidt said.

She added that there will be special pricing for mySAP ERP but didn't disclose details.

Tom Ackerman, senior director of business information systems at R/3 user Symbol Technologies Inc. in Holtsville, N.Y., said the plans outlined by SAP should provide increased integration capabilities and more user interface flexibility. Those are "two important elements which have been missing from traditional ERP offerings," he said.

MySAP ERP also includes support for automating back-office administrative services, such as management of real estate, travel expenses and payments of commissions and other incentives, said Jim Shepherd, an analyst at AMR Research Inc. in Boston.

The new release is available now. SAP also announced a professional services automation application designed to let companies in service industries automate the management of their operations.

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Paola Lubet, vice president of marketing for PeopleSoft's AppConnect integration tools, said Version 8.8 of the company's Enterprise Portal software will also include new capabilities to help IT managers develop intranet sites for groups of end users who need to collaborate with one another.

The portal upgrade will be available this week, although the instant messaging connections aren't due until the fourth quarter, Lubet said. ◗

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Will SAP's strategic direction change when Henning Kagermann becomes the sole CEO? I don't think so. I've worked with Henning for 21 years, and we set out the strategy over the last years together. I'll still play an active role in the form of giving advice.

But all this time, this has been the way we've run the company – not by barking orders, but by convincing people to do things. Pretty much we've been a consensus-driven company.

What has been your main contribution to SAP? I like to play the creative role and took the liberty to live creatively and invent things and, with the help of colleagues, bring them into production and make money. Probably next to that, my best ability is to see early enough when something is reaching its peak and to start thinking about what is the next thing to do.

–*Marc L. Songini*

AT DEADLINE

Symbol Says SEC May File Charges

Symbol Technologies Inc., a maker of bar code scanners and other wireless devices, said it was notified that the U.S. Securities and Exchange Commission may push for civil charges against the company as part of an accounting investigation. Holtsville, N.Y.-based Symbol also delayed until June a planned restatement of its financial results dating back to 1999.

Intel Rolls Out Ethernet Devices

Intel Corp. today will announce a series of Ethernet networking devices, including a Gigabit Ethernet controller for PCs and a 10 Gigabit Ethernet network interface card for servers. The interface card costs $7,995 and is designed to connect LAN-based servers to corporate networks so they can run bandwidth-hungry applications such as imaging, according to Intel officials.

White House Taps Coca-Cola IT Exec

Bush administration officials said that the president plans to name Robert Liscouski, currently director of information assurance at The Coca-Cola Co. in Atlanta, to be assistant secretary of infrastructure protection within the new U.S. Department of Homeland Security. Liscouski's appointment could be announced as early as this week, sources said.

Short Takes

IT consulting firm ACCENTURE LTD. said it laid off about 760 employees, primarily in the U.S. The cuts reduced the company's workforce by 1%, but Accenture said it expects a net increase in head count during its current fiscal year. . . . WORLDCOM INC. said it wrote off $79.8 billion worth of financial goodwill and other assets as part of its bankruptcy proceedings.

Intel Launches Centrino; Wi-Fi Support Still Lags

Mobile technology can access only older 802.11b nets

BY BOB BREWIN

INTEL CORP. launched its much-heralded Centrino mobile technology last week. But unless users are willing to accept relatively slow Wi-Fi access, they will have to wait until the next quarter to get notebooks certified by Intel as Centrino-compatible.

Centrino consists of a newly designed, low-power-drain Pentium-M chip set and a PRO/Wireless mini-PCI card that handles Wi-Fi connectivity. Intel will offer four standard versions of the Pentium-M running at speeds of 1.6, 1.5, 1.4 and 1.3 GHz.

Intel has touted the Wi-Fi capabilities of its Centrino architecture and has made high-profile partnerships with Wi-Fi public-access networks and operators [QuickLink 36929]. But Centrino's built-in Wi-Fi can access only older 802.11b wireless networks, which transmit raw data at a rate of 11M bit/sec. It doesn't support the Wi-Fi 802.11a or 802.11g standards, both of which provide 54M bit/sec. data speeds.

"We had originally planned to introduce Centrino with dual-band, both 'a' and 'b,' " Daniel Francisco, an Intel spokesman, said on Friday. "We announced in December that the dual band would be delayed due to us having to do some additional engineering on 'a.' We will have dual-band [802.11 a and b] out by the end of the second quarter of 2003. As for 'g' we believe an a/b/g tri-band solution makes sense, and we'll look at it when the 'g' specification is completed." The Wi-Fi Alliance expects to start certifying 802.11g products this summer.

Rich Redelfs, president and CEO of Atheros Communications Inc., a wireless LAN chip manufacturer in Sunnyvale, Calif., said notebook vendors have the option of using the Pentium-M processor that's at the heart of the Centrino technology with Atheros 802.11a/b WLAN chip sets now, and with 802.11g or combined 802.11a/b/g chip sets in the near future.

Major hardware manufacturers that have signed on to use the Atheros 802.11 chip sets include Hewlett-Packard Co., IBM, Toshiba Corp. and NEC Corp. But Intel — which is backing the Centrino launch with a $300 million advertising campaign — won't allow manufacturers to slap a "Centrino-compatible" logo on their products unless they incorporate both the Pentium-M processor and its Wi-Fi module. IBM and HP, in addition to offering the Atheros option, are among the top-tier notebook vendors that offer fully compatible Centrino products.

Many large enterprise users view Wi-Fi as a business essential. Tony Scott, chief technology officer at General Motors Corp., said he plans to support thousands of traveling workers with Wi-Fi. Scott called the increase in battery life promised by Centrino a "great step forward" and noted that GM intends to upgrade wireless LANs in its plants from 802.11b to 802.11g.

Analysts expect Intel to eventually incorporate all three Wi-Fi standards into the Centrino architecture, and they view that as the beginning of the end of outboard Wi-Fi packaged in a PC Card. Keith Waryas, an analyst at IDC in Framingham, Mass., said the use of PC Cards for wireless LAN connectivity "will eventually go away" as Centrino-equipped notebooks replace older models.

INTEL'S CENTRINO TIMELINE

OCT 2000 — Announces development of the "Banias" low-power mobile processor.

DEC 2002 — Forms Cometa Networks with AT&T Corp. and IBM to develop a nationwide Wi-Fi network.

JAN 2003 — Changes name of mobile processor architecture from Banias to Centrino.

MARCH 2003 — Expects to offer an 802.11a/b mini-PCI card on Centrino.

Q2 2003 — Launches Centrino with an 802.11b mini-PCI card.

Announces that Banias will use a mini-PCI card that can support only 802.11b Wi-Fi because of engineering problems with a chip meant to support the 802.11a standard.

Microsoft Steers Apps Toward Collaboration

BY MARC L. SONOMI

Microsoft Corp. this week will detail plans to push out technology designed to simplify software integration and to support increased collaboration capabilities for users of its business applications.

At its Convergence 2003 conference in Orlando, Microsoft will try to sell users on the idea that its applications can be used to integrate various business processes, said Lynne Stockstad, general manager of global solutions at Microsoft's business solutions unit. For example, companies could link their employees and business partners in automated workflows that support customer relationship management (CRM), supply chain operations and other activities, she said.

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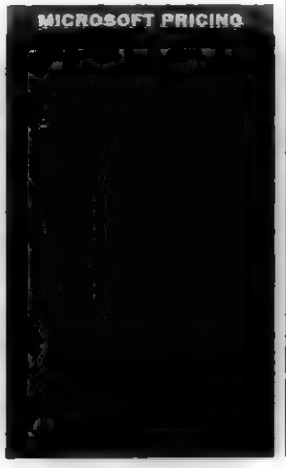
LICENSING



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BRIEFS

Ore. Makes Push For Open Source

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MARK HALL • ON THE MARK

Internet 2 Speed Tricks May Hobble SAN . . .

. . . operations in the data center, **if you don't take precautions,** warns Loki Jorgenson, director of research at jaalaM Technologies Inc., a network consultancy in Vancouver, British Columbia, involved in Internet 2 development. Jorgenson worries that the emergence of large packets (Jumbo Frame or MTU for maximum transmission unit) that have been used to set "land speed records" [QuickLink 35237] on Internet 2 and are available in Gigabit Ethernet are incompatible with the smaller byte-size packets in your run-of-the-mill Ethernet. He points out that there's "no Jumbo MTU standard for GigE," and vendors can set the packet sizes from 16,000 to 2,600 bytes, whereas 1,500 bytes is the set limit for 10MB and 100MB Ethernet. According to Jorgenson, if Gigabit Ethernet vendors "don't default to 1,500, **the data between devices might fall into black holes.**" The most likely place for problems to occur, he predicts, is inside the data center, especially in a SAN, which is likely to employ the higher-speed network gear. During a restore of data, a SAN will likely need to transmit it to a server with lower-speed Ethernet. Jorgenson suggests that network admins **add MTU sizes to their checklist** of must-do tasks when installing Gigabit Ethernet systems, making certain that the network device with capacity for the smallest packet size is the largest MTU for your entire network. Although you won't be setting any land speed records, a slower speed is better than no speed at all. • **Tons of EAI tools are poised for spring** release. SeeBeyond Technology Corp. in Monrovia, Calif., on March 31 will ship eGate 5.0 as part of its Integrated Composite Application Network suite. All of the adapters have been rewritten in compliance with the Java Connection Architecture and run on SeeBeyond's own J2EE app server or WebLogic and WebSphere servers. By June, the company will be adding, among other parts of the suite, eVision Studio 5.0 for **Web and wireless application developers,** who get flashy GUI tools to help them link new apps to business logic and workflow rules. • Farther north in Pleasanton, Calif., Commerce One Inc. next Monday will ship its Composite Process Management Platform, Conductor 6.0. The EAI product includes a host of "process accelerators" — templates for a variety of vertical market business processes and workflow operations. Although Conductor 6.0 will be new, its **product heritage warrants the 6.0** convention, argues Narry Singh, chief marketing officer. As an aside, he says a recent company layoff puts the company back on solid ground **"with money in the bank."** A far better place to keep it than the CEO's mattress. • If you're one of those brave souls pushing ahead with Web services applications, you'll need a tool to identify, monitor and manage the interdependencies among those services. **Or you'll certainly need one when something goes wrong.** That's prompting Actional Corp. in Mountain View, Calif., to make available March 28 a slew of new products to keep an eye on proliferating Web services. Actional's Looking Glass server lets you set policies and receive usage statistics and service alerts through its Active Agents, which run on servers delivering Web services. James Phillips, Actional's senior vice president of marketing, claims that these agents consume only 10 msec of overhead for each transaction. But if you think that's **too steep of a performance price to pay,** you can use the new 4.0 version of the company's SOAPstation proxy server, which also ships March 28. It can implement the policies you set in Looking Glass and manage Web services traffic from a central server. • Thinking about outsourcing your Oracle database administrator's work? Well, you might have already come across Newton, Mass.-based Ntirety LLC. It has been remotely administering Oracle databases for about two years. Maybe Oracle isn't your problem. How about Unix? This week, Ntirety is announcing that it's ready to remotely run Unix systems. And by the end of 2003, claims company founder and CEO Mike Corey, he'll be set to remotely oversee Microsoft SQL Server. "In hindsight," he says, "I'd have started with SQL Server." Why? **"They are less sophisticated users, and there's more of them."** Advice to Mike: Stay away from Redmond for a while. ◗

Na Dad Zones

Wi-Fi users plagued with areas of interference and weak and overlapping coverage can be equipped to pinpoint them when Ekahau Inc. in Saratoga, Calif., ships its Ekahau Site Survey 1.0 monitoring tool on March 28. The software will work on a laptop and cost $895, or $1,545 if you want a GPS add-on.

New CEO to Take Helm at Computerworld

BY DON TENNANT

International Data Group, Computerworld Inc.'s parent company, last week announced the appointment of Robert P. Carrigan as publisher, president and CEO of Computerworld. Effective April 7, Carrigan will be responsible for all business activities of the print publication, as well as online, events and research operations.

Carrigan, 37, is no stranger to Boston-based IDG, having held various executive positions at the company throughout the '90s, including four years as vice president and associate publisher of *PC World*. His move to Framingham, Mass.-based Computerworld will follow four years spent at America Online Inc., where he is senior vice president of interactive marketing.

CARRIGAN

At AOL, Carrigan led the Key Accounts Group, which manages Dulles, Va.-based AOL's largest and most strategic accounts.

Though his aim is to "create new and better ways to deliver information services to IT leaders," Carrigan said, readers shouldn't expect any drastic changes.

"What I can tell you is that we will continue to listen to the readers," he said.

"My sense is that given all of the awards and the accolades and the reach that has been determined by independent studies, *Computerworld* is in fantastic shape from an editorial perspective," he said.

Just last week, *Computerworld* received the Jesse H. Neal National Business Journalism Award in the "Best News Coverage" category for investigative reports last year on security problems associated with wireless LANs [QuickLink 26374]. *Computerworld* was also a finalist in the "Best Web Site" and "Best Staff-Written Editorial" categories. ◗

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MARK HALL ■ ON THE MARK

Internet 2 Speed Tricks May Hobble SAN . . .

. . . operations in the data center, **if you don't take precautions,** warns Loki Jorgenson, director of research at jaalaM Technologies Inc., a network consultancy in Vancouver, British Columbia, involved in Internet 2 development. Jorgenson worries that the emergence of large packets (Jumbo Frame or MTU for maximum transmission unit) that have been used to set "land speed records" [QuickLink 35237] on Internet 2 and are available in Gigabit Ethernet are incompatible with the smaller byte-size packets in your run-of-the-mill Ethernet. He points out that there's "no Jumbo MTU standard for GigE," and vendors can set the packet sizes from 16,000 to 2,600 bytes, whereas 1,500 bytes is the set limit for 10MB and 100MB Ethernet. According to Jorgenson, if Gigabit Ethernet vendors "don't default to 1,500, **the data between devices might fall into black holes.**" The most likely place for problems to occur, he predicts, is inside the data center, especially in a SAN, which is likely to employ the higher-speed network gear. During a restore of data, a SAN will likely need to transmit it to a server with lower-speed Ethernet. Jorgenson suggests that network admins **add MTU sizes to their checklist** of must-do tasks when installing Gigabit Ethernet systems, making certain that the network device with capacity for the smallest packet size is the largest MTU for your entire network. Although you won't be setting any land speed records, a slower speed is better than no speed at all. ■ **Tons of EAI tools are poised for spring** release. SeeBeyond Technology Corp. in Monrovia, Calif., on March 31 will ship eGate 5.0 as part of its Integrated Composite Application Network suite. All of the adapters have been rewritten in compliance with the Java Connection Architecture and run on SeeBeyond's own J2EE app server or WebLogic and WebSphere servers. By June, the company will be adding, among other parts of the suite, eVision Studio 5.0 for **Web and wireless application developers,** who get flashy GUI tools to help them link new apps to business logic and workflow rules. ■ Farther north in Pleasanton, Calif., Commerce One Inc. next Monday will ship its Composite Process Management Platform, Conductor 6.0. The EAI product includes a host of "process accelerators" — templates for a variety of vertical market business processes and workflow operations. Although Conductor 6.0 will be new, its **product heritage warrants the 6.0** convention, argues Narry Singh, chief marketing officer. As an aside, he says a recent company layoff puts the company back on solid ground **"with money in the bank."** A far better place to keep it than the CEO's mattress. ■ If you're one of those brave souls pushing ahead with Web services applications, you'll need a tool to identify, monitor and manage the interdependencies among those services. **Or you'll certainly need one when something goes wrong.** That's prompting Actional Corp. in Mountain View, Calif., to make available March 28 a slew of new products to keep an eye on proliferating Web services. Actional's Looking Glass server lets you set policies and receive usage statistics and service alerts through its Active Agents, which run on servers delivering Web services. James Phillips, Actional's senior vice president of marketing, claims that these agents consume only 10 msec of overhead for each transaction. But if you think that's **too steep of a performance price to pay,** you can use the new 4.0 version of the company's SOAPstation proxy server, which also ships March 28. It can implement the policies you set in Looking Glass and manage Web services traffic from a central server. ■ Thinking about outsourcing your Oracle database administrator's work? Well, you might have already come across Newton, Mass.-based Ntirety LLC. It has been remotely administering Oracle databases for about two years. Maybe Oracle isn't your problem. How about Unix? This week, Ntirety is announcing that it's ready to remotely run Unix systems. And by the end of 2003, claims company founder and CEO Mike Corey, he'll be set to remotely oversee Microsoft SQL Server. "In hindsight," he says, "I'd have started with SQL Server." Why? **"They are less sophisticated users, and there's more of them."** Advice to Mike: Stay away from Redmond for a while. ◗

New CEO to Take Helm at Computerworld

BY DON TENNANT

International Data Group, Computerworld Inc.'s parent company, last week announced the appointment of Robert P. Carrigan as publisher, president and CEO of Computerworld. Effective April 7, Carrigan will be responsible for all business activities of the print publication, as well as online, events and research operations.

Carrigan, 37, is no stranger to Boston-based IDG, having held various executive positions at the company throughout the '90s, including four years as vice president and associate publisher of *PC World*. His move to Framingham, Mass.-based Computerworld will follow four years spent at America Online Inc., where he is senior vice president of interactive marketing.

At AOL, Carrigan led the Key Accounts Group, which manages Dulles, Va.-based AOL's largest and most strategic accounts.

Though his aim is to "create new and better ways to deliver information services to IT leaders," Carrigan said, readers shouldn't expect any drastic changes.

"What I can tell you is that we will continue to listen to the readers," he said.

"My sense is that given all of the awards and the accolades and the reach that has been determined by independent studies, *Computerworld* is in fantastic shape from an editorial perspective," he said.

Just last week, *Computerworld* received the Jesse H. Neal National Business Journalism Award in the "Best News Coverage" category for investigative reports last year on security problems associated with wireless LANs [QuickLink 26374]. *Computerworld* was also a finalist in the "Best Web Site" and "Best Staff-Written Editorial" categories. ◗

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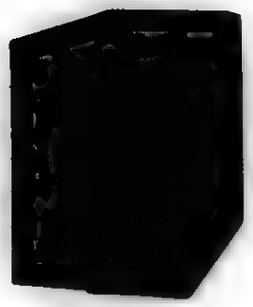

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New IBM iSeries Pricing Won't Benefit All Users

'Sticker shock' could await small and midsize firms

BY JAIKUMAR VIJAYAN
INDIANAPOLIS

NOT ALL USERS of IBM's iSeries systems will benefit from the new software pricing and upgrade options the company announced in January, according to users at the Common trade show held here last week.

While the changes generally reduce complexity and increase cost-effectiveness, some small and midsize shops could face unexpected price increases as a result of the changes, users said.

"Overall, it's a very good effort," said Len R. Eckert, IT director at Jim's Formal Wear Co. in Trenton, Ill. "But there are some customers who will get hurt from it."

"It's fine for what we are doing, but I'm not sure it will work for everybody," added Michael Watson, e-commerce manager at Carhatt Inc., a clothing manufacturer in Dearborn, Mich.

Ian Jarman, an IBM pricing executive, last week acknowledged that some users could see price increases in moving to the new models. But he said the changes were made in response to long-standing demands by users for less-complex license structures.

Impact Varies

The impact of the changes will vary depending on "where you were buying in the previous pricing range and where you will be buying in the new range," Jarman said. But for most users, he said, the move should be a positive one.

IBM in January announced a major pricing change along with several new iSeries hardware models — previously known as AS/400 systems — featuring a wide range of integrated middleware products [QuickLink 35717].

Users that upgrade their systems to the new models will have the option of choosing either a Standard Edition or an Enterprise Edition software package. The Standard Edition offers a bundled database, an on/off capacity-on-demand feature and partitioning capabilities. But users won't have the ability to run green-screen applications — or interactive workloads — on their iSeries systems.

Enterprise Edition users pay a higher upfront fee for a wider set of middleware products and the ability to use the entire capacity of their iSeries systems to run interactive workloads.

According to Jarman, the new pricing structure allows most users to get far more green-screen processing power for substantially less money than they would have paid under the previous license model. It also eliminates the performance caps and complexity associated with the previous multitiered pricing structure. But some users, particularly those with smaller workloads, will find little benefit, users said.

IBM'S iSERIES

New License Model

- Eliminates interactive features.
- Provides users one price for unrestricted green-screen use.
- Gives users one software tier.
- Offers on/off capacity-on-demand features.

Because of the way the pricing is structured now, a company with a relatively small 100-commercial-processor-workload interactive requirement, for instance, could be forced to sign up for the enterprise package on a higher-end box, even if the unlimited green-screen ability that comes with it isn't needed, Eckert said.

"It would be overkill for them," he said.

'State of Flux'

Only a "small subset of accounts" are likely to need the unrestricted green-screen use promised by the new pricing structure, said Jeffrey Corey, a regional sales manager at Computer Configuration Services, an IBM business partner in Indianapolis. Others are still in a "state of flux" over whether to go with the Standard Edition and Web-enable their green-screen applications, or to choose the Enterprise Edition when upgrading, he said.

"I've seen looks of sticker shock" over the price difference between the two pricing models, Corey said. In one test configuration for a customer, the difference between an enterprise software package and a standard one on the same piece of hardware was $102,000, he said.

Users who have already separately purchased much of the software that IBM is now bundling with the higher-end hardware models are likely to see less benefit as well, said Eric Songy, director of IS at Standard Companies Inc. in New Orleans.

As a result, they should get some credit for those investments, he said. Otherwise, "you are paying for a bundle without getting credit for what you have already paid for."

While acknowledging such issues, Jarman maintained that those users will still get additional benefits from some of the new performance tools and software that IBM is bundling with the new iSeries hardware.

HP Rolls Out Usage Metering Product

BY JAIKUMAR VIJAYAN

A new automated metering technology announced by Hewlett-Packard Co. last week builds on the company's efforts to give users the ability to pay for hardware based on actual measured usage.

But companies will need to buy at least four of HP's high-end Superdome servers and commit to using at least 25% of the overall capacity on each to be eligible for the new metering product.

The metering capability will let users more closely align their hardware costs with actual system utilization, said Irv Rothman, CEO of HP's financial services organization, which will deliver the technology to users.

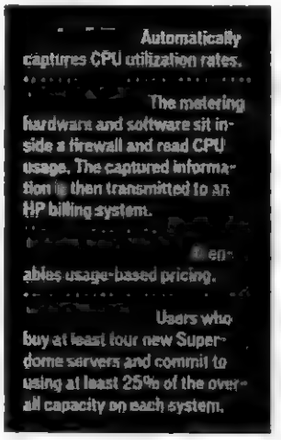
It will allow users to keep extra capacity available at hand but pay for the capacity only when it is actually used.

"It enables customers to lower their total cost of ownership and enhance their return on IT," Rothman claimed.

The metering system expands upon technology that HP has offered since the rollout of its first Superdome servers in late 2000. Earlier HP pay-per-use metering products kept track only of whether a CPU was on or off and provided a monthly usage average on that basis.

The latest version sits behind a company's firewall and determines how much of a CPU's power is being used every five minutes. A monthly average is calculated, and customers are billed based on average percentage of CPU power used.

All of the CPU utilization data is automatically collected, encrypted and transmitted to an HP billing engine without any user intervention or administrative overhead, according to Rothman.



"If a user operates at maximum, this pay-per-use percentage utilization offering is no more expensive than a standard 36-month contract," Rothman said.

BMO Nesbitt Burns Inc., a financial services firm in Toronto, has signed up for the new model, according to Rothman. The company will save $3.3 million over three years compared with what it was paying under previous hardware leases, Rothman said. Officials at Nesbitt Burns were unavailable for comment by press time.

Users must be careful when signing up for such models, said Pat Cicala, president of Cicala & Associates LLC, a contract management consultancy in Hoboken, N.J. But companies that are well organized and know how to manage the peaks and valleys in demand can benefit from a pay-per-use model, Cicala said.

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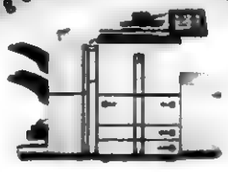

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Brokerages Face Big IT Bills to Comply With USA Patriot Act

Report puts total tab at $700M; many firms said not to have even started

BY LUCAS MEARIAN

A REPORT released last week estimates that the U.S. brokerage industry will spend as much as $700 million through 2005 on technology and outsourcing services in order to comply with the anti-terrorism and anti-money-laundering regulations of the USA Patriot Act.

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"I don't want to say they're not taking it seriously, but of 5,500 registered [securities] dealers in the country, I'd estimate that 1,000 or less are actively building or buying solutions," said Bob Iati, a research director at TowerGroup.

The Patriot Act, which was signed by President Bush in October 2001 in response to the Sept. 11 terrorist attacks, requires financial services companies to develop improved capabilities to identify customers and flag suspicious transactions.

Where the Money Goes

According to TowerGroup, about 39% of compliance budgets is being spent on integrating back-end systems, and 35% is going toward new software. Another 24% of the money is being used to upgrade IT infrastructures, such as hardware and storage, the report says. The remaining 2% is paying for outsourcing services with operators of customer databases, such as Regulatory DataCorp International LLC (RDC) in New York.

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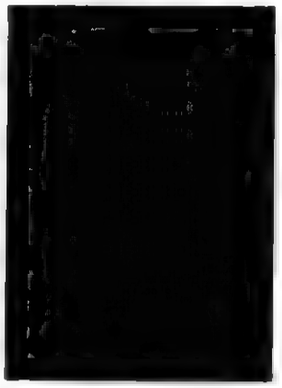
"When [federal regulators] say you should have a compliance system that meets due diligence, you don't know what that means," Catucci said. "The issue is that if you don't meet the requirements, they'll sanction you."

Regulators are first checking to make sure that companies have established the required anti-money-laundering and antiterrorism programs, and then they're examining the actual compliance procedures, said Breffni McGuire, a TowerGroup analyst. "And after that, they're looking to see if you have the technology in place and are using it effectively," McGuire said.

Eric Friedberg is a former federal regulator who is now executive vice president and general counsel at Stroz Friedberg LLC, an IT services and consulting firm in New York. Friedberg said that although most large banks and brokerages are on their way to Patriot Act compliance, many smaller companies don't intend to get there because they don't think it's worth the cost.



"I think the biggest roadblock is budgetary," he said. "The technologies exist to meet whatever high standard of due diligence the government requires. It's just that there has to be commitment by the organization to do it." ◗

EMC Mixes Disk Drives On Its Midrange Arrays

Bridging lets Clariion users add less-expensive ATA disk drives

BY LUCAS MEARIAN

EMC Corp. last week announced a bridging technology that lets its newest midrange storage arrays use lower-cost disk drives. The move is aimed at allowing IT managers to switch from tape-based data archiving to long-term disk storage.

EMC said its Clariion CX400 and CX600 arrays, which are resold by Dell Computer Corp., can be retrofitted with advanced technology attachment (ATA) disk drives alongside or in place of the Fibre Channel drives now used. Arrays with ATA drives for so-called near-line storage will be priced up to 50% below the cost of an all-Fibre Channel configuration, said EMC.

For example, a CX400 array with a 3.7TB storage capacity would cost $19.83 per gigabyte with Fibre Channel drives, compared with a price of $8.61 per gigabyte for an ATA-configured model, said the Hopkinton, Mass.-based company.

ATA drives are mainly used in PCs, but ATA-based disk arrays are an emerging technology for near-line information archiving and storage of fixed data, such as check images. EMC already sells an ATA-based array called Centera for long-term storage of fixed data, and vendors such as Network Appliance Inc. and Storage Technology Corp. also offer arrays with ATA drives.

Jerome Wendt, a senior information systems analyst in storage administration at payments processor First Data Corp. in Omaha, said EMC's entry into the near-line storage arena is piquing his interest in ATA drive technology.

"As I'm starting to look to stage storage in order to move it off to tape, having a name-brand vendor like EMC supporting this [technology] with their services definitely makes a difference," Wendt said. But he added that he's still not ready to move to an ATA-equipped Clariion.

EMC's Clout

Mike Peterson, an analyst at Strategic Research Corp. in Santa Barbara, Calif., said EMC's offering isn't a technical breakthrough. But EMC's clout could help spur a movement away from tape archiving by users who want to keep their data online, said Peterson, who's also executive director of the Enhanced Backup Solutions Initiative, a trade group based in Carpinteria, Calif.

"The concept here is you will be storing information, and lots of copies of it, in multiple locations," he said. "But you have to automate the data protection process, and you can't do that with tape."

Because the Clariion arrays support both Fibre Channel and ATA, users can build hybrid storage servers that mirror or send snapshot copies of data between the two types of disk drives, said Chuck Hollis, vice president of platforms marketing at EMC.

EMC is using 250GB parallel ATA drives that run at 5,400 rpm, compared with top spindle speeds of up to 15,000 rpm on the Fibre Channel drives it offers with the Clariion arrays. The Fibre Channel drives top out at a capacity of 146GB, but they support nearly twice the I/O performance that the ATA devices provide, according to technical specifications.

The I/O differences leave Fibre Channel as the disk technology of choice for transaction processing and other high-performance applications that are run through the Clariion arrays, EMC said. But for longer-term storage, the ATA drives can back up data about 33% faster than tape archival systems, and they can restore that data five times faster than tape libraries can, the company added. ◗

3Com Launches Devices for Sending Power via Networks

New switch and IP phone supports draft Ethernet interoperability standard

BY MATT HAMBLEN

3Com Corp. last week announced a switch that provides electrical power over Ethernet wiring and interoperates with new IP telephones and wireless LAN access devices, freeing users of those products from the need to have separate power cables.

Networking devices that support Power Over Ethernet technology began appearing two years ago and are already being offered by 3Com, Cisco Systems Inc. and other vendors. But all the new 3Com products adhere to a draft interoperability standard called IEEE 802.3af, said Doug Hyde, a product manager at the Santa Clara, Calif.-based vendor.

Nick Lippis, an analyst at Lippis Consulting in Hingham, Mass., said 3Com's new switch and its companion devices are the first products to become available that adhere to the proposed 802.3af standard.

The chief benefit of Power Over Ethernet is that it eliminates the need to connect IP telephones and WLAN access points to power outlets, Lippis said. Companies that use the technology don't need to run power lines to the devices, resulting in fewer wires running over or under desks, he added.

3Com said its 24-port Power Over Ethernet switch, called the SuperStack 3 Switch 4400 PWR, forwards electrical power at low wattages to connected devices. The company plans to add new Power Over Ethernet phones in May and is already shipping a converter module that will let its existing IP telephones work with the new switch instead of requiring power adapters.

Nothing to Unplug

Three new WLAN access devices can also be connected to the switch to get power so they can be placed on ceilings or other locations where power cables and outlets aren't readily available, Hyde said.

Ventura Unified School District in Ventura, Calif., earlier this month began beta-testing the 4400 PWR switch to provide power to some of the 1,200 3Com NBX IP phones it has installed at 22 sites.

Ted Malos, the district's director of technology, said Ethernet power is a "must-have" for the schools. If there's no need to use the power outlets in classrooms, there's no possibility that students will unplug the phones, he noted.

Malos said the school district plans to standardize its future switch purchases on the new 3Com devices, which will also be used to power a new wireless network that's due to be phased in this year. "The switch gives us incentive to go to wireless," he said.

Ethernet switching is a huge market, valued at $10.8 billion worldwide last year, according to Dell'Oro Group Inc. in Redwood City, Calif. But Power Over Ethernet sales are "still very small" and have yet to even be measured, said Julie Learmond-Criqui, a spokeswoman for Dell'Oro.

TECHNOLOGY DETAILS

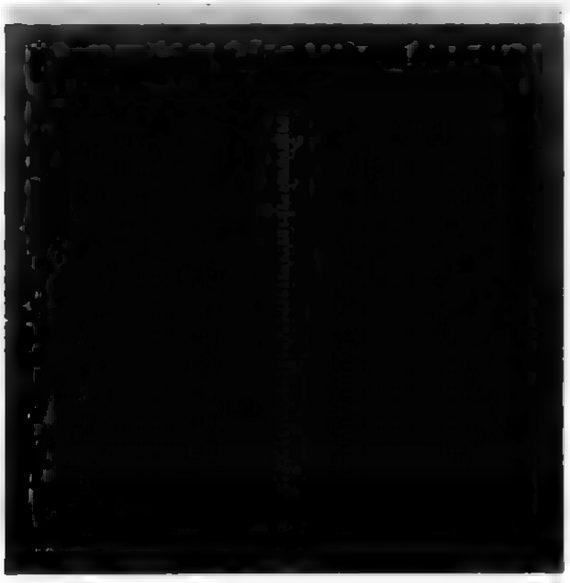
3Com's Power Over Ethernet Devices

SuperStack 3 Switch 4400 PWR: Includes 24 ports; due to ship in April for **$2,495**

NBX phones: Enhanced IP telephones with 802.3af support; due in May for **$500 to $700**

Converter module: Lets older NBX phones work with the new switch; available now for **$30**

Wireless LAN access points: Three models; due this month and priced from **$749 to $1,099**



Gartner Survey Finds Continued CIO Focus on Cutting Costs

But IT execs are also trying to aid innovation efforts

BY THOMAS HOFFMAN

Cost-cutting continues to be the top business issue facing CIOs. But IT leaders are also focusing on ensuring higher levels of information security, improving risk-management procedures and helping to foster more rapid business innovation, according to the results of a Gartner Inc. survey that's being released today.

Meanwhile, CIOs' top IT management priorities this year include providing better technology guidance to senior executives and demonstrating IT's business value (see box). Those findings also come from the Gartner survey, which was conducted online during last year's fourth quarter and drew responses from 620 CIOs and other IT executives worldwide.

The continued focus on reducing internal costs maps with what Bob Alsaker is seeing in his job as information systems director at American Fence Co., a Phoenix-based fence construction and rental firm. "We spent 2002 shoring up our infrastructure and reducing expenses wherever humanly possible," Alsaker said.

But Gartner said its survey, which was conducted by the consulting firm's Gartner Executive Programs unit, also reflected an increased focus on innovative uses of IT. Ellen Kitzis, group vice president of Gartner Executive Programs, said many CIOs have started looking "at the future of business as opposed to sustainability, stability and low cost."

On the other hand, Gartner said the survey results indicate that the long-standing goal among CIOs of creating a single view of their companies' customers is losing some steam. That is primarily the result of the emphasis on cutting costs and the disappointing results some users have experienced with customer relationship management projects, according to Gartner.

Alsaker said there "has been a slight increase in customer-focused initiatives" at American Fence. But because the company is still primarily a brick-and-mortar business, senior management tends to "shun any type of Web-based initiatives," he added.

One of the silver linings that of the survey revealed: The tenure of CIOs has risen from about 18 months at the time of Gartner's 2000 survey to nearly three years, said Kitzis. She added that CIOs "can't think about innovation" if they're worried about being on the job for only 18 months.

Michael Brenner, head of executive search firm Brenner Executive Resources Inc. in New York, attributed the rise in tenure partly to a desire to maintain corporate stability during the current poor market conditions. The increase could give CIOs the chance to have a more sustainable impact on companies, he added.

SOURCE: GARTNER INC., STAMFORD, CONN.

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Under the Patriot Act, Financial Firms Must

SET UP customer identification capabilities – so they know whom they're doing business with.

INSTALL a behavior-detection system that can flag suspicious transactions.

CREATE another system that can produce reports about suspicious activities involving various types of transactions.

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New From EMC

Jerome Wendt, a senior information systems analyst in storage administration at payments processor First Data Corp. in Omaha, said EMC's entry into the near-line storage arena is piquing his interest in ATA drive technology.

"As I'm starting to look to stage storage in order to move it off to tape, having a name-brand vendor like EMC supporting this [technology] with their services definitely makes a difference," Wendt said. But he added that he's still not ready to move to an ATA-equipped Clariion.

EMC's Clout

Mike Peterson, an analyst at Strategic Research Corp. in Santa Barbara, Calif., said EMC's offering isn't a technical breakthrough. But EMC's clout could help spur a movement away from tape archiving by users who want to keep their data online, said Peterson, who's also executive director of the Enhanced Backup Solutions Initiative, a trade group based in Carpinteria, Calif.

"The concept here is you will be storing information, and lots of copies of it, in multiple locations," he said. "But you have to automate the data protection process, and you can't do that with tape."

Because the Clariion arrays support both Fibre Channel and ATA, users can build hybrid storage servers that mirror or send snapshot copies of data between the two types of disk drives, said Chuck Hollis, vice president of platforms marketing at EMC.

EMC is using 250GB parallel ATA drives that run at 5,400 rpm, compared with top spindle speeds of up to 15,000 rpm on the Fibre Channel drives it offers with the Clariion arrays. The Fibre Channel drives top out at a capacity of 146GB, but they support nearly twice the I/O performance that the ATA devices provide, according to technical specifications.

The I/O differences leave Fibre Channel as the disk technology of choice for transaction processing and other high-performance applications that are run through the Clariion arrays, EMC said. But for longer-term storage, the ATA drives can back up data about 33% faster than tape archival systems, and they can restore that data five times faster than tape libraries can, the company added.

3Com Launches Devices for Sending Power via Networks

New switch and IP phone supports draft Ethernet interoperability standard

BY MATT HAMBLEN

3Com Corp. last week announced a switch that provides electrical power over Ethernet wiring and interoperates with new IP telephones and wireless LAN access devices, freeing users of those products from the need to have separate power cables.

Networking devices that support Power Over Ethernet technology began appearing two years ago and are already being offered by 3Com, Cisco Systems Inc. and other vendors. But all the new 3Com products adhere to a draft interoperability standard called IEEE 802.3af, said Doug Hyde, a product manager at the Santa Clara, Calif.-based vendor.

Nick Lippis, an analyst at Lippis Consulting in Hingham, Mass., said 3Com's new switch and its companion devices are the first products to become available that adhere to the proposed 802.3af standard.

The chief benefit of Power Over Ethernet is that it eliminates the need to connect IP telephones and WLAN access points to power outlets, Lippis said. Companies that use the technology don't need to run power lines to the devices, resulting in fewer wires running over or under desks, he added.

3Com said its 24-port Power Over Ethernet switch, called the SuperStack 3 Switch 4400 PWR, forwards electrical power at low wattages to connected devices. The company plans to add new Power Over Ethernet phones in May and is already shipping a converter module that will let its existing IP telephones work with the new switch instead of requiring power adapters.

Nothing to Unplug

Three new WLAN access devices can also be connected to the switch to get power so they can be placed on ceilings or other locations where power cables and outlets aren't readily available, Hyde said.

Ventura Unified School District in Ventura, Calif., earlier this month began beta-testing the 4400 PWR switch to provide power to some of the 1,200 3Com NBX IP phones it has installed at 22 sites.

Ted Malos, the district's director of technology, said Ethernet power is a "must-have" for the schools. If there's no need to use the power outlets in classrooms, there's no possibility that students will unplug the phones, he noted.

Malos said the school district plans to standardize its future switch purchases on the new 3Com devices, which will also be used to power a new wireless network that's due to be phased in this year. "The switch gives us incentive to go to wireless," he said.

Ethernet switching is a huge market, valued at $10.8 billion worldwide last year, according to Dell'Oro Group Inc. in Redwood City, Calif. But Power Over Ethernet sales are "still very small" and have yet to even be measured, said Julie Learmond-Criqui, a spokeswoman for Dell'Oro.

TECHNOLOGY DETAILS

3Com's Power Over Ethernet Devices

SuperStack 3 Switch 4400 PWR: Includes 24 ports, due to ship in April for **$2,495**

NBX phones: Enhanced IP telephones with 802.3af support, due in May for **$500 to $700**

Converter module: Lets older NBX phones work with the new switch; available now for **$30**

Wireless LAN access points: Three models; due this month and priced from **$749 to $1,099**

Gartner Survey Finds Continued CIO Focus on Cutting Costs

But IT execs are also trying to aid innovation efforts

BY THOMAS HOFFMAN

Cost-cutting continues to be the top business issue facing CIOs. But IT leaders are also focusing on ensuring higher levels of information security, improving risk-management procedures and helping to foster more rapid business innovation, according to the results of a Gartner Inc. survey that's being released today.

Meanwhile, CIOs' top IT management priorities this year include providing better technology guidance to senior executives and demonstrating IT's business value (see box). Those findings also come from the Gartner survey, which was conducted online during last year's fourth quarter and drew responses from 620 CIOs and other IT executives worldwide.

The continued focus on reducing internal costs maps with what Bob Alsaker is seeing in his job as information systems director at American Fence Co., a Phoenix-based fence construction and rental firm. "We spent 2002 shoring up our infrastructure and reducing expenses wherever humanly possible," Alsaker said.

But Gartner said its survey, which was conducted by the consulting firm's Gartner Executive Programs unit, also reflected an increased focus on innovative uses of IT. Ellen Kitzis, group vice president of Gartner Executive Programs, said many CIOs have started looking "at the future of business as opposed to sustainability, stability and low cost."

On the other hand, Gartner said the survey results indicate that the long-standing goal among CIOs of creating a single view of their companies' customers is losing some steam. That is primarily the result of the emphasis on cutting costs and the disappointing results some users have experienced with customer relationship management projects, according to Gartner.

Alsaker said there "has been a slight increase in customer-focused initiatives" at American Fence. But because the company is still primarily a brick-and-mortar business, senior management tends to "shun any type of Web-based initiatives," he added.

One of the silver linings that of the survey revealed: The tenure of CIOs has risen from about 18 months at the time of Gartner's 2000 survey to nearly three years, said Kitzis. She added that CIOs "can't think about innovation" if they're worried about being on the job for only 18 months.

Michael Brenner, head of executive search firm Brenner Executive Resources Inc. in New York, attributed the rise in tenure partly to a desire to maintain corporate stability during the current poor market conditions. The increase could give CIOs the chance to have a more sustainable impact on companies, he added.

Top IT Management Priorities for CIOs

1. Providing IT guidance to senior corporate executives
2. Demonstrating the business value of IT
3. Improving the internal governance of IT operations
4. Taking steps to reduce total IT costs
5. Developing or enhancing corporate IT architectures

Base: 620 CIOs and other IT executives worldwide, surveyed in the fourth quarter

Compuware Tools to Support ATM

Compuware Corp. today will announce that it's extending its network performance monitoring and analysis tools to support Asynchronous Transfer Mode (ATM) networks.

The ATM addition to Compuware's NetworkVantage product line includes software-based network probes, as well as a pair of network interface cards that transmit data gathered by the probes to a desktop management console.

Lloyd Bloom, a product manager at Compuware in Farmington Hills, Mich., said the company will also provide a growth management predictor for evaluating the need to expand ATM networks based on real-time and historical performance data.

Fonterra Co-operative Group, a Wellington, New Zealand, company that markets dairy products, plans to use the NetworkVantage tools to manage an ATM network that connects 125 sites in that country, said Stephen Revel, a wide-area network engineer at Fonterra. Revel wants to be able to identify the applications that are using the most bandwidth when network faults occur. "We didn't know before what sort of traffic could be causing downtime," he said.

– *Matt Hamblen*

Recognize any of those issues? Or, perhaps, all of them? We thought so. Many of these issues can be related to your legacy desktop software; fortunately, many of them can be addressed by features in Microsoft® Windows® XP Professional and Office XP Professional. Want specific

examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your end users. With the Send for Review feature, Office XP Professional lets users easily assign roles to everyone involved in the document review cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back into the original document. And finally, several new features make deployment easier than ever. For more ideas about managing your desktops, visit microsoft.com/desktop

BRIEFS

Messenger Adds Camera, Action

Microsoft Corp. has added webcam functionality to its MSN Messenger 5.0 client, allowing users to stream and view live video via instant messages. The webcam features are being provided under an agreement Microsoft signed with Swiss firm Logitech International SA, which is providing the add-in application and maintaining the connection service.

Oracle Upgrades Warehouse Builder

Oracle Corp. last week released Version 9.0.4 of its Oracle9i Warehouse Builder. Enhancements include a new SAP integrator that makes it easier to extract information from SAP AG R/3 systems, better workflow features and support for industry standards to simplify the process of integrating Warehouse Builder with third-party products. Pricing is $5,000 per Named User Plus as part of the Oracle9i Developer Suite.

Cisco Aggregates SAN, LAN Traffic

Cisco Systems Inc. last week announced enhancements to its ONS 15530 Multiservice Aggregation Platform, with the aim of combining storage-area network (SAN) traffic with services such as Gigabit Ethernet over a single fiber-optic link using dense wavelength division multiplexing.

Short Takes

IBM and BELLSOUTH CORP. will jointly offer hosting and network services to firms in the southeastern U.S., particularly small and medium-size businesses. . . . Fashion retailer BENETTON GROUP SPA plans to attach radio frequency identification smart tags to its Sisley clothing line to help track shipping, inventory and sales in the Italian chain's 5,000 stores around the world.

Outdated Technology Hampers National Amber Alert System

Pending bills don't include funding for revamp of network

BY PATRICK THIBODEAU
WASHINGTON

THE RESCUE last week of Elizabeth Smart, the Utah teenager who was kidnapped nine months ago, has brought renewed calls for a national Amber Alert system to help find missing children. But if Congress approves the plan, it will be implementing the system on top of a technology that isn't fail-safe or as effective as it could be, say critics.

The technology underlying the Amber Alert system is the Emergency Alert System (EAS), the direct descendant of the Emergency Broadcast System begun during the Cold War and known by its "This is only a test" warning message.

The bills before Congress to require Amber Alert to be adopted nationwide don't include funding for revamping the EAS. Amber Alert currently operates in 39 states, and some of them are still using a communications system that relies on radio relays between radio and television stations to disseminate emergency information.

"The EAS system doesn't reach enough people, particularly when you are talking about life-threatening issues like a terrorist attack or drifting gas leak," said Peter Ward, chairman of the Partnership for Public Warning, a McLean, Va.-based group formed last year that includes emergency preparedness experts.

Ward said there's a need to develop new systems for reaching the public that can link emergency messages to cell phones, pagers, personal digital assistants or any other communication device.

There are no standards for developing a ubiquitous warning system, nor is there much interest in Congress at this point, he said. President Bush in October proposed $10 million to beef up the Amber Alert program, and pending bills include funding. But most of the money will go to electronic highway signs and training, not to new technologies.

> **"The EAS system doesn't reach enough people, particularly when you are talking about life-threatening issues."**
>
> PETER WARD, CHAIRMAN, PARTNERSHIP FOR PUBLIC WARNING

The problem with transmitting emergency messages over the existing EAS is that "any one station along the way could have tripped it up if they didn't hear it, or messed up if their equipment was down," said Dale Gehman, vice president of technology at the Pennsylvania Association of Broadcasters in Harrisburg. "It was old-fashioned, Cold War era [technology]. . . . Even though it was EAS, it was still a daisy chain."

Two weeks ago, however, Pennsylvania officials tested the first phase of a new satellite communications system intended to link state emergency officials directly with broadcasters. This system has made a remarkable difference, said Gehman. Forty-four key stations responsible for relaying messages now have the satellite capability; in two years, about 320 broadcasters will have it, Gehman said.

The Amber Alert system was created in 1996 following the kidnapping and murder of 9-year-old Amber Hagerman in Arlington, Texas.

Continued from page 1

Border Security

"That takes new systems, new infrastructure that are not even in existence today," Hutchinson said.

The need for a reliable and efficient system at the borders has been "made more urgent by the prospects of the United States going to war with Iraq and the possibility that Saddam Hussein might try to use weapons of mass destruction in America," said Stephen Flynn, a senior fellow in national security studies at the Council on Foreign Relations in New York.

The Department of Homeland Security's frontline troops at the borders and ports "are woefully understaffed, working with obsolete technologies, [have] inadequate support for training [and] are simply not up to the challenge," Flynn said.

Under law, the Department of Homeland Security has until the end of 2005 to complete the deployment of an integrated entry/exit system that makes maximum use of biometric technologies to identify foreign visitors to the U.S. and reduce the possibility of terrorists using forged documents to cross the borders.

So far, more than 6 million biometric border-crossing cards have been issued. And recent pilot programs using the cards on the Canadian border have uncovered more than 250 impostors, Hutchinson said. Additional biometric card readers are scheduled to be deployed by the end of the year, he said.

But the IT infrastructure challenges are formidable.

"Biometrics will be part of the entry/exit program, [but] we currently don't have the infrastructure in place to accommodate that," said Robert Mocny, director of the entry/exit program at the U.S. Bureau of Immigration and Customs Enforcement.

"The challenges for the land border are daunting," Mocny acknowledged. "Especially when you talk about the 50 largest land ports of entry. There are environmental laws [and other restrictions] that apply to the growth of infrastructure."

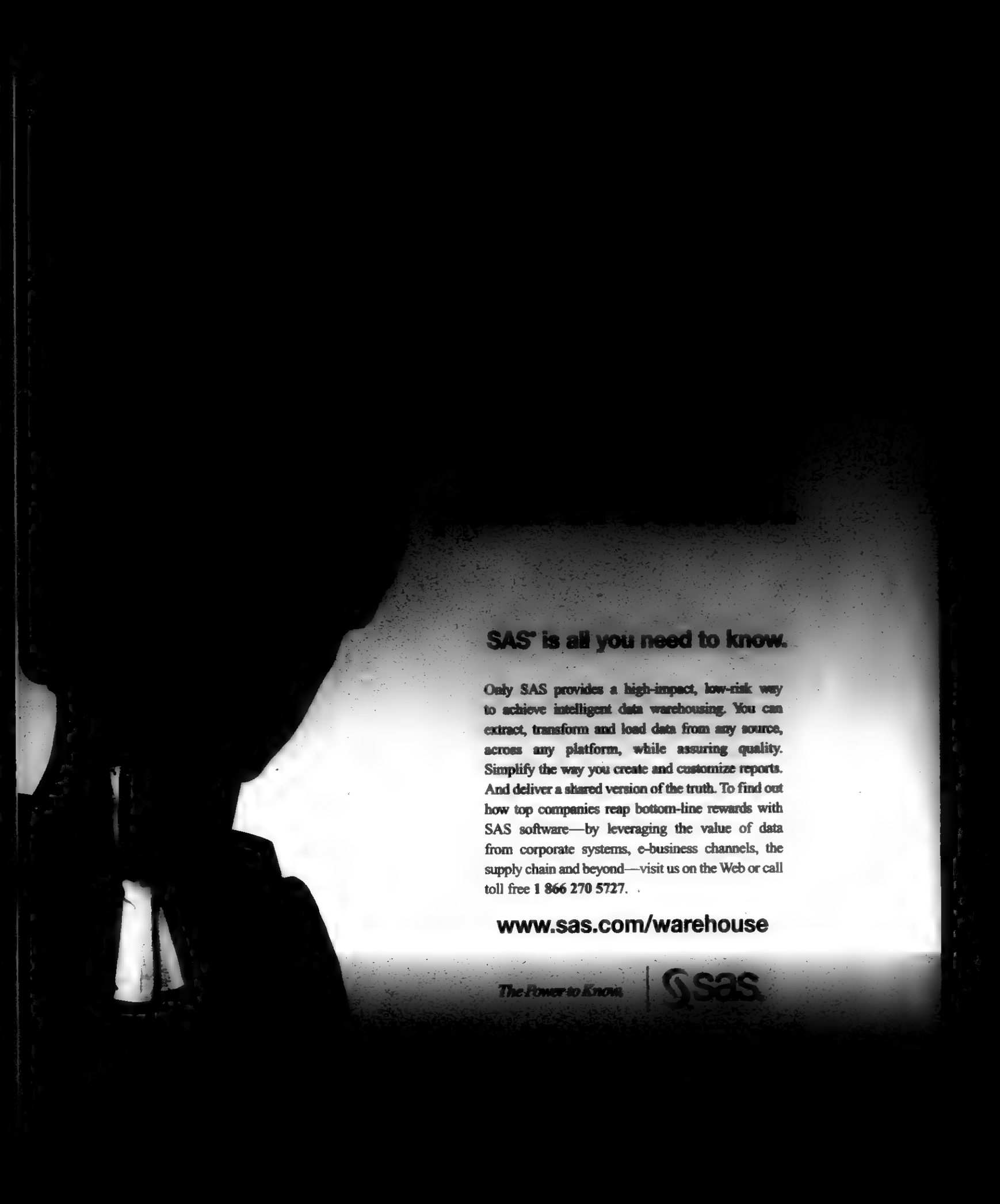
Mocny said $245 million given to the department for IT infrastructure improvements and a portion of the $362 million provided for the entry/exit system will go toward biometric infrastructure support.

But that may not come close to paying for a complete system, said Nancy Kingsbury, an analyst at the General Accounting Office, the investigative arm of Congress. In addition to card readers, the infrastructure would include computers and communications enhancements to handle more electronic processing.

"There are issues of scalability that will require considerable testing and development to bring the system to the point where hundreds of millions of identity checks annually are feasible, accurate and efficient," said Kingsbury.

There are also questions surrounding the technical and operational effectiveness of biometric technologies in projects as large as border control, she said.

"The costs and benefits of the system need to be assessed," Kingsbury said. "Suffice to say, we're talking billions of dollars just to implement biometrics."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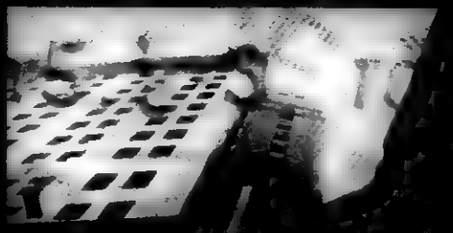

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CA to Push Automated Fraud Detection

BY MARC L. SONGINI

Looking to capitalize on the need for financial companies to eliminate money laundering and fraud, Computer Associates International Inc. is rolling out a new management application.

The Islandia, N.Y.-based software company last week announced CleverPath for Global Compliance, which is targeted at the finance, banking and insurance industries. The package integrates several existing products to offer a greater degree of automation, including the CleverPath Aion business-rules engine and predictive analysis and portal applications, said Tina Wang, a CA vice president and product manager for CleverPath.

The global compliance application will require customization to match the specific needs of a given industry. CA has partnered with integrator BearingPoint Inc. in McLean, Va., to offer customization services to companies that don't have the personnel to tailor the software to meet their needs.

The software automates manual processes required by regulatory agencies and can help companies handle frequently changing reporting requirements, said CA.

The application can automatically detect fraud or other illegal activities based on built-in business rules and predictive analysis. Suspected fraud cases are identified and passed on to the appropriate personnel for action — potentially helping companies avoid fines, CA officials said.

Customized Interfaces

A customized portal interface will present relevant data and business-intelligence tools to ensure regulatory compliance at companies, said CA. The application can also be used in the sales, marketing and customer service fields.

The customization services will clearly be necessary to make the new offering work, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. Fraud detection is a broad field, and what may be standard practice in one industry could be a questionable practice in another, he said.

Greenbaum also noted that companies that have to comply with legislation such as the Sarbanes-Oxley Act may lack the internal processes and personnel to do so. That act criminalizes the destruction of documents that might be needed for federal investigations.

Available now, CleverPath for Global Compliance runs on Windows, Linux, Sun Solaris, HP-UX and IBM's AIX and z/OS. Pricing starts at $75,000.

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PC MAGAZINE
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HP Enterprise Exec Discusses Postmerger Strategy

BY JAIKUMAR VIJAYAN

As executive vice president of Hewlett-Packard Co.'s Enterprise Systems Group, **Peter Blackmore** *is responsible for an $11.4 billion business. Blackmore spoke with* Computerworld *last week about how HP has fared since its merger with Compaq Computer Corp. last year.*

Why is HP so bullish on Itanium when the rest of the industry seems to be taking more of a wait-and-see attitude? Both premerger companies came to the same decision. Both had RISC architecture, and prior to the merger, both had decided to adopt Itanium. The logic was the same in both cases in that we wish to be in the computer business, not the chip business. We saw the advantage of using industry-standard chip sets and industry-standard building blocks with more of our R&D, then going into the value-add beyond that. The clustering, the partitioning, the software and the management tool sets are what offer genuine differentiation.

Come September or October, when we launch a complete Itanium product, there will be a paradigm shift. It will be a disruptive technology.

At a time when other companies are ramping up their middleware investments, why has HP exited the middleware business? Where we are investing the money is on management software and virtualization. Middleware is only part of that. What we've decided to do is have a very strong management software architecture. So we have OpenView as the core of the management software.

Above that, we have leadership concepts such as Utility Data Center, which is absolutely world class and is 18 months ahead of IBM and way ahead of anything Sun has to offer.

It enables virtualization and dynamic reconfiguration of all the systems in a data center or across multiple data centers. It is a very sophisticated approach to managing the infrastructure.

What role do you see Linux playing in the enterprise? We see Linux as being absolutely strategic. We see growth in all of the three standards — Windows, Linux and HP-UX, [which is] a standard by default because it has got 32% of the Unix market.

We actually have a $2 billion Linux business. We have the highest market share of any of the vendors in Linux on server platforms. It is 30%.

We have a big service practice around Linux: Around 5,000 of our services people are trained on supporting Linux.

Where does OpenVMS fit in the overall scheme of things at HP these days? It is already well on its way to being ported to IA-64. We will continue to support it on IA-64. It is a very special class of operating system. We are not planning to do anything else other than to continue supporting this environment, as well as the 450,000 users around the world that are on this.

So we are going to maintain it and make it run very well on Itanium. The same [is true] with the Non-Stop environment. It currently runs on the MIPS chip. It will be migrated to IA-64 as well. ◗

MORE ONLINE

To read the full interview with Blackmore, visit our Web site:

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MARYFRAN JOHNSON

Spamming Tsunami

"STORY IDEA! Survey shows most needed appliance is refrigerator," chirped the subject line of one of my e-mail messages last week. It was one of the many hundreds of idiotic e-mails that clutter my inbox every week. Silly and unsolicited, but hardly real spam.

The genuine garbage arrives in messages like this one: "Attention my friend, compliments of the season!" says a Mr. Abaku Kwame, who generously offers me a share in the millions of stolen funds from some country's royal family coffers.

Both of these messages slid right through *Computerworld*'s spam filtering service, which we outsource to Postini. I probably get one legitimate e-mail out of every dozen messages at this point, despite filtering efforts. To be fair, Postini does catch some 20,000 messages a week in its spam filters — a whopping 45% of all the e-mail *Computerworld* receives. That percentage unfortunately puts us on the far leading edge of the spamming tsunami, which is estimated to be 30% of all corporate e-mail today.

We can all recite the litany of complaints about unwelcome e-mail. It drains user productivity, wastes time on e-mail triage, overloads e-mail systems and servers, and drives up storage costs. It also gives the HR department heartburn, since sexually explicit e-mails could lead to hostile-workplace lawsuits.

But because there are so many other things to worry about in the world, I usually shrug off spam as the price we pay for the convenience of e-mail. It's the killer app with the killer annoyance, tagging alongside like an evil twin.

Yet the trend lines on spam as a corporate IT problem are rapidly heading in the wrong direction: up.

This year, spam is expected to cost U.S. businesses more than $10 billion in lost productivity and additional bandwidth, according to Ferris Research. And as wireless e-mail continues to catch on, the toll spam takes will spiral even higher.

"Bandwidth is virtually free on the Internet, but it's not free in wireless," points out Danny Shader, CEO of Good Technology, a mobile computing vendor. "That spam is costing real money, and somebody's going to be able to use that economic loss to seriously nail one of the spammers."

Enter the legislators and the lawyers. As we reported last week ["States Rush to Pass Laws to Fight Spam," QuickLink 36874], all 50 states could have antispam laws on the books by the end of this year. Half of them already do. But these new laws, while gratifying to the legions of spam-haters, are largely useless for actually stopping the stuff.

For corporate IT, there are some hopeful developments on the horizon, but few products that scale to data center heights.

Both Microsoft and America Online are openly at war with spammers, with AOL reporting last week that its new antispam feature is blocking as many as 1 billion e-mails *per day*. Serious attention is also being paid to the problem by the influential (albeit slow-moving) Internet Engineering Task Force standards body, which this week in San Francisco will be investigating prevention strategies in its newly created antispam research group.

In the meantime, industrial-strength antispam software for enterprises is notably lacking, says Internet pioneer Eric Hahn, now a partner in Inventures Group, an investment firm for technology startups. "There are interesting things being done for consumers and ISPs, but in the corporate market, the number of offerings are few and far between," he contends. "The vendor community is just now responding."

With the high tide of spam continuing to surge, the first vendor that delivers a truly effective spam blocker for the data center will save many a drowning CIO while making a boatload of money to boot.

PIMM FOX

Middleware With a Twist

AS THE NEED to access information grows, the importance of reaching the brass ring of integration throughout the organization rises. That's why you're going to hear more and more about the move away from a single database or database management product to something virtual that can integrate information internally as well as across suppliers and customers. Something like middleware. But with a twist.

It's called federated development, and it's defined as the ability to have an integrated view of all pertinent information without keeping the data in one central location. Getting that federated view isn't going to be easy.

Rather than writing code, this new federated method relies on gluing code together using open standards that are defined for different platforms. This approach requires an information integrator — like a software plug-in — that can learn the best way to answer a query and that can be reused. In essence, these integrators build a virtual database.

It certainly makes sense, given the myriad platforms that organizations have deployed and the various geographical locations IT operations have come to support. But how practical is this sort of integration effort, given the ongoing need for service, maintenance and enhancements? At the Indiana University School of Medicine, for example, about 100GB of biomedical information is produced every day — and it needs to be available at multiple sites in various forms, depending on the systems users have access to. Corporate CRM solutions present similar data management challenges, with call center support, customer transactions, e-mails, scanned documents and real-time information all needing to be woven together. How can a federated approach, which builds its virtual database over time, assist in these cases?

The scope of these problems may

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But because there are so many other things to worry about in the world, I usually shrug off spam as the price we pay for the convenience of e-mail. It's the killer app with the killer annoyance, tagging alongside like an evil twin.

Yet the trend lines on spam as a corporate IT problem are rapidly heading in the wrong direction: up.

This year, spam is expected to cost U.S. businesses more than $10 billion in lost productivity and additional bandwidth, according to Ferris Research. And as wireless e-mail continues to catch on, the toll spam takes will spiral even higher.

"Bandwidth is virtually free on the Internet, but it's not free in wireless," points out Danny Shader, CEO of Good Technology, a mobile computing vendor. "That spam is costing real money, and somebody's going to be able to use that economic loss to seriously nail one of the spammers."

Enter the legislators and the lawyers. As we reported last week ["States Rush to Pass Laws to Fight Spam," QuickLink 36874], all 50 states could have antispam laws on the books by the end of this year. Half of them already do. But these new laws, while gratifying to the legions of spam-haters, are largely useless for actually stopping the stuff.

For corporate IT, there are some hopeful developments on the horizon, but few products that scale to data center heights.

Both Microsoft and America Online are openly at war with spammers, with AOL reporting last week that its new antispam feature is blocking as many as 1 billion e-mails *per day*. Serious attention is also being paid to the problem by the influential (albeit slow-moving) Internet Engineering Task Force standards body, which this week in San Francisco will be investigating prevention strategies in its newly created antispam research group.

In the meantime, industrial-strength antispam software for enterprises is notably lacking, says Internet pioneer Eric Hahn, now a partner in Inventures Group, an investment firm for technology start-ups. "There are interesting things being done for consumers and ISPs, but in the corporate market, the number of offerings are few and far between," he contends. "The vendor community is just now responding."

With the high tide of spam continuing to surge, the first vendor that delivers a truly effective spam blocker for the data center will save many a drowning CIO while making a boatload of money to boot.

PIMM FOX

Middleware With a Twist

AS THE NEED to access information grows, the importance of reaching the brass ring of integration throughout the organization rises. That's why you're going to hear more and more about the move away from a single database or database management product to something virtual that can integrate information internally as well as across suppliers and customers. Something like middleware. But with a twist.

It's called federated development, and it's defined as the ability to have an integrated view of all pertinent information without keeping the data in one central location. Getting that federated view isn't going to be easy.

Rather than writing code, this new federated method relies on gluing code together using open standards that are defined for different platforms. This approach requires an information integrator — like a software plug-in — that can learn the best way to answer a query and that can be reused. In essence, these integrators build a virtual database.

It certainly makes sense, given the myriad platforms that organizations have deployed and the various geographical locations IT operations have come to support. But how practical is this sort of integration effort, given the ongoing need for service, maintenance and enhancements? At the Indiana University School of Medicine, for example, about 100GB of biomedical information is produced every day — and it needs to be available at multiple sites in various forms, depending on the systems users have access to. Corporate CRM solutions present similar data management challenges, with call center support, customer transactions, e-mails, scanned documents and real-time information all needing to be woven together. How can a federated approach, which builds its virtual database over time, assist in these cases?

The scope of these problems may

Introducing Information Availability. It's business continuity and more.

It's not just about protecting data. It's about keeping people connected to it so your business runs uninterrupted, 24x7.

Typical business continuity solutions go to great depths to back up applications, networks and business-critical information. But what they don't do is protect your organization's access to it all. That's where a SunGard Information Availability strategy comes in.

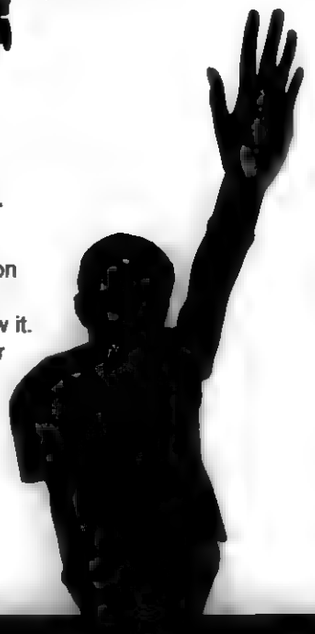
Information Availability goes beyond business continuity by combining technology, redundant infrastructure and technical expertise to keep your people and information connected, no matter what. When you understand the many ways disconnects can happen, you'll see why Information Availability is the best way to prevent them. Business continuity plans may incorporate one or more of the following features, but only a SunGard Information Availability strategy offers all of these *from one source.*

It's a place to go when workers can't go to work.

Business continuity plans rarely plan on an emergency closing your office or building. A SunGard Information Availability strategy does. We can place your people immediately at our over 15,000 end-user positions in up to 55 cities – all convenient to commercial centers and airports. And if you want to keep your people close, we can even come to you. With 39 fully-equipped mobile facilities, we have the most flexible mobile recovery fleet in the industry, ready to roll to virtually any location.

It's confident customers, always in contact with you.

Disaster could well strike your company. But with an Information Availability plan from SunGard, your customers may never know it. SunGard can help you engineer a solution that meets your information availability requirements.

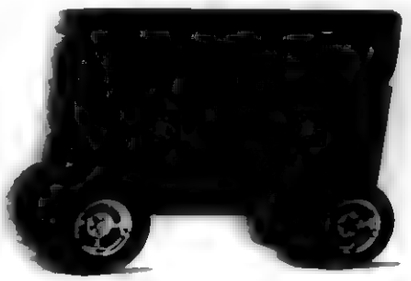


It's replication of your IT system.

Nobody's IT network of operating systems, servers and software works quite like yours. SunGard's Information Availability program can provide you with an optimally configured, perfectly maintained and scalable system, pre-tested, ready and waiting to continue your critical business processes at a moment's notice.

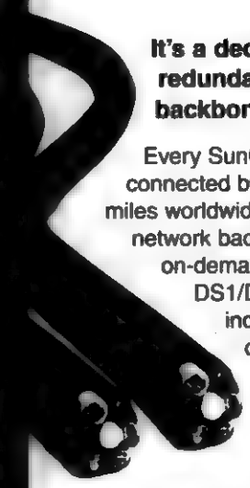
It's hardened facilities and high-level security.

SunGard maintains more than 3 million sq. ft. worldwide of strategically placed, hardened facilities, providing you with high availability to your information and virtually no downtime. Well-staffed facilities feature fully redundant power and communications, state-of-the-art equipment, multi-platform compatibility and high levels of security.



It's off-site data storage that's truly off site.

Some continuity plans incorporate in-house backup tapes and storage. But they're useless in a power failure, fire or evacuation. SunGard's off-site storage is a key part of Information Availability. Our file sharing, primary storage and data backup services are unrivalled for data integrity and reliability. And they free up your equipment and people for other purposes.



It's a dedicated, redundant network backbone.

Every SunGard location is connected by nearly 25,000 miles worldwide of dedicated network backbone, providing on-demand or dedicated DS1/DS3 protocol-independent communications.

It's platform-independent professionals bringing it all together.

With SunGard, more than 2,000 Information Availability experts are at your fingertips. We can help you with everything from vulnerability assessment and impact analysis to planning, technology integration, network and architecture solutions, deployment, testing and certification. Everything you need to keep your business running, no matter what.

SUNGARD®

Availability Services

The Net Beneath You

Don't let lost access to information take your company down. Stay up and running with an Information Availability strategy.

Talk with us. An Information Availability strategy from SunGard can be a life-saver when it comes to keeping people and information connected. Data is more time-sensitive than ever. And SunGard's complete continuum of services can protect your information's availability, enterprise-wide. From tiered applications recovered as fast as 48 hours, to high availability applications in as little as 2 hours, to managed services that provide continuous access to critical information.

SunGard offers the industry's most comprehensive Information Availability services – from planning, traditional disaster recovery, network and managed services to IT outsourcing, professional consulting and high availability solutions. Plus, end-user recovery facilities where your people can go to reconnect with data in an emergency. In fact, nearly 90% of U.S. companies with $1 million or more in revenue are located within 35 miles of one of our facilities.*

Every day, we help ensure that over 10,000 clients worldwide have uninterrupted access to their business-critical information. They count on us to supply the people, technology and infrastructure necessary to provide multiple points of access to information, flexible alternate workplace options for their employees, and updated continuity plans and systems to meet their future technology needs.

SunGard is one of the largest providers of platform-independent business continuity, managed hosting services and more. No company has more ways to keep your business in business. See how your company rates on Information Availability right now. Take our Information Availability Challenge at **www.availability.sungard.com/iac**

*Source: Dunn & Bradstreet's MDDI

SunGard: The Net Beneath You.
With SunGard you get

- the company that founded the recovery industry in 1978
- comprehensive support for more than 30 platforms
- 75 facilities in 10 countries with more than 15,000 end-user positions worldwide

SUNGARD
Availability Services

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DAVID MOSCHELLA

Lessons From A London Traffic Project

ANYONE WHO HAS ever tried to drive across London knows that its traffic is among the world's worst. That great city just wasn't built for cars. Most streets are too narrow, and even the wide ones get bogged down by countless traffic lights, roundabouts, bus lanes and seemingly endless construction and repairs. The slightest accident, breakdown or, heaven forbid, snow can reduce large sections of the city to hopeless gridlock.

Happily, it now appears that IT can help. On Feb. 17, London switched on its controversial system for charging for congestion, whereby from 7:00 a.m. to 6:30 p.m. on weekdays, anyone driving into a roughly 8-square-mile zone of central London is charged £5 (about $8). Despite many dire warnings, the system has mostly performed as promised. Better still, the volume of cars in the central city has noticeably declined. Thus far at least, the strongest proponent of congestion charging, London Mayor Ken Livingstone, is all smiles.

Here's how it works. According to the Capita Group, the project's lead contractor, there are 174 entry and exit points to the charging zone, each of which is monitored by banks of analog cameras. Some of them capture license plate numbers. Each captured number is sent to a central database that checks whether the owner of that car has paid the required fees or has one of several exemptions. Those who haven't are fined.

The philosophy behind congestion charges appears to transcend political ideology. Livingstone is often affectionately referred to here as "Red Ken," because of his generally far-left — though jovial — views. However, the idea of using pricing mechanisms to reduce excessive traffic has been championed by Milton Friedman since the 1950s, and the only other major city to adopt this type of approach is Singapore, hardly a favorite of the left.

For IT vendors, traffic management systems are a potentially large new public-sector opportunity (something that is clearly needed right now). Consider that the current system covers less than 2% of Greater London and, more important, that hundreds of cities around the world are closely monitoring this initiative. If London's success continues, other cities will surely follow.

But for IT users, the main message is one of leadership. Congestion charges are a good example of a system that can't be done incrementally, can't be easily prototyped and has to work effectively from Day 1. Someone had to make the large upfront capital investment and accept the associated risk. In London's hypercritical political culture, this wasn't easy. The left has attacked the plan as both unfair to the poor and worrisomely Orwellian, the right as just another tax increase. Both sides doubted that such a complex, quasi-governmental system would ever really work.

Whether or not you support congestion charges, London's example shows how IT industry leadership is moving away from suppliers and toward customers, who must provide the leadership, risk-taking and perseverance that IT progress has always required (this is the main theme of my recent book). In this sense, congestion charges are just one example of the many important new systems that IT is capable of supporting. Fortunately, the mayor of London has provided the necessary leadership, much to the benefit of the entire high-tech community.

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Instead, companies should focus on delivering sustainable business value and pay close attention to leveraging people and processes as well as technology. It is this combination that can create competitive advantage. In the end, true business value and increased competitive advantage will help a company succeed, and that success is more important than generating positive ROI numbers.

Mary Haigis
Managing partner, Clarkston Consulting, Durham, N.C., mhaigis@clarkstonconsulting.com

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David Grenski
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If you're busy monitoring your servers, who's watching your business?

The new HP ProLiant DL740 8-way with hot-plug RAID memory.

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- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 6-64 bit/100 MHz PCI-X slots
- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.

The new HP ProLiant DL760 G2 8-way with hot-plug RAID memory.

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What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

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At the end of the day, you'll have more control over your infrastructure, help avoid unplanned downtime and reduce overall maintenance costs. Not to mention freeing yourself up for more important things.

To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YPH.

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KNOWLEDGE CENTER OPERATING SYSTEMS

03.17.03

Getting Started With Linux
Many IT shops are just starting to explore the Linux phenomenon. Here's some advice from veterans such as Dan Agronow (right), vice president of technology at The Weather Channel, on issues such as version control, backup, fail-over and support. **Page 40**

The Worldwide Code Rebellion
More and more foreign governments are encouraging the use of open-source software by government IT managers. It's a powerful movement that has many roots, including anger over licensing terms set by U.S. vendors, the leeriness of being locked into proprietary formats and a desire to build homegrown expertise. **Page 46**

EDITOR'S NOTE

THE TRADE PRESS is very, very good at reporting what the leading-edge users are doing. When Unilever said it would move to Linux in a big way, for example, *Computerworld* reporter Todd R. Weiss was all over it [QuickLink 35861]. And rightly so.

But my hunch is that for every Unilever, there are thousands of IT operations that haven't dipped their toes in the Linux waters and might even be a little scared to do so. Or maybe their Linux use is limited to a few servers and they're wondering how to dive in and swim with the penguins.

Similarly, the trade press is very good at covering the companies that move to IBM's latest z/OS operating system or Microsoft's newest version of Windows Server. But what about the rest — the folks sticking with older OS versions, often for mighty good reasons? If the leading-edge IT users are comparable to the cultural trendsetters in California or Paris, what about Peoria?

In terms of sheer numbers, about 80% of the mainframes out there are running IBM's older OS/390 operating system. And Microsoft itself estimates that up to 40% of the installed base for the Windows Server OS is using the older Windows NT Server 4.0. (Why? Because it's reliable, and it's hard to cost-justify a disruptive upgrade.)

That's why this special report has stories for Linux newcomers and OS/390 users under pressure to migrate to z/OS, and about users still on Windows NT. It's devoted to the hordes on the lagging edge.

Hello, Peoria!

Mitch Betts is director of Computerworld's *Knowledge Centers. He can be contacted at mitch_betts@computerworld.com.*

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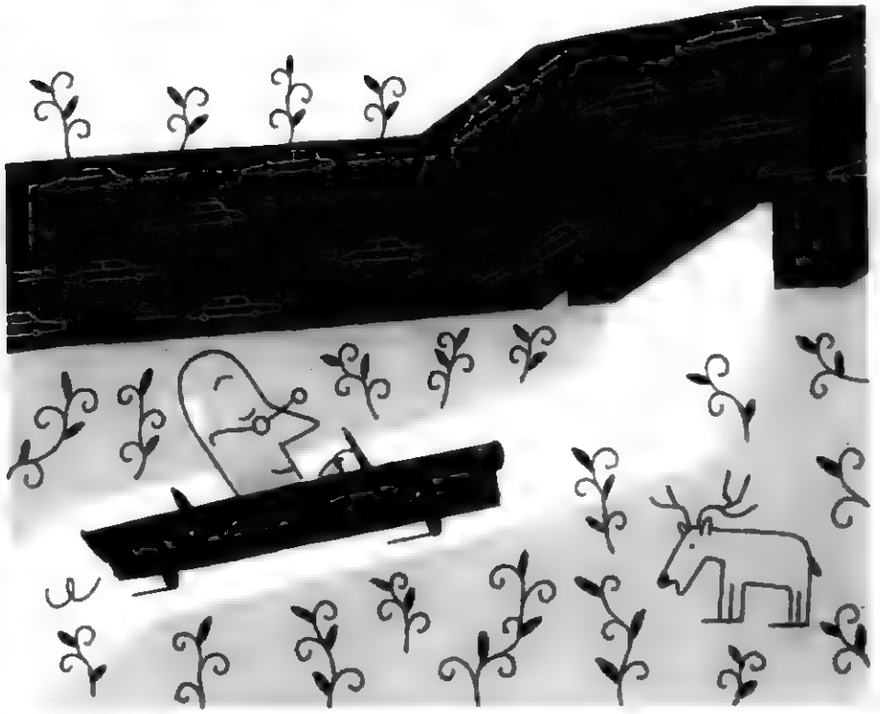

CYRIL CASMY

In the Slow Lane

SPECIAL REPORT Legions of laggards aren't jumping on the latest OS bandwagons.

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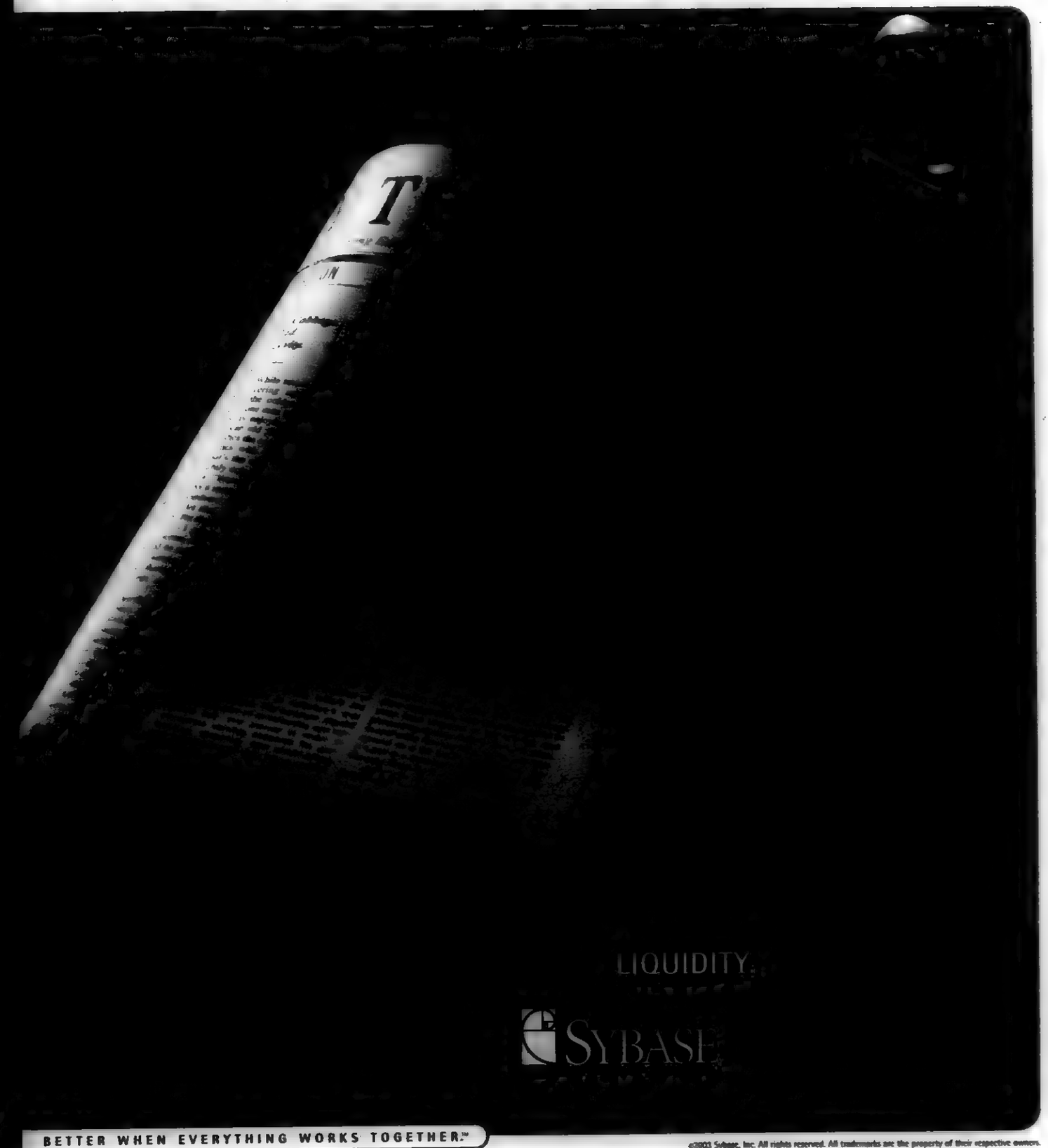
COMPLIANCE OR

SYBASE INTEGRATION TECHNOLOGIES. EVERYTHING WORKS



BETTER WHEN EVERYTHING WORKS TOGETHER.™

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The Story So Far

Bell Labs, GM and MIT played major roles in the development of operating systems. By Frank Hayes

IN THE EARLY DAYS of computers, the operating system — the software that manages applications and system resources — didn't exist. That's because software itself didn't exist. Computers were programmed by manually wiring calculating circuits together, then physically changing the wiring for every new calculation to be performed.

That began to change in 1945, when John von Neumann described a computer that could store instructions in memory that would tell the computer's calculating units what to do. On June 21, 1948, the first computer program ran on an experimental machine called Baby at the University of Manchester in England — and software was born.

But computers still ran only one program at a time. Operators still had to load each program and its data into memory from tape or punched cards, run the program and then repeat the whole process for the next program. It was faster than changing the wiring, but it still wasted plenty of very expensive computer time.

By the early 1950s, businesses using computers were looking for ways to solve that problem. In 1955, programmers at the General Motors Research Center came up with a solution for their IBM 701 computer: a batch-processing monitor program that let operators put a series of jobs on a single input tape. It was the first step toward a full-scale operating system.

Computer vendors soon offered their own batch monitors. In the early 1960s, they began to add what would become critical operating system features. The Burroughs 5000 Master Control Program offered virtual memory and the ability to run several processes at once. Univac's EXEC I allocated memory, scheduled CPU time and handled I/O requests. IBM's OS/360 allowed the same software to run on a variety of machines.

In 1963, a team at MIT led by Fernando Corbato developed the Compatible Time Sharing System (CTSS), the first practical OS that let several users at once run programs from terminals. Much of that team soon went to work on a far more ambitious OS: Multics, a joint project with General Electric Co. and AT&T Bell Laboratories that would offer a tree-structured file system, a layered structure and many other modern OS features.

AT&T pulled out of the Multics project in 1969. But AT&T programmers Ken Thompson and Dennis Ritchie began to develop their own scaled-down version of Multics, which they punningly called Unix. Unix was easy to port to new computer architectures and grew popular at universities because AT&T made the Unix source code available for students to study. By the 1980s, Unix had spawned a generation of workstations — and displaced many existing operating systems.

Meanwhile, the first desktop computers arrived in the mid-1970s with OSs that were little more than the monitors of 20 years earlier. When IBM began selling PCs in 1981, it offered several OSs — but the least expensive and most popular was PC DOS, provided by a small company named Microsoft Corp.

Microsoft soon dominated PC operating systems, steadily borrowing features from its competitors, such as the Windows graphical user interface cribbed from Apple Computer Inc.'s Macintosh. Microsoft also offered Xenix, the most popular PC version of Unix, and worked with IBM to develop a multitasking PC system, OS/2, in 1987. But three years later, the IBM/Microsoft partnership fell apart, and Microsoft merged its OS/2 work with its popular Windows to create Windows NT in 1993.

Finnish student Linus Torvalds wasn't trying to compete with Microsoft in 1991 when he began work on a Unix clone he called Linux. After finishing a first version, Torvalds asked for help from other programmers on the Internet. By 1994, Linux was a full-scale, free operating system. By 1999, it ran on more Internet Web servers than Microsoft OSs — and was Microsoft's most significant competition.

Today, Linux runs on everything from handhelds to mainframes, while versions of Windows span nearly the same range. How competition — and interoperability — between Windows and Linux develops may shape the future of enterprise computing.

And now, on with the story ...

THE ASSOCIATED PRESS

1945: John von Neumann first describes a computer with stored programs.

1955: General Motors Research Center develops first batch-processing monitor.

1963: Fernando Corbato leads MIT's development of CTSS, the first practical time-sharing system.

1970: Digital Research releases CP/M, first widely used operating system for desktop computers.

1981: IBM PC debuts with PC DOS operating system provided by Microsoft.

1987: IBM and Microsoft develop OS/2, a multitasking PC operating system.

1993: Microsoft merges its OS/2 work with Windows to create Windows NT.

1940 | 1950 | 1960 | 1970 | 1980 | 1990

1948: Baby, at the University of Manchester in England, runs the first software program.

1965: MIT, General Electric and AT&T Bell Labs begin developing Multics.

1969: Bell Labs programmers **Ken Thompson** (left) and **Dennis Ritchie** begin work on Unix.

1985: Microsoft rolls out Windows user interface for DOS.

1991: Finnish student **Linus Torvalds** begins work on Linux, with help from other Internet programmers.

1999: IBM releases its port of **Linux** for mainframes.

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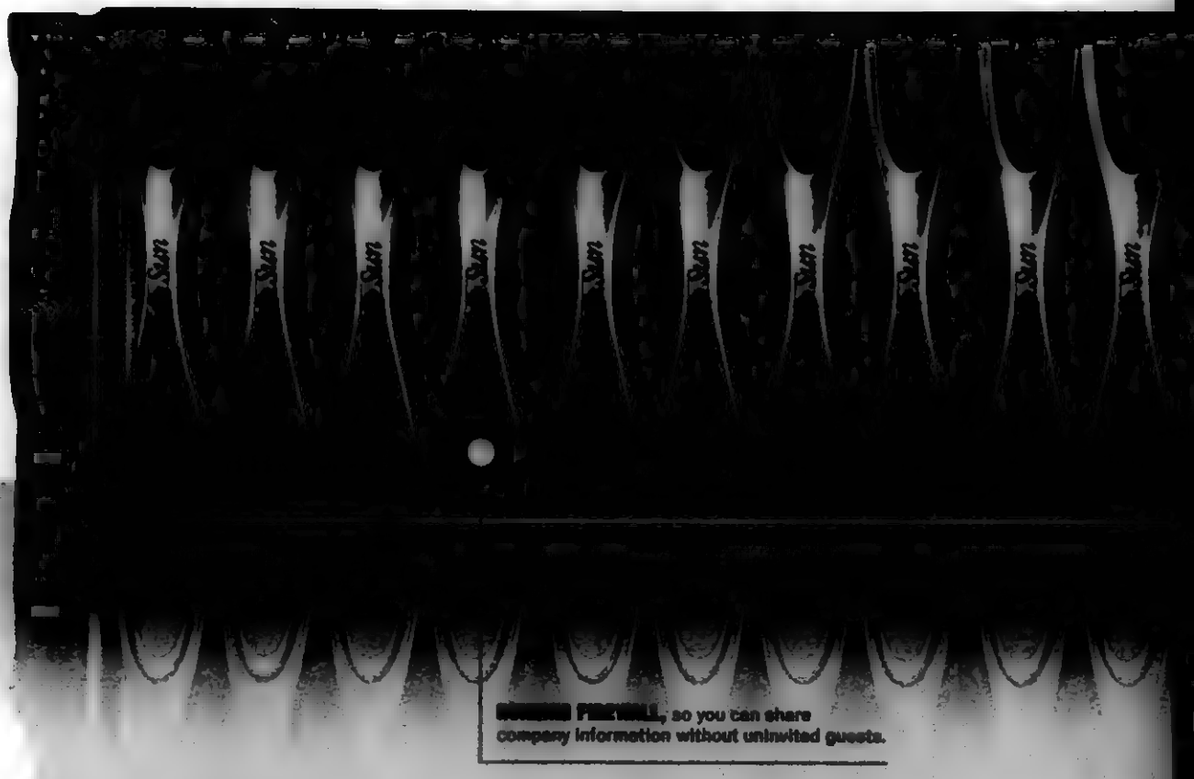

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Legions of Windows NT Server users aren't ready to jump to a new version or haven't finished upgrading. And they have darn good reasons. By Carol Sliwa

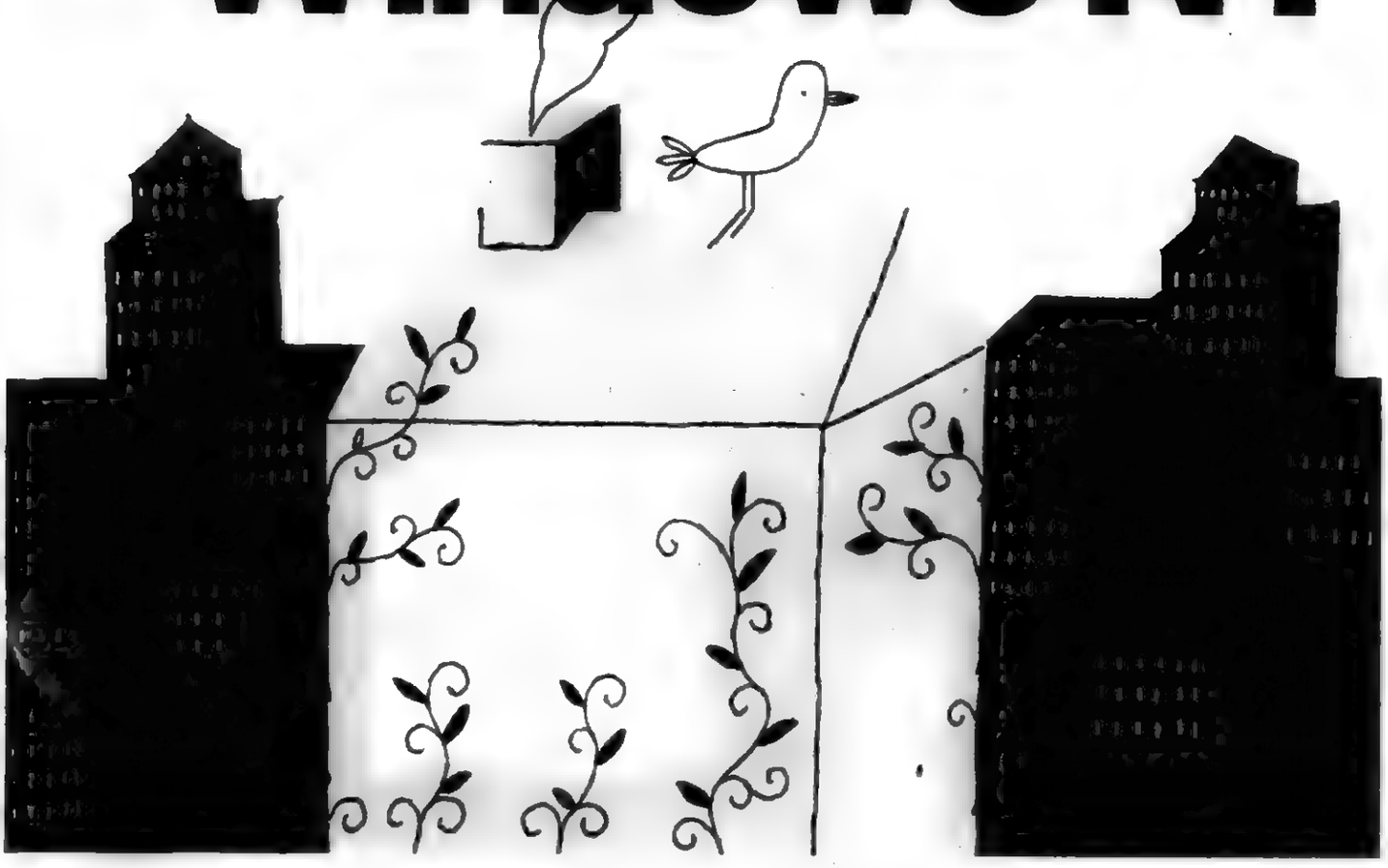
Still on Windows NT

IT'S NO SECRET THAT MICROSOFT CORP. will direct a special marketing pitch at Windows NT Server 4.0 users when the company releases its Windows Server 2003 operating system next month, just as it did for Windows Server 2000. And its announcement of the phaseout of support for NT Server 4.0 certainly caused hordes of users to sit up and take notice.

Yet despite Microsoft's pushing and prodding, there are legions of Windows NT Server users that aren't ready to move or haven't finished their migrations.

Bob O'Brien, a group product manager in Microsoft's server division, estimates that 35% to 40% of the installed base for the Windows server operating system is using NT 4.0. He bases that in part on a year-old report in which market research firm IDC predicted it would be 33% at the end of last year.

Gartner Inc. analyst Tom Bittman thinks the number of NT Server users could be higher. Bittman says he stands by 60% to 70%, based on client anecdotes



CYRIL CABRY

and information from Microsoft.

Whichever figure is closer to the truth, one simple fact is clear: There's still a lot of Windows NT Server 4.0 in use. Period.

Microsoft knew that when it decided to extend key support options for NT 4.0 through 2004. Its aging operating system was scheduled to slip off the support charts at the end of 2003. But Microsoft couldn't afford to risk damaging relationships with its precious corporate customers, particularly the really large ones that were getting anxious about running an unsupported operating system.

O'Brien says today's NT Server 4.0 users are divided into three camps: those who have a policy to run an operating system for five to seven years, those who have key business applications and file-and-print services running on NT, and those who are too cash-strapped to do frequent upgrades.

Like any vendor, Microsoft would prefer that customers leap to new products as soon as they hit the market. But users that have stuck with NT 4.0, which has been available since July 1996, often have the following pragmatic reasons for holding out:

THE REDMOND VIEW

Microsoft offers advice on how to migrate from Windows Server NT 4.0 to its newest versions – and explains how NT is being "retired in phases" – at this Web page:
www.microsoft.com/ntserver

1 Big moves take time.

KeyCorp had 1,800 non-Unix servers running Lotus Notes, file-and-print services and some business applications. The Cleveland-based financial services company wanted to stay in sync with or slightly ahead of Microsoft's support phaseout, so it devised a two-year plan to go to Windows 2000, says Wade Tolman, executive vice president of enterprise technology operations.

"The biggest challenge just becomes planning, when you talk about touching that many servers and employees," says Ann Louis, vice president of enterprise technology operations at KeyCorp.

KeyCorp's IT department upgraded 450 servers — some from NT 4.0 and others from Novell Inc.'s NetWare — to Windows 2000 during the past year. Originally, the plans called for the remaining 1,300 Windows NT and 50 NetWare servers to be done by year's end, but competing projects are intervening, and the migration is expected to extend into 2004.

The delay will open the door for a new option, Windows Server 2003, which is due in April. But Tolman says he doesn't feel a sense of urgency to change the existing migration plan, since support for Windows 2000 will last for many years.

KeyCorp might instead consider skipping the Windows 2003 release and wait for its successor, code-named Blackcomb, which Microsoft claims will be out in 2005 or 2006, Tolman says.

2 Business-critical applications were built for NT 4.0.

Farmers Insurance Group purchased Version 6 of Siebel Systems Inc.'s software, the core application of its claims division, in 2000, says Sherry Porter, distributed systems manager at the Los Angeles-based company.

The application was built to run on NT 4.0, and because Siebel didn't add support for Windows 2000 to that particular insurance version until the end of last year, Farmers didn't gain the option to move from NT 4.0 until recently.

As many users are well aware, vendors don't always rush to certify their older applications to run on newer operating systems.

"They won't necessarily certify it unless you have enough clout or they have some compelling reason," Porter says.

Siebel was seeing so much Windows NT among its customer base that it released Siebel 7 in November 2001 on both Windows 2000 and Windows NT 4.0, even though the newer operating system had already been out for 21 months, a spokeswoman for San Mateo, Calif-based Siebel says.

When Microsoft announced that support for NT 4.0 would end, Farmers could have upgraded to Siebel 7 on Windows 2000. But the insurer didn't find the new features useful enough to justify the expense, Porter says.

Another major consideration was that Farmers' Siebel 6 application was so heavily modified with custom code that an upgrade would have been "a dramatic amount of work," Porter says. So the IT department is drawing up a plan to move its Siebel 6 application to Windows 2000.

However, some companies don't get that option. They have to upgrade to a new application on a new operating system, stick with the old application on an unsupported operating system or buy a support contract for NT from a Microsoft partner.

3 NT 4.0 works just fine, thank you.

Companies that have upgraded to Windows 2000 Server may be impressed with its improved stability and performance, but many others that are still running NT find that the older OS has reached a solid enough state to meet their needs.

CE Franklin Ltd. has 16 Windows NT 4.0 servers running file-and-print, mail, intranet and terminal services. The six terminal servers may get upgraded this year, but there's no upgrade plan for the rest.

"NT is the beast we know," says David Curran, manager of IT at the Calgary, Alberta-based oil field supply company. "We know what it takes to keep it alive and healthy, and without a real strong business case to move to Windows 2000, we haven't been able to justify the expense."

The end of support may create the case that pushes Curran to consider a "grudging upgrade." But he says he doesn't think it would be dangerous to run NT unsupported. "For the most part, these servers are stable," he says.

Curran says he's intrigued by the notion of skipping Windows 2000 Server in favor of Windows Server 2003 so he can extend the life cycle of CE Franklin's server operating systems and defray licensing costs.

"You not only have to pay for server licenses; you have to pay for hundreds of client-access licenses, and that just drives the cost through the roof," says Curran.

4 Upgrades disrupt the business.

Like many organizations, Navy Exchange Service Command in Virginia Beach, Va., has a heterogeneous mix of servers. The retailer, which employs more than 16,000 people in 108 dispersed locations, runs its most critical applications on 100-plus Unix boxes. But it also has a collection of Novell and Windows NT servers.

"We don't see anything that's going to drive us off NT Server in a rush," says CIO Bill Finefield. "Usually by the time something like that gets to the end of its supported life, it's pretty stable. And we don't do anything exotic with it. If it's running today, chances are it'll be running tomorrow."

Finefield says it's the end of support for an application, not for an operating system, that drives upgrades at his organization. "It's not the operating system that's so important to your business," he says. "It's the applications that run on it."

One reason Finefield is reluctant to upgrade server operating systems is the disruption it would cause to Navy Exchange Service's business. Finefield cites the time that would be needed to stage, configure, test and deploy both the new operating system and any application that runs on it. Plus, new operating systems typically require more memory, processing power and storage.

"It starts a ripple effect, requiring you to invest in additional hardware and training and resources to keep up with it," he says. "After you've gone through all that, you just don't want to touch it for a while."

5 Where's the ROI?

Metropolitan Health Corp. in Grand Rapids, Mich., has 54 Windows NT 4.0 servers running health care, financial and supply chain applications, databases and various utilities. CIO Bill Lewkowski says that with so many applications, it's hard for his organization and its application vendors to keep up with Microsoft's new releases from a time and budget standpoint.

Also, it's hard to calculate a huge return on investment from an infrastructure upgrade in comparison with projects that directly affect end users, notes Lewkowski.

So Metropolitan Health plans to wrap its server architecture decisions in high-level business goals, says Randy Truax, manager of technical services.

Truax hopes to tie the operating system upgrade to a server consolidation project, since Metropolitan, like many companies, runs one application per NT server — often because its application vendors wrote them that way.

Metropolitan Health will also try to cost-justify the operating system upgrade by clustering servers, because Truax wants the IT department to be able to patch machines without having to take them off-line, so end users who are expected to increasingly rely on computer systems instead of paper won't lose access to their applications.

"I want to drive the cost of the infrastructure as low as I can — but not give up stability or scalability," Truax says.

Time Is Running Out

As IBM phases out its aging OS/390 mainframe operating system, users must migrate to z/OS. By Jaikumar Vijayan

WHEN IBM STOPPED selling its OS/390 operating system last December, the clock started ticking for users of the mainframe system to switch to the newer 64-bit z/OS. Users who delay making that transition could find themselves marooned on an unsupported platform in the not-too-distant future, users and analysts say.

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IBM released z/OS in October 2000, along with new 64-bit zSeries mainframe hardware. Already, IBM is into its fourth version of z/OS and poised to phase out support for OS/390 technology. For example, support for OS/390 Version 2.10 — which is the last OS/390 release — will cease in September 2004, while support for Version 2.09 will end this month.

The company has for some time now been telling OS/390 users to move to its latest release, z/OS 1.4, not only to ensure continued support, but also because IBM will use this release as a base for future hardware enhancements.

In addition, z/OS 1.4 is the last release of z/OS that OS/390 users will be able to migrate to in a single step. Moving to future z/OS releases from OS/390 will involve a two-step process.

Analysts estimate that more than 80% of mainframe workloads are currently running on z/OS. However, the machines running OS/390 far outnumber zSeries systems because the OS/390 machines tend to be much smaller, says Phil Payne, president of Isham Research in Great Stukeley, England. "Numerically, [OS/390 machines] account for 80% of the mainframes out there, but they don't account for much of the power," he says.

The difficulty of the migration task depends on the release of the operating system and the hardware that users are currently on, say users.

For instance, users who are on OS/390 Version 2.10 can move to z/OS 1.4 and continue running the operating system and all applications in 31-bit mode on their existing 31-bit System 390 hardware.

For such users, the migration really is no different from moving to any new operating system release, says David Danner, a Washington-based consultant who recently helped a large government agency migrate to z/OS.

For the many users who aren't ready or can't afford the move to a full 64-bit environment, which involves buying expensive new zSeries hardware, running z/OS in 31-bit mode on S/390 hardware should do nicely, users and analysts say.

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www.ibm.com/servers/eserver/zseries/zos

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IBM has also restructured its pricing models to minimize the software upgrade costs associated with moving to z/OS. And IBM handbooks and other materials that provide detailed technical help are available.

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Choose Your Path Wisely

Sony AIT data storage solutions provide a strategic alternative to linear tape formats.

As Robert Frost makes clear in his famous poem, "The Road Not Taken," picking one path over another can make all the difference. While Frost had other topics in mind at the time, his point is nonetheless applicable to today's companies that are using or considering linear tape formats such as DLT, S-DLT and LTO as their data storage solution.

Legacy formats such as Digital Linear Tape (DLT) were a reasonable data storage alternative in the past, but a combination of new business challenges and new technology choices are driving many companies to rethink their tape storage path. For example, conventional DLT systems are approaching the end of their useful life cycle, with no well-defined way to add capacity without upgrading to a new format. While Super DLT (S-DLT) and Linear Tape Open (LTO) systems do have roadmaps to the future, neither format offers a compatible solution that can span the gamut of storage needs, from the entry or workstation level up to the "Super Drive" level. In addition, upgrades require a media change, making long-term use of linear solutions more cumbersome and less flexible.

Perhaps, as Frost suggests, it's time to consider a different path. Advanced Intelligent Tape™ (AIT) data storage solutions from Sony provide a broader range of capacities, increased performance, better reliability, easier maintenance and a more strategic path to the future than the alternatives. Organizations choosing the AIT path will find themselves with a more flexible and integrated tape storage format that can span backup needs from individual PCs, to workgroups, to the enterprise.

Tape format	Capacity
Digital Linear Tape (DLT)	10GB to 40GB
Super DLT (S-DLT)	50GB to 110GB
Linear Tape Open (LTO)	100GB to 200GB
Sony Advanced Intelligent Tape (AIT)	25GB to 100GB

AIT is a proven storage technology with years of successful enterprise deployments behind it. First appearing in 1996, AIT is a compact, helical scan 8MM tape format in a 3.5-in., half-height form factor. With its high capacity (up to 100GB per cassette), speed and reliability, AIT is emerging as a more strategic tape storage path compared with linear formats such as DLT, S-DLT and LTO. Consider the following advantages of AIT:

One Platform: Full Coverage

Sony AIT is the only technology that covers the entire backup and archiving spectrum.

- **Capacity/Performance** — High-end network and enterprise backup/archiving
- **Performance/Price Focus** — Mid-range network backup/archiving
- **DDS Replacement** — Low-end desktop backup

- **Reliability** – Consistent operation and assured reliability are two critical components for a tape storage system. AIT-3 drives are designed for a mean time between failure (MTBF) of up to 400,000 hours (compared with DLT's 250,000 MTBF rating) and a 100% duty cycle.

In contrast, DLT-IV media is notoriously unreliable, subject to the often severe leader problems that are common for leader-based tapes. AIT, on the other hand, has a soft loading system, which allows it to load the media without using motors or levers. This greatly decreases the stress on the tapes and increases the longevity of the media. In fact, AIT can even perform a soft load from the middle of the tape.

- **Performance** – With organizations facing increasingly larger backup volumes and a greater need for faster recoveries for business continuity, drive performance is critical. For large backup applications, AIT compares favorably with the higher speeds of S-DLT and LTO. But for interactive applications, AIT is far faster because of its superior load, seek and rewind times. For example, AIT has a 39-second access speed, compared to 80 seconds for S-DLT and LTO.
- **Migration Path** – Currently in its third generation, AIT has a defined and proven roadmap that has seen performance and capacity double with each new generation. In addition, all three generations of AIT drives available today are both read and write backward-compatible. S-DLT drives, on the other hand, can not write to DLT cartridges, severely limiting their usefulness.
- **Industry Support** – AIT was created by Sony, one of the co-inventors of the Digital Data Storage (DDS) tape format, and AIT is an open technology supported by more than 27 partners, including HP/Compaq, Qualstar, Advanced Digital Information Corp. (ADIC) and Spectra Logic. In addition, leading backup software packages such as Veritas Software's Veritas Backup Exec and NetBackup, Legato Systems' NetWorker and Computer Associates' CA BrightStor ARCserve are all compatible with the AIT format.
- **Size** – In backup, less is more. For example, AIT-3 provides at least 250% greater capacity than DLT. At its 100GB capacity, AIT tapes are comparable to S-DLT 110GB and LTO 100GB models, but at just one-third the size. Simply put, this means it's much easier to use AIT for automation and tape libraries because it takes up so much less room. In fact, many companies are able to get twice the number of AIT drives in a given library compared with traditional half-inch drives. AIT also has the world's first 1U autoloader (courtesy of its low power consumption and small media size), making it the perfect fit for tight locations.

Some organizations fear that switching to a different backup tape format will be difficult and costly. But it can be done painlessly. If you follow a standard 30-day backup cycle, most of your organization's data will be on newer AIT tapes within a month.. In addition, Sony bundles NovaStor migration tape copy software with each AIT tape drive or library, making it easy to copy critical or frequently-used tapes from other formats onto AIT.

Data backups should be there when you need them. But you shouldn't have to dedicate valuable IT personnel to maintaining finicky tape drives, juggle dozens of tapes to find what you're looking for or wait minutes (or hours or days) to retrieve valuable data. Sony's AIT data storage solutions enable organizations to get on the right path for compatible, reliable and high-performance tape backup. AIT is simply the smart investment.

Learn More About

Download the free white paper, "Sony AIT: A New Path to Business Value," and learn more about Sony storage solutions.
Visit www.nwfusion.com/sony/HLFCW

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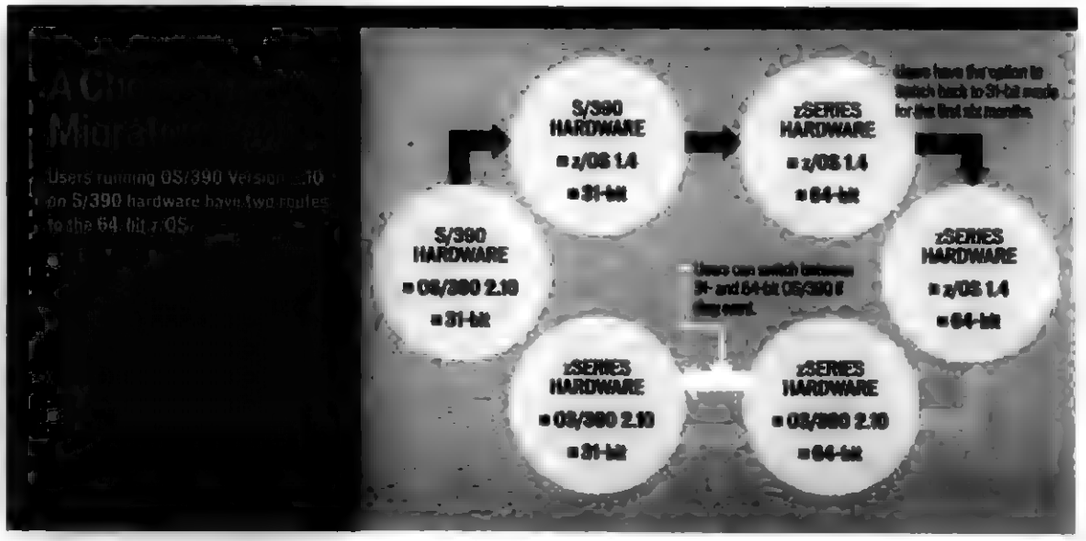

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Sony AIT data storage solutions provide a strategic alternative to linear tape formats.

As Robert Frost makes clear in his famous poem, "The Road Not Taken," picking one path over another can make all the difference. While Frost had other topics in mind at the time, his point is nonetheless applicable to today's companies that are using or considering linear tape formats such as DLT, S-DLT and LTO as their data storage solution.

Legacy formats such as Digital Linear Tape (DLT) were a reasonable data storage alternative in the past, but a combination of new business challenges and new technology choices are driving many companies to rethink their tape storage path. For example, conventional DLT systems are approaching the end of their useful life cycle, with no well-defined way to add capacity without upgrading to a new format. While Super DLT (S-DLT) and Linear Tape Open (LTO) systems do have roadmaps to the future, neither format offers a compatible solution that can span the gamut of storage needs, from the entry or workstation level up to the "Super Drive" level. In addition, upgrades require a media change, making long-term use of linear solutions more cumbersome and less flexible.

Perhaps, as Frost suggests, it's time to consider a different path. Advanced Intelligent Tape™ (AIT) data storage solutions from Sony provide a broader range of capacities, increased performance, better reliability, easier maintenance and a more strategic path to the future than the alternatives. Organizations choosing the AIT path will find themselves with a more flexible and integrated tape storage format that can span backup needs from individual PCs, to workgroups, to the enterprise.

AIT is a proven storage technology with years of successful enterprise deployments behind it. First appearing in 1996, AIT is a compact, helical scan 8MM tape format in a 3.5-in., half-height form factor. With its high capacity (up to 100GB per cassette), speed and reliability, AIT is emerging as a more strategic tape storage path compared with linear formats such as DLT, S-DLT and LTO. Consider the following advantages of AIT:

- **Reliability** – Consistent operation and assured reliability are two critical components for a tape storage system. AIT-3 drives are designed for a mean time between failure (MTBF) of up to 400,000 hours (compared with DLT's 250,000 MTBF rating) and a 100% duty cycle.

In contrast, DLT-IV media is notoriously unreliable, subject to the often severe leader problems that are common for leader-based tapes. AIT, on the other hand, has a soft loading system, which allows it to load the media without using motors or levers. This greatly decreases the stress on the tapes and increases the longevity of the media. In fact, AIT can even perform a soft load from the middle of the tape.

- **Performance** – With organizations facing increasingly larger backup volumes and a greater need for faster recoveries for business continuity, drive performance is critical. For large backup applications, AIT compares favorably with the higher speeds of S-DLT and LTO. But for interactive applications, AIT is far faster because of its superior load, seek and rewind times. For example, AIT has a 39-second access speed, compared to 80 seconds for S-DLT and LTO.
- **Migration Path** – Currently in its third generation, AIT has a defined and proven roadmap that has seen performance and capacity double with each new generation. In addition, all three generations of AIT drives available today are both read and write backward-compatible. S-DLT drives, on the other hand, can not write to DLT cartridges, severely limiting their usefulness.
- **Industry Support** – AIT was created by Sony, one of the co-inventors of the Digital Data Storage (DDS) tape format, and AIT is an open technology supported by more than 27 partners, including HP/Compaq, Qualstar, Advanced Digital Information Corp (ADIC) and Spectra Logic. In addition, leading backup software packages such as Veritas Software's Veritas Backup Exec and NetBackup, Legato Systems' NetWorker and Computer Associates' CA BrightStor ARCserve are all compatible with the AIT format.
- **Size** – In backup, less is more. For example, AIT-3 provides at least 250% greater capacity than DLT. At its 100GB capacity, AIT tapes are comparable to S-DLT 110GB and LTO 100GB models, but at just one-third the size. Simply put, this means it's much easier to use AIT for automation and tape libraries because it takes up so much less room. In fact, many companies are able to get twice the number of AIT drives in a given library compared with traditional half-inch drives. AIT also has the world's first 1U autoloader (courtesy of its low power consumption and small media size), making it the perfect fit for tight locations.

Some organizations fear that switching to a different backup tape format will be difficult and costly. But it can be done painlessly. If you follow a standard 30-day backup cycle, most of your organization's data will be on newer AIT tapes within a month. In addition, Sony bundles NovaStor migration tape copy software with each AIT tape drive or library, making it easy to copy critical or frequently-used tapes from other formats onto AIT.

Data backups should be there when you need them. But you shouldn't have to dedicate valuable IT personnel to maintaining finicky tape drives, juggle dozens of tapes to find what you're looking for or wait minutes (or hours or days) to retrieve valuable data. Sony's AIT data storage solutions enable organizations to get on the right path for compatible, reliable and high-performance tape backup. AIT is simply the smart investment.

Tale of the Tape

Tape format	Capacity
Digital Linear Tape (DLT)	10GB to 40GB
Super DLT (S-DLT)	50GB to 110GB
Linear Tape Open (LTO)	100GB to 200GB
Sony Advanced Intelligent Tape (AIT)	25GB to 100GB

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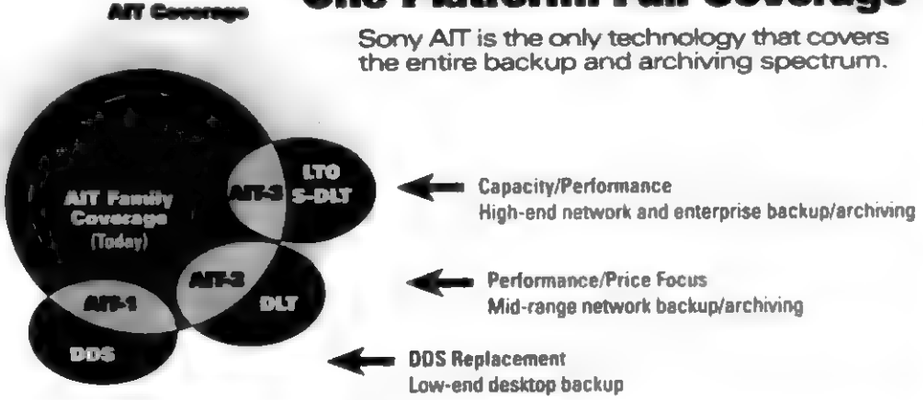
Sony AIT is the only technology that covers the entire backup and archiving spectrum.



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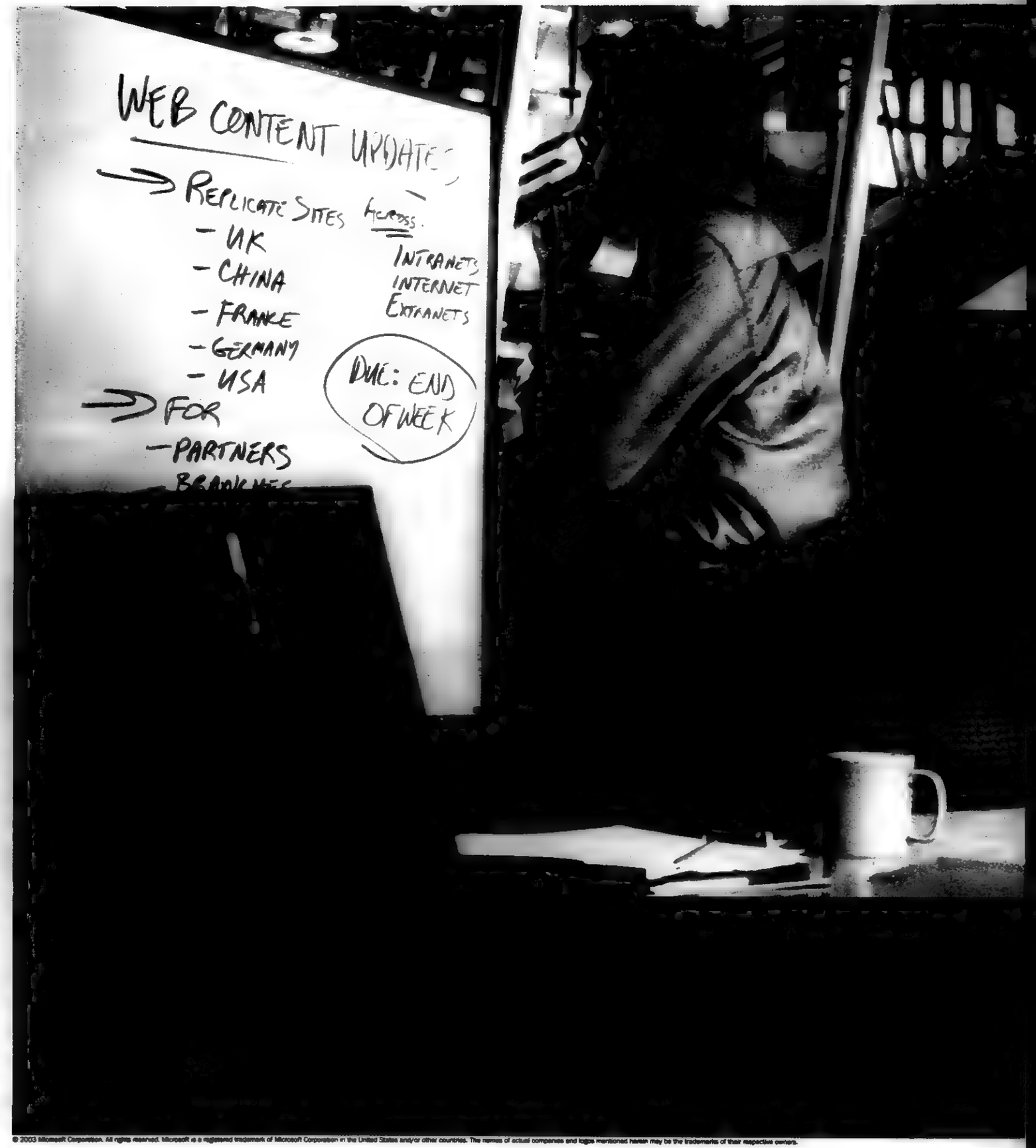
Sony AIT Solutions

Download the free white paper, "Sony AIT: A New Path to Business Value," and learn more about Sony storage solutions.
Visit www.nwfusion.com/sony/HLFCW



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Getting Started With Linux

Worried about version control and support? Here's a guide for Linux newbies.

By Robert L. Scheier

TO HEAR SOME PEOPLE TELL it, Linux is taking the world by storm. Unilever, a $52 billion consumer products giant, is switching to Linux to run its businesses around the world. Major vendors such as IBM, SAP AG and Computer Associates International Inc. are porting mainstream business applications and utilities to the low-cost, open-source operating system.

But not every IT shop is out on the leading edge of Linux; many are just starting to explore the open-source phenomenon. For them, Linux's practical implications are a major concern. IT managers face day-to-day challenges such as how to perform version control and how to back up and restore data. They also need to know how much training their staffs will need and whom to call for technical support at 2 a.m.

The good news: You can do almost anything on Linux that you can do on a mainframe or distributed systems. The bad news: It will require you to learn some new concepts and terminology.

1. Version Control

You may think of the open-source community as worldwide chaos, with developers releasing dozens or hundreds of bug fixes and updates each month that need to be evaluated and tested before deployment. Actually, it's not that different from the computing environments IT managers have lived in for years, say some users.

"Microsoft is announcing a new security breach [that requires patching] almost every day," says Dan Agronow, vice president of technology at Atlanta-based weather forecasting service The Weather Channel Interactive Inc., which runs Weather.com. And mainframe vendors find highly pervasive errors in their operating systems just as often.

That doesn't mean open-source updates can't seem, well, chaotic. In the past year, Islandia, N.Y.-based CA has seen almost 20 versions of the operating system kernels for different flavors of Linux, says Vincent Re, chief architect at CA. If you're a business customer, you're likely buying a distribution from a major vendor, such as Red Hat Inc., SuSE Linux AG or The SCO Group, that tests the updates, packages them and sends them to customers through Internet services such as the Red Hat Network.

Vendors usually provide updates only for their own Linux distributions; customers must go to other software vendors for updates to other Linux-based utilities or business applications. (For example, Red Hat doesn't distribute Oracle Corp.'s Linux offerings.)

As with Unix, in the Linux world, version control is referred to as "package management," says Erik Troan, director of product marketing at Red Hat in Raleigh, N.C. Each package is a single file that comes with metadata containing critical information such as which version of the Linux kernel and which associated software is needed to run the file, he says.

Customers with strong Unix skills can test and evaluate the updates themselves, says Re. Version control tools include the Red Hat Package Manager, which can also manage updates from other distributors. The Caldera VolutionManager from SCO in Lindon, Utah, combines software distribution with services such as asset management and system monitoring. Third-party tools include CA's AllFusion Harvest Change Manager for distributed Linux systems and its Unicenter Software Delivery for Linux on the mainframe.

Update tools such as the Red Hat Package Manager aren't perfect, of course. Red Hat won't support rollback (reversing a software update if it doesn't work) until the next release of its Advanced Server and Advanced Workstation in the fall, says Troan. Rollback is already available in Version 1.2 of Red Carpet Enterprise from Ximian Inc. in Boston.

Customers also face uncertainty over whether the new patches will run older applications or device drivers. Linux "doesn't have the reputation for forward and backward compatibility" customers have come to expect from mainframe operating systems such as z/OS, says Re. Some

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Agenda Snapshot*

For details, updates, and to register visit **www.snwusa.com/expo**

Monday, April 14
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Primer
12:00pm-5:00pm	Golf Outing
1:00pm-2:00pm	SNIA Tutorial Sessions - choose from five different sessions
2:00pm-2:10pm	Break
2:10pm-3:10pm	SNIA Tutorial Sessions - choose from five different sessions
3:10pm-3:20pm	Break
3:20pm-4:20pm	SNIA Tutorial Sessions - choose from five different sessions
4:20pm-4:30pm	Break
4:30pm-5:30pm	SNIA Tutorial Sessions - choose from five different sessions
7:00pm-9:00pm	Pre Conference Networking Reception

Tuesday, April 15
(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:30am-9:15am	Opening Keynote: Regis McKenna
9:15am-12:00pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:45pm-4:00pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-8:30pm	Expo, Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 16
(General Conference - Day Two)

7:15am-8:15am	Continental Breakfast
8:30am-9:05am	Opening Keynote: David Chamberlain
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Expo, Buffet Luncheon
12:00pm-7:15pm	Interoperability and Solutions Demo Open
1:45pm-3:50pm	General Sessions
3:50pm-4:00pm	Break
4:00pm-5:00pm	Technical, Technical/Business and Business Tracks
5:15pm-7:15pm	Expo Open
7:30pm-9:00pm	Gala Evening

Thursday, April 17
(Tutorial and Workshop Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business and Business Tracks
11:45am	Conference Concludes

Register Today!

Options for IT End-Users*	Pre-Registration (through April 11th)	On-Site Registration (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	$1,095	$1,245
Total 4-day Package (Apr. 14, 15, 16, 17): (Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses; Expo, Meals and Receptions)	$1,490	$1,690

Options for IT Vendors**		
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Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

* See IT End-Users description on the Registration Application on the reverse. ** See Non-Sponsoring Vendor description on the Registration Application on the reverse.

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Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Palmer Course at Wildfire, located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Leger at 1-508-620-6277

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** Vendors are encouraged to participate at Storage Networking World through sponsorships. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

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Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, April 14th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
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- ❑ Media/Publishing
- ❑ Banking/Finance/Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (External) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

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- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

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2) He or she may transfer this registration to the Fall 2003 Storage Networking World* conference, if written notice is received by March 31, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by March 31, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events *(subject to change)*

Monday, April 14, 2003
- Pre-Conference Golf Outing
- Pre-Conference Networking Reception
- Tutorial Sessions

Tuesday, April 15, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition

Wednesday, April 16, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition
- Gala Evening

Thursday, April 17, 2003
- Tutorial Sessions

The Weather Channel's Dan Agronow updates his 250 Linux servers once each quarter.

Ann Stasse

No Big Deal

THERE ARE SOME ISSUES that might seem worrisome to an IT administrator who's new to Linux, but they're really no problem once you look more closely. Among the areas you don't have to sweat, say customers, analysts and vendors, are backup and restore tasks, clustering and fail-over.

When it comes to data protection, most major vendors have ported their premier backup-and-restore tools to Linux. Examples include IBM's Tivoli Storage Manager, CA's ARCserve for Linux running on Intel systems, and CA's Brightstor for Linux on the mainframe.

To build clusters of Linux servers for instant fail-over in the event of a server crash, customers can use configuration scripts offered at Web sites such as that of the High-Availability Linux Project (*www.linux-ha.org*).

They can also use tools from distributors, such as the Cluster Manager Package for Red Hat's Advanced Server, or third-party tools such as LifeKeeper from SteelEye Technologies Inc. in Mountain View, Calif., and Matrix HA from PolyServe Inc. in San Francisco.

Some customers are finding that they can get faster fail-over and less of a performance hit when clustering Linux servers than when clustering Windows servers, says Vincent Re, chief architect at CA.

– *Robert L. Scheier*

distributors have also balked at including device drivers or other software from vendors that have refused to include the source code in order to keep it from competitors.

Jeff Davis, global technical lead at Amerada Hess Corp., uses Red Carpet Enterprise to update about 350 servers running various versions of Red Hat Linux. The tool lets the New York-based energy company create "channels" that automatically send updates for the Apache Web server to Linux servers but not to Linux desktop systems.

But just as with Windows or mainframes, no good IT manager applies those Linux patches willy-nilly. Instead, says Agronow, "you have a scheduled maintenance cycle." Agronow updates his approximately 250 Linux servers once per quarter, only after testing to be sure the updates are safe.

LINUX FOR SURFERS
A collection of Linux Web sites from vendors such as IBM, HP, Red Hat, SCO and SuSE.
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2. Support

You can get as much hand-holding as you want (and are willing to pay for) from the Linux distributors or better-known vendors such as IBM and Hewlett-Packard Co.

"Just because the development model is open doesn't mean the support model is any different than what you'd find with a proprietary OS," says Timothy D. Witham, lab director at the Open Source Development Lab in Beaverton, Ore., and a *Computerworld.com* columnist [QuickLink 36148]. Or, if you have the skills and mind-set, you can turn to the open-source community itself and get better support than you would from a vendor you paid, say some customers.

When calling IBM for support with its WebSphere application server, Agronow had to slog through a script of questions read by a first-level support technician before being referred to an expert who could solve the problem.

After migrating to the Tomcat open-source application server in June 2000, he used Web sites and forums to get his questions "out to many different experts all at the same time." Not only did Agronow get answers more quickly, but he rarely was told to upgrade to "the latest and greatest version" of the vendor's software to fix the problem, he says.

Major vendors such as IBM and HP offer round-the-clock service, as do Linux distributors such as Red Hat and SCO. "A number of Fortune 100 companies, such as Morgan Stanley, rely on our support every day," says Red Hat's Troan. Such support is included along with all upgrades and bug fixes with Red Hat's Advanced Server Premium Edition license for $2,500 per machine per year.

3. Training

If you're coming from a well-trained Unix shop, anywhere from a couple of days to a couple of weeks should be enough to get you going on Linux, say vendors, analysts and customers. Staffers coming from a Unix or Windows background will, however, need training on functions such as partitioning before managing IBM's z/VM mainframe operating system, says Re.

Becoming a Red Hat Certified Technician generally requires two weeks of training, with another two weeks to become a higher-level Red Hat Certified Engineer, says Troan. Agronow says he wants one to two years of job experience for a junior administrator and four to six years for a senior administrator.

Many customers, such as Amerada Hess' Davis, are skeptical about the value of the several flavors of Linux certification available on the market.

One hopeful note on training: Davis says Linux requires less ongoing training than Windows because there are fewer differences among the various flavors of Linux than there are between, say, Windows NT and Windows 2000. With Linux, he says, "we're not retraining our staff every time a new version comes out."

Best Practices Count

Overall, the customers and analysts say that critical data-center tools and processes are rapidly moving to Linux. "If you're coming from a background where you have the disciplines in place for communicating changes, making changes and doing upgrades, and you apply those disciplines, you're going to have success," says Agronow. "If you're in an environment which is a free-for-all, where things are constantly changing and there are no controls and no standards," he says, you're going to fail — with Linux or with any other operating system.

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

Logical Volume Manager

DEFINITION

A logical volume manager is a software tool that allows storage drive space to be added or expanded on the fly without system reboots or shutdowns, giving systems administrators more flexibility for operations.

BY TODD R. WEISS

As Linux systems administrators watch over their hardware and software infrastructures, they constantly have to look ahead to how much space to allocate to hard-disk partitions to meet changing needs.

But the process of adding disks or reconfiguring existing drive space is slowed when servers have to be taken off-line for new drive installation and time-consuming rebooting or backup, repartitioning and data restoration.

Those changes can more easily be made using a logical volume manager (LVM), which precludes the need for reboots, shutdowns or downtime. Thus, an LVM can be an administrator's best friend.

Microsoft's Windows and Sun's Solaris and other Unix operating systems have similar volume manager capabilities.

Under Linux, an LVM is enabled by a kernel-loadable module, similar to a device driver in Windows. Kernel modules capture disk functions from user operations and convert them to write to the correct part of the disk. They work like a file system driver, but are far more dynamic.

Support for an LVM wasn't built into the Linux kernel until Version 2.4, but it was available as an add-on. It has been an important tool as Linux continues to make its way into enterprise computing.

QUICK STUDY

"It's a common feature because it's so useful," says Chris Mason, a Linux kernel developer at Nuremburg, Germany-based Linux vendor SuSE Linux AG. "A lot of people, especially in Windows, may not know a lot about it," Mason says. "It's an extra layer to learn about, so a lot of people don't. Then when they move from a smaller server to a larger server, they don't realize how much more easily they can make it work."

The LVM creates an abstraction layer over all the combined storage in a system, so that the details about where the data actually resides are hidden. That allows the total separation of hardware and software because the LVM keeps a table of where the data is written and what volume group and volume it belongs to, allowing drives to be added or changed even while the system is running. And all this happens without software applications or users noticing the changes.

Systems without LVMs are also set up with physical hard drives, but they don't have this virtualization layer. When more disk space is needed, the system must be shut down and the new drives installed, and then they must be provided with file systems to organize data storage. If the new drive is replacing the original drive, the old drive must be backed up so the new drive can receive its data. That all takes time.

Organized Resources

With an LVM, the physical drives or hard disks are organized into "volume groups." Created inside those volume groups are "logical volumes," which are comparable to disk partitions in systems without LVMs. By keeping the hardware and software separate, drive changes can be made without shutdown or rebooting, and data can be moved to a different location while the system is running.

Joaquin Ruiz, vice president of marketing and product management at Minneapolis-based Sistina Software Inc., which has largely developed the LVM for Linux as an open-source program, says the LVM is important because it makes it much easier to administer storage.

Management Is Key

"The bottom line is management," Ruiz says. Without a volume manager, the burden of how to represent and deal with data storage is left up to the developer of the application you want to run, he says. That potentially permits "applications to be stepping on other applications" as they compete for disk space, says Ruiz. That's why all robust operating systems have volume management features, he says.

Sistina contributed the LVM technology to the Linux open-source community to improve the lineage, he says. By adding the LVM, Linux becomes more scalable. The LVM aggregates information about physical volumes, which are the actual hard-disk partitions, and presents them through the file system to the applications.

Sistina's LVM is supported by the standard Linux kernel version, beginning with 2.4. Red Hat 7.3 and Red Hat 2.1 Advanced Server editions, and is built natively into Red Hat 8.0. It is also supported by SuSE 7.3 and 8.0 and SuSE Linux Enterprise Server 7. SuSE was an early supporter of the LVM and has included the Sistina LVM in all its operating systems since SuSE Linux 6.3. It was also built into UnitedLinux Version 1.0, which is packaged and sold by the four UnitedLinux partners. It's compatible with all major Linux applications, including Web applications, databases and the Samba file-sharing system.

Brian Stevens, senior director of engineering at Red Hat Inc. in Raleigh, N.C., says the LVM addresses three areas for IT administrators: availability, performance and manageability of storage drive space. "Administrators love it because it gives control, uptime and doesn't waste space," he says.

Presently, the Red Hat Linux Advanced Server operating system doesn't include an LVM natively, but Red Hat partners with Veritas Software Corp. in Mountain View, Calif., to offer an LVM as an add-on. LVM software will be included in the next version of Advanced Server, Stevens says. Red Hat is more concerned with adding to the OS enterprise-mandated features such as scalability, threading and clustering capabilities before adding an LVM, even though customers have asked for it, Stevens says.

"It is a committed feature for the next version," he says.

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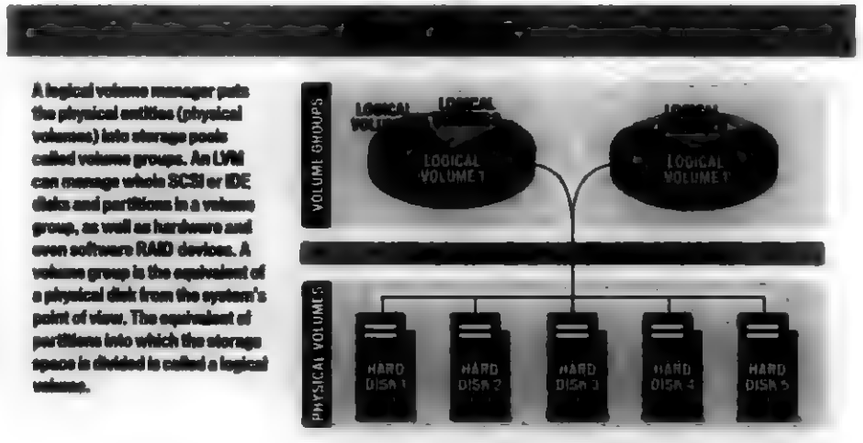

A logical volume manager puts the physical entities (physical volumes) into storage pools called volume groups. An LVM can manage whole SCSI or IDE disks and partitions in a volume group, as well as hardware and even software RAID devices. A volume group is the equivalent of a physical disk from the system's point of view. The equivalent of partitions into which the storage space is divided is called a logical volume.

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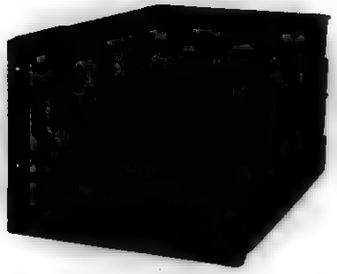

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Strength in Numbers?

UnitedLinux, an alliance of four companies battling the Red Hat juggernaut, has made some progress in its first 10 months. Here's an update. By Todd R. Weiss

A YEAR AGO, they were rivals, four companies each fighting for a tiny share of the Linux server market but not gaining much ground on U.S. market leader Red Hat Inc.

Then last May, the rivalry was replaced by a partnership called UnitedLinux, bringing the former competitors together to share technology, expertise and development costs as they worked to build a standardized, enterprise-ready Linux operating system to compete head-on with Red Hat's best.

How have the first 10 months shaped up for UnitedLinux partners SuSE Linux AG in Nuremberg, Germany; The SCO Group Inc. in Lindon, Utah; Turbolinux Inc. in Tokyo; and Conectiva SA in Curitiba, Brazil?

"I think they can be successful," says Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston. "UnitedLinux and Red Hat will share the U.S. market, which is a pretty large market. Each company, though, still has to be successful alone."

Claybrook says the partnership offers the companies economies of scale. "They are sharing a number of costs that are not talked about publicly that lower their overall development and support costs," he says. The alliance's version of Linux will likely be the boost that some of the current and potential partners need to keep going, he says.

So far, the effort has shown progress by attracting independent software vendors to port their applications to UnitedLinux and by creating common support and call centers to help customers, Claybrook says. "I would give them an A- at this point; however, we will see a lot more in the next year. One thing the UnitedLinux members have going for them is the [operating system] itself. I would give it an A+."

"Each of the vendors individually didn't have a whole lot of market penetration" before joining up, says IDC analyst Al Gillen. "What they've done in effect is put all their cards together to have a bigger deck."

Gillen says he would have argued a year ago that Wakefield, Mass.-based UnitedLinux would have a tough time taking on Red Hat's dominance. But since then, Raleigh, N.C.-based Red Hat changed its server licensing, requiring customers to purchase a copy of its server operating system for each machine, just as UnitedLinux requires. "Because those terms are more restrictive than a traditional Linux license, it levels the playing field somewhat," Gillen says.

Here's what the alliance has offered users in its first 10 months:

Uniformity and Robustness

Gregory Blepp, SuSE vice president of international sales, says customers have gained uniformity and robustness under UnitedLinux. Although none of the companies has a worldwide presence, each has local market strengths that helped build the alliance, he says. "The real global coverage was missing . . . so this was one of the driving factors of UnitedLinux," Blepp says.

The companies sell their own branded versions of UnitedLinux. The core operating system is the same in each, but extra add-ins vary. Each company ships its own version on four CDs, including three with the core UnitedLinux ingredients.

The first version of UnitedLinux Enterprise Server, based on SuSE's Linux Enterprise Server 7, was released on schedule in November, and a "carrier-grade" version for the telecommunications industry is in the works.

Easier App Certification

With UnitedLinux, software vendors can now build just one version of an application for certification on one platform, instead of having to get it certified with each of the four companies, Blepp says. That saves costly porting, testing and certification steps and is already encouraging more developers to create new business applications for UnitedLinux, he says.

Each partner adds special attributes, he says. SuSE and SCO bring combined development resources, while Turbolinux brings expertise in localizing the Linux distributions for many different spoken languages. Conectiva specializes in easy deployment and support.

Stacey Quandt, an analyst at Giga Information Group Inc. in Cambridge, Mass., says the alliance got off to a slow start by not providing an easy means for software developers to port their products to UnitedLinux. That changed with the announcement in January of a UnitedLinux Developer Zone Web site. "It was a major shortcoming, and now they have addressed that," Quandt says.

Longer Cycle Times

Paula Hunter, general manager of UnitedLinux, says another key benefit for corporate users is that the partnership has scheduled release cycles for future upgrades that are longer than traditional open-source software release cycles. That gives business users more time to be sure their needed applications will run well, she says.

Moreover, the alliance can provide support to customers from any of the partners as needed, Hunter says. "It's important to realize that we're a global concern," she says.

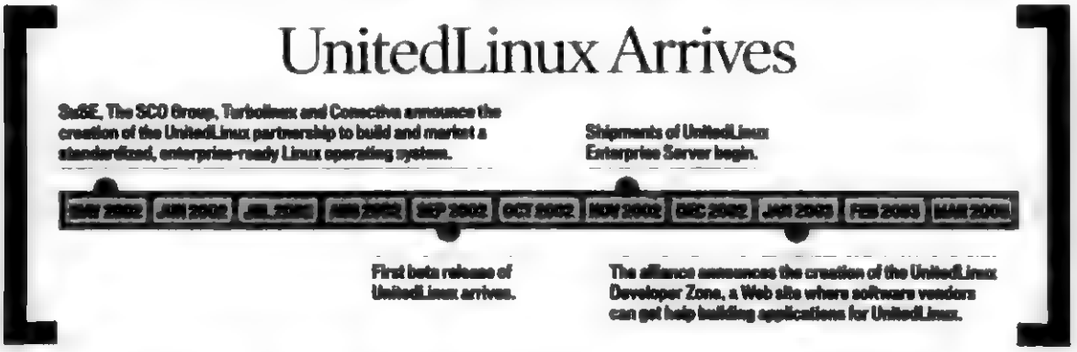
Hunter says that because UnitedLinux didn't begin shipping its server operating system until November, analysts haven't yet recognized its growing popularity among customers. "It's still a little early for them to be counting [unit] shipments. We are winning major brand-name accounts here in the U.S. We recognize that's where the analysts want to see traction," she says.

Late last year, Turbolinux sold its operating system business to Software Research Associates Inc. in Tokyo, which is continuing the partnership in UnitedLinux, says Fumiko Doi, director of marketing at Turbolinux. The company remains committed to the effort, she says.

IBM, Hewlett-Packard Co. and Advanced Micro Devices Inc. have signed on as technology partners in support of UnitedLinux. IBM and HP are supporting both Red Hat and UnitedLinux on their Linux hardware.

Quandt says that even as the No. 2 player in the U.S. market, UnitedLinux "has the potential to chip away at Red Hat's leadership if its [software vendor] ecosystem matures rapidly." Elsewhere in the world — Europe, the Middle East, Africa, Latin America and the Asia-Pacific region — Red Hat's penetration is lesser and often exceeded by the individual UnitedLinux partners. In such places, UnitedLinux could erode Red Hat's market share, she says. ▶

UnitedLinux Arrives



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The Worldwide Code Rebellion

Discontent over proprietary software from U.S.-dominated vendors has foreign governments exploring open source. By Patrick Thibodeau

OPEN-SOURCE SOFTWARE is gaining ground with governments in Europe and elsewhere, as officials look for ways to cut IT expenses and free themselves of dependence on U.S.-based vendors.

This isn't a short-term phenomenon. It's a worldwide movement, and there are a lot of reasons behind it.

Governments are concerned about proprietary lock-in on things as basic as document and spreadsheet file formats, and they're leery of using software that may reach the dead end of planned obsolescence. They also aren't happy about paying costly licensing fees to foreign suppliers for products that don't meet all their needs.

The U.K.'s National Health Service, in a study last year on the feasibility of open source, warned that the market for health care IT is becoming dominated by a small number of U.S.-based vendors. These systems are expensive to buy and maintain, and since "the U.K. represents a relatively small part of the market, global suppliers are unresponsive to requests for local variations, and/or provide them at a very high cost," the report says.

"It's about money, plain old-fashioned money," says Atul Chitnis, a Linux expert at Exocore Consulting Ltd. in Bangalore, India, in an e-mail interview about that country's moves to open source. "But it's also a bit about sovereignty." Chitnis is an adviser to the government-sponsored Linux India Initiative, announced last year.

One goal of pushing open source is to foster the development of homegrown high-tech businesses and expertise. The movement is also related to feelings about Microsoft Corp.'s worldwide dominance in productivity applications and desktop operating systems. Carol Kelly, an analyst at Meta Group Inc., calls it the "Microsoft backlash." But while some local agencies are considering or have deployed Linux desktop systems, most of the governmental interest is in server deployments.

Stirring the Pot

Indeed, the European Commission is involved in multiyear studies examining open-source development for server software and its total cost of ownership. There are obvious licensing savings with open-source models, but total cost of ownership is a pot with many ingredients, including integration, training and migration.

A European Commission-backed study completed last year advocates "pooling," or sharing, of open-source software code among various countries, as well as sharing IT knowledge and development expertise. Pooling may not necessarily save money, but by working together, governments may get much more for their euros.

"Pooling of knowledge is more important than pooling of code," says Patrice-Emmanuel Schmitz, a Belgium-based Unisys Corp. consultant who co-authored the report.

Governments in Europe, Singapore, Taiwan, China and elsewhere are adopting policies that encourage IT managers to consider deploying open-source systems. In the U.S., neither the federal government nor any states have adopted anything similar, but federal officials are showing interest in open source at the midrange server level.

Tight Budgets, Lean Code

The revenue shortfalls that are forcing many states to curtail IT investments are also fostering more interest in open-source software. "What we're finding is an awful lot of good tools that are open-source-based that offer a tremendous amount of functionality," says Rock Regan, CIO for Connecticut's state government. "In some cases, we don't need the Cadillac version of software that some vendors have sold."

It's difficult to say whether any government interest in open source will influence private-sector migrations, especially when big firms like IBM are already Linux advocates.

In the U.S., it's long been recognized in IT that the private sector leads and governments follow, says Eric Raymond, a Malvern, Pa.-based developer who heads the Open Source Initiative. But in some foreign nations, businesses "view governments as the genuine leadership of the country," he says.

One thing to watch for is whether large governments establish procurement policies that require software vendors to provide open and interoperable file formats in order to get government business.

The Consumer Project on Technology (CPT) in Washington has been urging the White House to do just that, as a way to blunt Microsoft's operating system monopoly. Only a big government has the buying power to force a vendor to make changes, says CPT head James Love. "There is nobody in the private sector that is big enough to set standards by themselves," he says.

The Open-Source Vanguard

Washington: The U.S. federal government's interest in Linux is expanding beyond scientific users such as NASA.

Brussels: The European Community is funding research on open-source software.

New Delhi: India's government is backing an initiative to study open-source software use in the government and other sectors.

Beijing, Bangkok, Manila: China, Thailand and the Philippines have initiatives under way to foster the use of open-source software.

Q&A WITH EUROPE'S IT LEADER

Philippe Aigrain, the European Commission's top software policy official, discusses the open-source initiatives under way in Europe.

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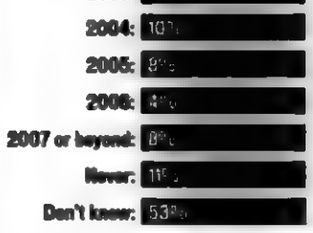

BASE: 178 respondents at Gartner's 2002 Data Center Conference; total exceeds 100% because of rounding

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Windows Replacement

Would you consider replacing or bypassing Windows servers with Linux if near-equivalent applications existed for Linux?

Base: 179 respondents at Gartner's Data Center Conferences

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MARK HALL

Does the OS Matter?

TALK TO BILL GATES. Talk to Linus Torvalds. Talk to Steve Jobs. What you'll hear is that operating systems matter a lot. Talk to a CIO, and you'll hear something quite different.

I've been talking to quite a few senior IT executives at dozens of large organizations — from Boeing and FedEx to state governments and major universities — and while everyone agrees that operating systems are important parts of their IT infrastructures, they also agree that they matter less and less. Even though the compelling controversy of Linux vs. Windows may keep developers and systems administrators awake at night, the people at the top of the IT food chain aren't losing sleep over the debate. Knowing that is probably giving Microsoft's chief software architect a nightmare or two.

MARK HALL is Computerworld's opinions editor. Contact him at mark_hall@computerworld.com.

That's not to say that staff concerns about the pluses or minuses of one technology over another don't matter. They do. But they're tactical issues that are internal to IT and not strategic issues about the business, which are what CIOs think about.

Plus, operating system maturity permits CIOs to ignore the "problem." For the first time in memory, standard, proven, supported and, for the most part, reliable and fast operating systems cover the gamut of IT needs. When the answer to your question is always just around the corner, you cease to concern yourself with the problem. Believe me, for IT strategists, the operating system debate is all but dead.

Need to deploy PDAs to your sales force? Need a Web, database or file-and-print server? Which operating system to choose isn't the first question you'll ponder. Instead, you'll ask yourself: Are the right applications available? Does our IT staff have the training to work with the new system? Will it fit into our budget? Can it be customized? Who will service and support the technology?

Naturally, the choice of operating system is crucial. But there's no right or wrong answer here.

At the high end, Unix proponents can't legitimately slam the competition (read: Windows) as not having the performance, reliability, scalability or breadth of applications to compete for data center environments. For departmental and Web servers, Microsoft can't chide Linux users that they'll be left in the cold if they adopt the open-source operating system. (After all, the service and support from IBM is generally considered a cut above that from Redmond.) Even at the desktop, where Windows is a legally sanctioned monopoly, users are choosing Mac OS X and, at many government sites, even Linux, and finding satisfaction because the real issues of application availability, support and cost are being answered.

If I'm right and the operating system is no longer a critical part of IT's decision-making process, then platform-specific vendors such as Microsoft and Sun will be at a disadvantage compared with the likes of Hewlett-Packard and IBM, which sell and service just about every operating system you can name. If you beat only one drum but your listeners want a symphony, you'll lose your audience.

Of course, Microsoft and Sun have more instruments at their disposal. But when chatting with IT executives, vendor representatives all too often stress their respective platform advantages, when those things matter less and less. I think that's because in both companies there is a fierce competitive tradition centered on their core technologies. It's a tradition that's served them well for two decades. And it persists today.

I recently talked with Paul Harmon, a senior consultant at Arlington, Mass.-based Cutter Consortium, about a report he wrote last month on Microsoft's response to Linux. "Microsoft likes having an enemy because it gives them focus," he told me. And Linux is now the enemy. While that strategy may rally the troops at headquarters, it no longer inspires customers.

Sun, which has modified its initial Linux-is-the-enemy approach, continues to view Microsoft as the evil empire and treats Windows with disdain. To do so is foolish. Sun is in effect telling its customers that they are supporting a wicked company and are stupid for using its products. Seems like a poor marketing strategy to me.

My guess is that the smart people who made these companies great will realize that the operating system game is over. And they'll turn their attention to issues that matter.

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An eclectic collection of research and resources. By Mitch Betts

Windows, Linux Books Coming This Spring

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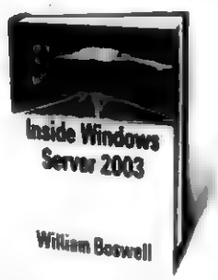


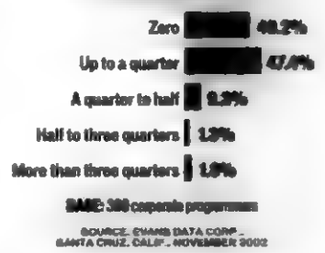
Do You Need a 'Meta OS'?

As if it's not enough for CIOs to have to migrate to newer versions of Windows or decide whether to jump on the Linux bandwagon, now there's a buzz surrounding the fuzzy concept of a "meta operating system."

As analyst Amy D. Wohl, president of Wohl Associates in Narberth, Pa., recently explained in "Middleware Spectra," a meta operating system is a grand scheme to use automated tools to help IT organizations configure, monitor, manage and control their entire computing environments. Already, major vendors have meta OS initiatives under way. For example, IBM has its "autonomic computing" effort [QuickLink 32342], and Sun Microsystems Inc. offers N1 management software [QuickLink 33051]. Grid computing, Web services and storage virtualization are also part of the trend, Wohl says.

Wide, But Not Deep

An Evans Data survey found that 60% of the respondents' companies use Linux on servers in some capacity. But these deployments don't run deep: Linux is confined to less than a quarter of their servers.



Meanwhile, she says, "Microsoft will try to create a new scale of operating system where the desktop and the corporate server are merely pieces of some much larger operating system environment which is under Microsoft's control."

The automated management tools of a meta OS could solve a lot of problems for short-handed IT operations, but Wohl's article notes that CIOs will have to be persuaded to let a computer do work now performed by IT staffers.

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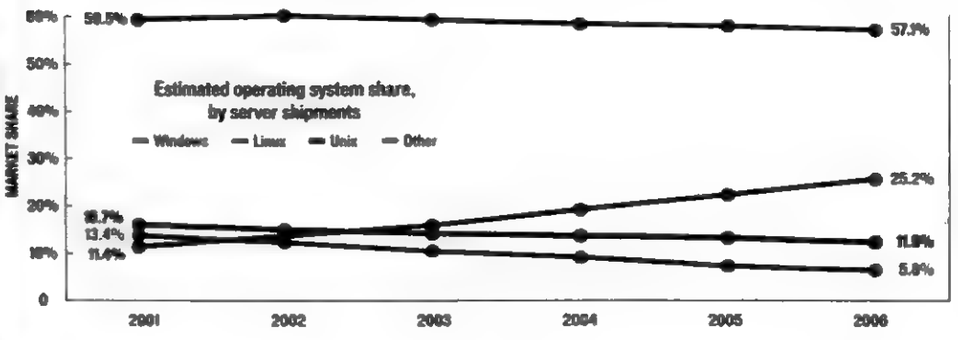

Patent Watch

- **Eye tracking to manage computer resources.** A video camera monitors which application window or display the user is looking at, so a special operating system can allocate more resources to that application or display (and less to the others). For example, if there are two monitors, the monitor that isn't being used will go into standby mode to save power. **Inventor:** Brian R. Nickerson at Intel Corp.
  — *U.S. Patent No. 6,526,159, issued Feb. 25*
- **Running multiple Java applications simultaneously, regardless of the operating system and without invoking separate Java interpreters.** An embedded software module sits between the Java virtual machine and the multiple Java applications and allows the open applications to communicate with each other, without conflicts. **Inventor:** Kumanan Yogaratnam at Espial Group Inc., Ottawa.
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- In an Evans Data survey of 1,000 software developers in China, 65% of the respondents said they expect to write an application for Linux this year, and 44% said they have already done so.

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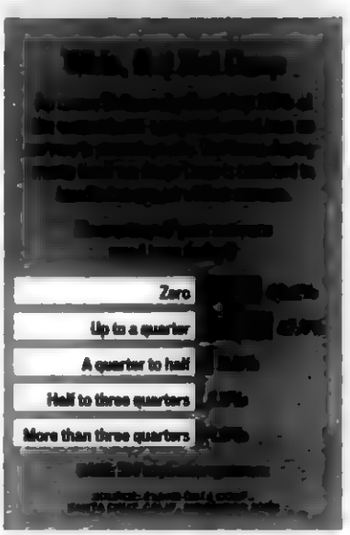

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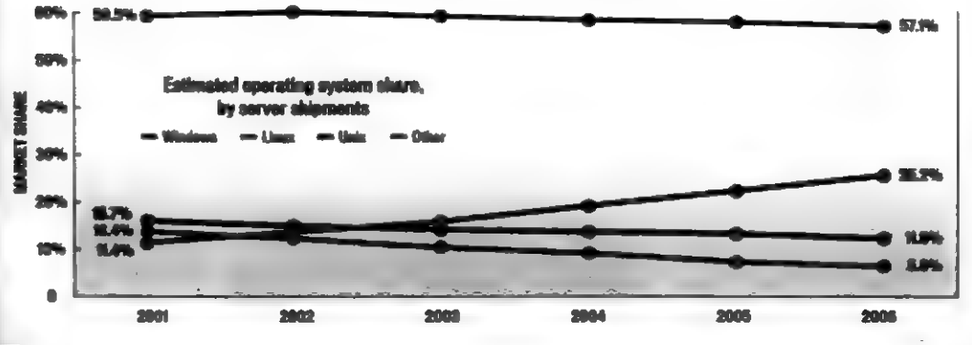

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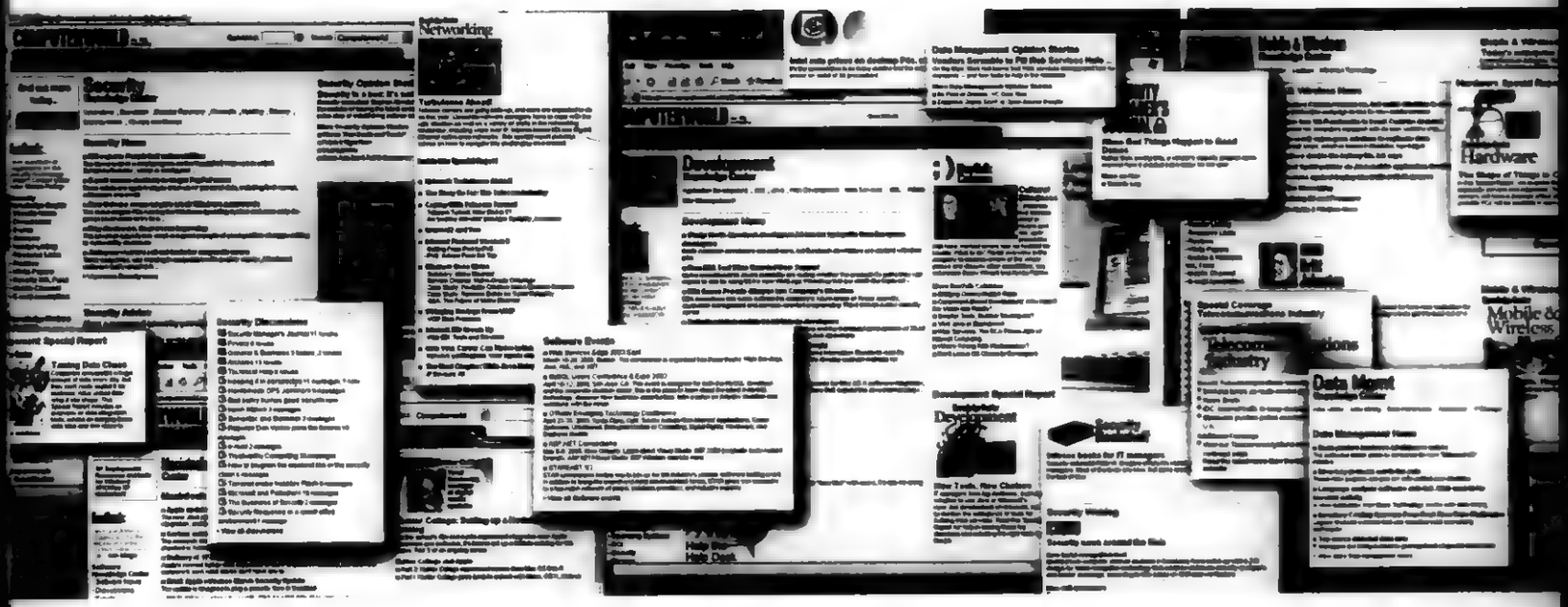

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Lowdown on Linux Skills

What you need to do to learn Linux and land a job that puts your skills to use. By Sharon J. Watson

CAREERS

WHAT DOES IT MEAN for IT professionals now that Linux is finding its way into a growing number of corporate settings?

For systems administrators — the corporate IT people most likely to be affected by Linux adoption — it means they'll have another operating system to learn as their companies capitalize on Linux savings by retraining staffers.

"It's definitely a year of cost containment," says Fran Linhart, director of certifications at The Computing Technology Industry Association Inc. in Oakbrook Terrace, Ill., which offers an entry-level Linux certification. She notes that it's easier and cheaper to retrain existing staffers than to hire new ones. Indeed, employers paid for most of the 20,000-plus professionals certified by Linux Professional Institute Inc. in Brampton, Ontario, through the end of 2002, and for the approximately 6,600 professionals who qualified for the Red Hat Certified Systems Engineer designation.

On the applications side, programmers and developers may be called on to port Unix-based applications to Linux systems or to write new ones. But they won't need to learn new languages: They can develop applications for Linux in C, C++ or Java.

That's the key to Linux, say its supporters. The operating system will revolutionize the cost of back-end servers and create new jobs over time, building on basic programming, networking, administrative and business skills that many professionals already have, say those who use it.

"You don't need to understand business policies and practices any more or less with Linux than with other systems," says Bill Thompson, director of IT at The Sherwin-Williams Co.'s paint stores group. "You still need to meet the needs of the user, and Linux gives you a lot of tools to accomplish that." The Cleveland-based retailer is moving to Turbolinux.

Skills

In addition to understanding networking basics such as TCP/IP, administrators must know the idiosyncrasies of the commercial Linux distributions their companies run (such as the Red Hat or SuSE distributions). Linux certification programs also test for skills in networking services associated with Linux, including the GNU Object Model Environment, Apache Web server, Samba file sharing and others.

Training

Unix users in particular find Linux easy to learn. "Anyone who knows Solaris or any major Unix platform could easily switch to Linux," says Brian Dewey, network engineer at Raymour & Flanigan Furniture Co. The Liverpool, N.Y.-based company runs 600 Linux-based terminals in 50 stores, as well as a Linux-based Domain Name System and e-mail, and Apache and Oracle back-end servers.

Dewey says he taught himself Linux the way many professionals recommend learning it: by downloading a free or inexpensive Linux distribution and experimenting with it.

Formal training options include vendor-neutral courses such as those offered by Linux Certified Inc. in San Jose and courses from vendors like Red Hat Inc. Local Linux user groups are also excellent sources of practical information about Linux deployment. Two online sources for Linux information, downloadable distributions and other links are *www.linux.com* and *www.destinationlinux.com*.

Salary

Linux skills offer a boost to administrator salaries, which have been dropping, says David Foote, president and chief research officer at Foote Partners LLC in New Canaan, Conn., and a *Computerworld* columnist. Systems administrator salaries averaged $78,712 in total compensation last year — a decrease of 9.5% from 2001, according to Foote's "Quarterly IT Professional Salary Survey."

However, bonus pay for Red Hat and Linux Professional Institute certifications increased last year, with the median bonus at 8% of base pay for Red Hat Certified Systems Engineer and at 7% for the Linux Professional Institute's Level 2 certification at year's end, according to the firm's "Quarterly Hot Technical Skills and Certifications Pay Index." ▶

DOUBLE-EDGED SWORD

Linux adoption is on the rise, but don't expect to see a hiring boom in the field anytime soon. The ease of learning Linux means existing personnel are being retrained.

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Employee Spotlight

Name: BRAD BICE
Title: Systems administrator
Employer: Alaska Pacific University, Anchorage
Current IT staff: Eight
30-second résumé: His early career experience included selling and installing hardware, software and networks and full-time technical support at Datatel Inc., a vendor of Unix-based higher education administration systems in Fairfax, Va. He joined Alaska Pacific in 1999, managing a mix of Red Hat Linux-, Unix- and Windows-based servers. One of his first projects was helping to set up two routers using Linux.
Skills boost: Bice, who runs Red Hat Linux on his desktop PC at work, offers this advice: "Download a Red Hat distribution, load it on an old PC, buy a basic Linux book, then play with it. Get Linux to dial into your ISP, get the Web browsers up, set up an FTP server – it's very powerful."

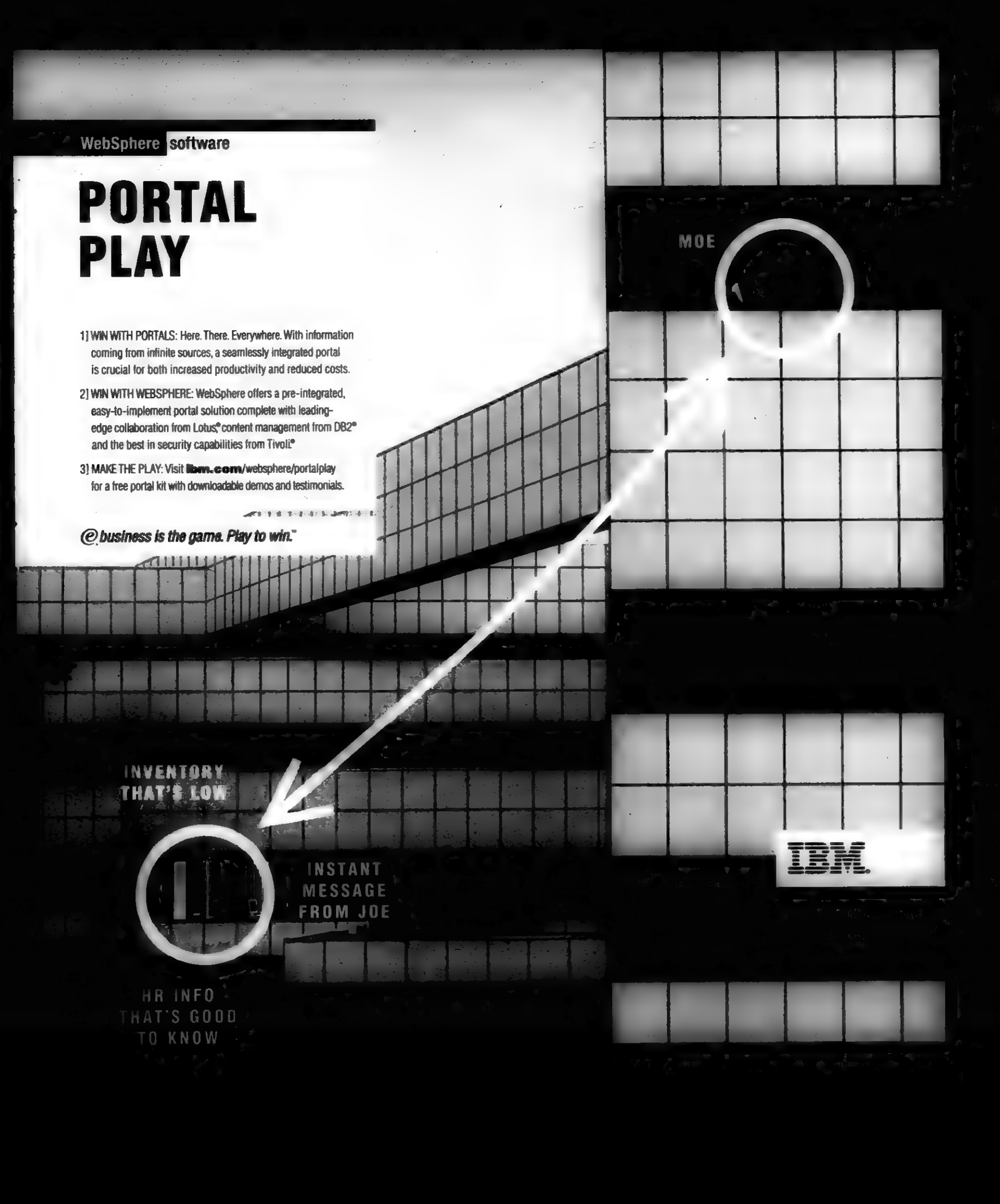
Bice says he picked up his first copy of Linux around 1994 and used it on a home PC not only to learn Linux but also to become versed in Unix skills. "I'd be very comfortable taking someone with deep Linux skills and putting them over a Solaris server," he says.

Learning Linux at home or via classes opens other career doors too, says Bice. Someone could download MySQL and PostgreSQL, learn them on Linux and build a solid background for becoming an Oracle database administrator. "All those skills would transfer," Bice says.

Having a mix of Linux and other operating systems skills and experience will be vital for IT professionals, he predicts. For example, the university is seeking a webmaster to manage its Red Hat Linux Web server running MySQL and PHP. "A Windows guy would be lost on that," Bice says.

But a faculty/student Web server is Windows-based, and the webmaster will be expected to support those applications as well. "We need both skill sets," Bice says.

Watson is a freelance writer in Chicago. Contact her at sjwatson@interaccess.com.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The Next Chapter

Predictions: Security will be the No. 1 factor in choosing a server operating system. And Linux will be hugely successful but fragmented.

■ MORE IMPORTANT

Server operating systems will continue to ascend in importance as more and more Web services are implemented. The underlying security and reliability models of Windows Server, Solaris and Linux will become the basic points of competition and differentiation. As the use of Web services grows, companies will make server OS selections based on their security and reliability rather than just basic price/performance.

■ *Sheldon Laube, chairman, CenterBeam Inc., Santa Clara, Calif.*

■ LESS IMPORTANT

Operating systems will become irrelevant for application development. Instead, developers will write for the next layer up — application servers — for new, Web-enabled applications. Application servers will become the new operating systems by 2005. They are higher-level constructs and offer portability across the old-style operating systems.

■ *Marc Fleury, president, JBoss Group LLC, Atlanta*

■ THREE, TWO . . .

Within five years, there will be three prominent server operating systems that dominate the market: Linux, Windows and Solaris. Five years after that, there will be two: Linux and Windows.

In addition, more enterprise functionality will be bundled in the operating system — like Web servers, volume managers, messaging and transaction managers — making the lines between operating system and middleware even more blurred and causing great pain for some enterprise software vendors.

■ *Pete Manca, vice president of software engineering, Egenera Inc., Marlboro, Mass.*

■ BYE-BYE, .NET

In April 2004, Microsoft will abandon the .Net platform due to irresolvable scalability problems and the slow adoption of C#. This will cause no discernable change in enterprisewide planning, however, because no one is really sure what .Net is.

■ *Gerald Boyd, director of research, NCS Technologies Inc., Piscataway, N.J.*

■ PROPRIETARY DINOSAURS

Proprietary operating systems for servers are the dinosaurs of the Web-enabled world. Over the next five years, server operating systems will inevitably consolidate toward two alternatives: expanded versions of Linux, and Windows running on rapidly scalable blade servers with industry-standard processors.

While a few OS niches may remain for specialized needs, such as nonstop reliability, even these are likely to be provided by extensions.

■ *Shel Travis, vice president of research, MigraTEC Inc., Dallas*

■ WEB SERVICES

Support for distributed component architectures and Web services will become a standard embedded layer in all widely used server operating systems. By 2004, Windows, Unix and Linux will evolve to advanced Web services capabilities, such as federation and collaboration features.

■ *Michael Katz, managing director, PricewaterhouseCoopers' Global Technology Centre, Menlo Park, Calif.*

■ FINANCIAL SERVICES

Linux and open-source software will experience substantial growth in 2003, particularly in the financial services industry, which has been an early and successful adopter.

As the Web services model for application integration takes hold, Linux and open source will find increasing use, because the specific technical profile of the Web services provider will be irrelevant as long as it complies with the published standard at the interface.

■ *Craig Miller, chief technology officer, Dimension Data North America, Reston, Va.*

■ FRAGMENTATION, AGAIN

Within 10 years, Linux on the server side will make up over 75% of the market, but it will become fragmented, just like Unix. The players will be Red Hat Inc., UnitedLinux and various flavors of Linux from hardware vendors such as Dell Computer Corp. and IBM.

■ *Scott Testa, chief operating officer, Mindbridge Software Inc., Norristown, Pa.*

■ A WINDOWS WORLD

The winner in the server operating system wars will be the one that does the best job at enabling a robust and easy-to-use Web services framework. Until the major Linux players join together on an effective and uniform Web services strategy, we're destined to live in a Windows world.

■ *Joel Young, vice president, Digi International Inc., Minneapolis*

■ SECURITY IS JOB 1

In the wake of Code Red, Nimda and the recent SQL Slammer worm, security will be come *the* determining factor in choosing an operating system during the next 12 months.

The major vendors will be forced to integrate security patch management, nonintrusive upgrades and better logging and detection systems to participate in the corporate world.

Open systems like Linux, running on standardized hardware from traditional vendors, will gain more and more market share due to a fear of Microsoft products' security and license fees.

■ *Jeff Guilfoyle, vice president of systems and security, Solutionary Inc., Omaha*

■ WINDOWS ADVANCES

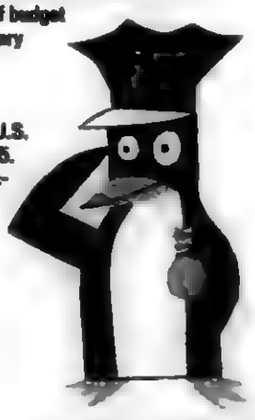
Windows Server will gain increasingly complex features, including workload and partition management capabilities. The sophistication of Unix operating systems' current workload and partition management features will increase as well.

■ *Michael Katz, PricewaterhouseCoopers*

Uncle Sam Meets The Penguin

Before the year is out, several state governments and departments of the federal government will announce strategic initiatives to convert all or part of their IT infrastructures to Linux. Government users are attracted to Linux because of the lower cost of ownership (at a time of budget deficits), better security and the use of nonproprietary data formats. – *Ben Reytblat, co-founder and president, Quadrix Solutions Inc., Piscataway, N.J.*

Linux will be the operating system of choice in the U.S. Defense Department before 2010, probably by 2006. This is because the system is open, can be fully documented, is secure, supports virtually all processors and is supported by major computer and defense contractors. – *Chuck Jacobus, CEO, Cybernet Systems Corp., Ann Arbor, Mich.*



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IT Careers Diversity Report

Country's Newest Industry Presents Same Face

Despite the rapid growth and intensity of competition for talented professionals, the information technology profession hasn't changed the face of its workforce.

Tyrone Taborn, founder and president of Career Communications Group, Inc. (publisher of US Black Engineer) says the data is clear about the situation. Less than 10% of the IT workforce is comprised of black Americans. There's a continued need for new employees, estimated at better than 500,000 in 2003. Based on a black population that is 12% of the total American population, about 12,000 blacks should be entering the IT workforce this year. Yet less than 2,000 blacks earned computer, electrical and systems engineering degrees in 2002. Factor in retirements, and the message is clear – the shortage of IT workforce talent isn't getting any better, and among the factors is an inability to attract blacks to IT studies and careers.

Taborn says that companies that ache from the shortage of talent for software developers and systems integrators seldom turn to an apparent source – black students. Nine historically black colleges and universities have accredited engineering programs and are producing 50% of the black IT graduates. That leaves plenty of room for improvement among the more than 300 other accredited degree programs in attracting and matriculating black IT students.

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Accreditation Board of Engineering and Technology Institutions with ABET - Accredited Programs

Florida A&M State University

Howard University (Washington, DC)

North Carolina A&T State University

Tennessee State University

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IT Careers

For more information on recruitment advertising, contact:
Nancy J. Percival, Director, Recruitment Advertising at
800-762-2977
500 Old Connecticut Path Framingham, MA 01701
Produced by Carole R. Hedden

Sen – Application Developer Dvlpr biz & systm solutions for client reqr understand system design & user interfaces, client/ state system design. A multiple prgrms & analysis write applic code based on anl of system design & interface specifications. System analyst admin. Communicate w/clients, attend meetings with exec. users to define biz or tech problem, helping in anl, dev, client training, project technology methodologies. Reqrs BS in Comp Sc, CIS or related field + 1 yrs exp in job offered or in Project Analyst or sim. job duties under different job title. 3 yrs exp w/ Beg using COM objects & ASP prgmg. 1 yr exp setting up objects & MS SQL server analysis to gather users working in team environ for Gen & Mrkting applic. Speak COBOL maintenance prg. Demonstrated exp w/ MS ASP.NET, C#, VB.NET or VB.net. Must have proof of legal authority to work in US. Send resume to: HR Workforce Center 275 Watson Power & Way South #301 Des Moines IA 50309-1727. Please refer to Ad MA111699. Employer paid ad.

Programmer Analyst to analyze and evaluate redesign of proposed systems, [illegible] computer programs, systems and related procedures. Duties: Integrate data and programs to assist in problem analysis and subsequent recommendations for solution. Plan program specifications and prepare test data for programs. Code, test, modify, & debug new and existing programs. Bachelor's degree in Computer Science, Engineering or Information Systems and minimum 2 yrs. Experience.

Software Engineer to develop, test, analyze, and maintain software applications and to participate in the design, development, and implementation of software, general engineering, and computer systems, including but not limited to, data software, design, development, and maintenance, and testing. Participate in the development of new strategies, designs, and systems. Bachelor's Degree in Engineering, Computer Science, or Information Systems, and must have 5 years experience. Or Master's Degree and 2 years experience. Send resume to PlanetPro at 2841 Sunrise Blvd. Suite 107, Rancho Cordova, CA 95742. Attn: HR or apply@planetpro.com

R Systems Inc. is a global information technology services company and it has multiple job openings for the following positions at its corporate office in Sacramento as well as Project Sites throughout the United States.

- Application Programmer
- Database Analyst
- Software Engineers
- Systems Analyst
- Network Analyst
- IT Project Managers
- Business Analyst
- Sales Engineer
- Programmer Analyst
- Sales Manager
- Database Administrators
- Market Research Analyst

Minimum requirement: Bachelor's degree or equivalent and one year experience in the job offered. All positions may involve relocation to project sites.

Submit detailed resume and position applied for to:

Attn: Sanjay Saxena
5000 Windplay Drive Suite 5
El Dorado Hills, CA 95762

CRM Software Development Manager. Multiple openings. Responsibilities include management including hands-on design development and implementation of Internet/Intranet/Web-based Customer Relationship Management (CRM) software systems using Microsoft Visual C++ O-O Modeling, COM/DCOM+, IIS, ASP, XML, XSL, D-HTML, ADO, PL/SQL, T-SQL, SQL Server 2000, Oracle DBMS, Microsoft Transaction Server, Visual Interdev, MS Project, Visio, Commerce Server 2000, Biztalk Server 2000, Rational Rose, Windows 2000 Advanced Server, manage the design and development of n-tiered web architected applications, and serve as chief liaison with clients. Must have a Bachelor of Science degree in Computer Science or a related field and at least 5 years of progressive experience in software engineering development management. Must have proof of legal authority to work in the United States. If interested, submit resume to Mr. James Hershey, Director of Client Services, CAS Systems of America Inc., 1100 Abernathy Road, Building 500, Suite 750, Atlanta, Georgia 30328.

Project Manager (web & server tech.) to perform cost benefit analyses (CBA) of data mgmt systems (DMS), identify biz reqs, conduct Joint Application Development (JAD) sessions, prepare CBA / biz case rpts. Use: .Net & J2EE tech. DMS. Evaluate technologies, tools to balance project needs: functionality, cost & user acceptance. Manage projects using RUP, UML & Net/J2EE framework. Create functional reqs. & security framework. BS in MIS + 3 yrs. of exp in job duties (and 2 yrs. of exp. with full life cycle development methodologies, design, tools & testing). Requires Microsoft Certification in SQL Server 2000. Send resume to: BCA Inc., 2180 Satellite Boulevard #325, Duluth, GA 30097 with proof of permanent work authorization in the United States.

SENIOR SOFTWARE ENGINEERS. IT company requires Software Engineers to work with middleware solutions (J2EE & .NET), web services technologies (XML, XSL, SOAP, WDSL & UDDI), core networking technologies (MPLS, IPSec, AAA, Frame Relay, ATM), IT security technologies (VPN, Firewall, Intrusion Detection System), network design & implementation (Juniper, Lucent, Cisco, Checkpoint & Nortel devices), and ability to develop & respond to RFPs & RFIs. Qualified candidates must perform above duties using languages such as JAVA, C and C++ as well as work in various databases (Oracle, my SQL, etc.). Must have MS in Comp. Science or Comp. Engineering and 2 yrs. exp. in occupations with similar duties. Send cov. ltr/resume to: Attn: Ramesh Balakrishnan at Danucom Corp., 106 Apple Street, Suite 203, Tinton Falls, NJ 07724/or email at resumes@danucom.com.

Computer Systems Analyst. Perform the mgt of Technical Lead. Analyze data process. req. requirements for software development using Business Objects, Visual Basic, ASP, J2EE, Java, Weblogic, Data warehousing, interface with project manager, customers and developers. Req. 2 yrs. prev. exp. Send resume to: BLC Consulting, Human Resources, 25 Jefferson Court, Wethersfield, CT 06109.

GIS Software Quality Control Specialists (Atlanta, GA & Jacksonville, FL). Analyze, design and develop real time apps. to monitor Cable Network outages in GIS and COM+ technologies including: MapInfo, MapXtreme, GTViewer, MS Geo Tools, web technologies, SQL Server and related RDBMS in Win 2000 Env. To apply or for complete job description, respond to: Think Resources, Inc., Attn: GIS Recruiting, 280 Technology Parkway, Norcross, GA 30092. EOE.

Java Programmer. Design, development & testing of GUI screens using Java, Mysql, JDBC. Raise & resolve issues by working w/team members. BS in CS or rel. req'd. to use: Java, Mysql, JDBC, PL/SQL, vBScript, HTML, JSP, CGI, UNIX, Informix, Oracle, MS accepted in lieu of BS + 4 yrs. exp. Resume to Mr. Earl Taylor, Software Manager, etaylor@medisys.md. MediSYS, 7201 Halcyon Summit Dr., Montgomery, AL 36117.

Computer Programmer. Use practical knowl. of PowerBuilder, VB, langs. & MS SQL server d/base envirnts. to analyze, dsgn, install, implmt & maintain comp. prgms. to support info. reqmts. of employer. prgm. applic. using object oriented relational modeling techniques; create/modify d/base for user-specified views, forms, reports & stored procedures; code, repair, test & modify prgms. to ensure technical & functional accuracy; dsgn & create reporting subsystm & dvlp. business reports. Train Employer's users in use of applics. 40hr/wk, 9a-5p, $40,600/yr. Bach. w/Comp. Sci. as major & 2 yrs. exp. in job req. Send resume to: Wanda Castillo, HR Mgr, AFS-USA, Inc., 198 Madison Ave, 8th Fl, NY, NY 10017.

Senior Engineer to plan, coordinate, lead projects for the development of applications for the Power System ALSTOM ESCA Energy Management and Market Operations using knowledge of power system algorithms, bulk power system & energy market operations. Candidate should have a Masters degree in Electrical Eng. or Comp. Sci. with minimum of two years of experience in real-time system programming and development of Energy Management System applications in UNIX/C. Also required is hands on work experience with Alstom ESCA EMS and Market Applications. Please send resumes to: Robert Martin, ISO-New England, Inc., One Sullivan Road, Holyoke, MA 01040-2841, Fax (413) 540-4505. Refer to job code: Senior Engineer-AN-PRS-2003. Proof of Permanent employment authorization and salary requirements are a must.

Application Developer (Monroe, LA). Exp'd dvlpr to dvlp AMOCS billing applications, debug existing applications, assist in implmtg new applics using AMDOCS. Qualified applicant will identify current operating procedures & clarify prgm objectives, analyze, review, & alter prgms to increase efficiency or adapt to new reqmts, write documentation to describe prgm dvlpmt logic, coding & corrections, assist users to solve operating problems, identify problems & rewrite prgm to correct errors; oversee installation of hardware & s/ware, provide tech assistance as needed to users. Must have min 3 yrs exp in job offd. Wage/Salary: Hourly - $35/hr-$45/hour FT. Respond to: IT&E Corp., 111 North Market Street, Ste. 730, San Jose, Ca 95113, Attn: Tony Allocca.

Advertising Supplement

IT Careers Diversity Report

Country's Newest Industry Presents Same Face

Despite the rapid growth and intensity of competition for talented professionals, the information technology profession hasn't changed the face of its workforce.

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500 Old Connecticut Path Framingham, MA 01701
Produced by Carole R. Hedden

Senior Application Developer. Design bus & systm solutions for client req, understand systm dsgn & user interfaces, coordinate systm dsgn w/multiple prgmrs & analysts; write applic code based on analyst systm dsgn & interface, understand systm dsgn & user interfaces, complete tasks per analysts specs & req.; oversee systms analyst efforts, communicate w/clients, attend internal meetings, keep up-to-date on technologies focusing on lang dev.; attend training on dvlpmt technologies, create testing methodologies. BS in Comp Sci, CIS, or related field + 3 yrs exp in job offrd or as Prgmr-Analyst or similar duties under different job title. 3 yrs exp w/VB prgmg using COM objects & ASP prgmg, 1 yr exp setting up objects w/MS SQL server; analysis to gather specs; working in team environ for dev & testing of applic specs; COBOL mainframe lang. Demonstrated exp. w/MS ASP.NET 40 hrs/wk, $54,000/yr. Must have proof of legal authority to work in US. Send resume to IA Workforce Center, 215 Watson Powell Jr., Way Suite 100, Des Moines, IA 50309-1727. Please refer to JO IA1101688. Employer paid ad.

Programmer Analyst to analyze and evaluate existing or proposed systems, and revise computer programs, systems and related procedures to process data. Prepare charts and diagrams to assist in problem analysis, and submit recommendations for solution. Prepare program specifications and diagrams, and develop coding logic flowcharts. Encode, test, debug, and install the operating programs. Bachelor's degree, computer Science, Engineering, or Information Systems and minimum 2 yrs. Experience.

Software Engineer to provide functional and enhancet analyses related to the design, development and implementation of software operating systems, including, but not limited to, utility software, development software, and diagnostic software. Participate in the development of test strategies, devices and systems. Bachelor's Degree in Engineering, Computer Science, or Information Systems and minimum 5 years experience, or Masters Degree and 2 years experience. Send resume to PlanetPro at 2883 Sunrise Blvd, Suite 107, Rancho Cordova, CA 95742, Attn: HR, or perry@planetpro.com

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Attn: Sanjay Saxena
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Project Manager (web & server tech.) to perform cost benefit analysis (CBA) of data mgmt. systems (DMS), identify biz reqs., conduct Joint Application Development (JAD) sessions, prepare CBA / biz case rpts. Use .Net & J2EE tech. DMS. Evaluate technologies/ tools to balance project needs, functionality, cost, & user acceptance. Manage projects using RUP, UML, & Net/J2EE framework. Create functional reqs. & security framework. BS in MIS + 3 yrs. of exp. in job duties (and 2 yrs. of exp. with full life cycle development, methodologies, design tools & testing). Requires Microsoft Certification in SQL Server 2000. Send resume to BCA, Inc., 2160 Satellite Boulevard, #325, Duluth, GA 30097 with proof of permanent work authorization in the United States.

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Computer Systems Analyst

Perform the role of Technical Lead. Analyze data processing requirements for software development, using Business Objects, Visual Basic, ASP, J2EE, Java, Weblogic, Data warehousing. Interface with project manager, customers and developers. Req. 2 yrs prev exp. Send resume to BLC Consulting, Human Resources, 28 Jefferson Court, Wethersfield, CT 06109.

GIS Software Quality Control Specialists (Atlanta, GA & Jacksonville, FL): Analyze, design and develop real time apps. to monitor Cable Network outages in GIS and COM+ technologies including MapInfo, MapXtreme, GTViewer, MS Dev Tools, web technologies, SQL Server and related RDBMS in Win 2000/C#/.Net. To apply or for complete job description, respond to Think Resources, Inc., Attn: GIS Recruiting, 280 Technology Parkway, Norcross, GA 30092. EOE.

Java Programmer

Design, development, & testing of GUI screens, using Java, Mysql, JDBC Base & resolve issues by working w/team members. B.S. in CS or rel. w/abil to use Java, Mysql, JDBC, PL/SQL, VBScript, HTML, JSP, CGI, LINUX, Informix, Oracle. M.S. accepted in lieu of B.S. 40.0 hr/wk, 9 -5. Resume to Mr. Earl Taylor, Software Manager, etaylor@medisys.md, MediSYS, 7201 Halcyon Summit Dr., Montgomery, AL 36117.

Computer Programmer: Use practical knowl of PowerBuilder, VB langs & MS SQL server d/base envmnts to analyze, dsgn, install, implmt & maintain comp prgms to support info reqmts of employer; prgm applic using object oriented relational modeling techniques; create/modify d/base for user-specified views, forms, reports & stored procedures; code, repair, test & modify prgms to ensure technical & functional accuracy; dsgn & create reporting subsystm & dvlp business reports; train Employer's users in use of applics. 40hr/wk, 9a-5p, $40,600/yr. Bach w/Comp Sci as major & 2 yrs exp in job req. Send resume to: Wanda Castillo, HR Mgr, AFS-USA, Inc, 196 Madison Ave, 6th Fl, NY, NY 10017.

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MWH Americas Inc. seeks a Senior Software Engineer to work in Broomfield, Colorado. Create system back up and recovery procedures, design, install and maintain a variety of databases. Engage in data modeling and performance tuning. Install and maintain software applications. The job requires a bachelors degree, software experience, and working knowledge of installing and configuring Windows NT Servers, configuring FTP and SMTP protocols, designing, installing and maintaining multiple databases and data modeling, Crystal Reports and Oracle* Forms. Send resumes by mail only to: Dave Sell, MWH Americas, Inc., 380 Interlocken Crescent, Suite 700, Broomfield, CO 80021. Refer to Job Opening Number MWHDEN7SA.

Software Engineer. Analyze s/ware dvlpmt project reqmts; dsgn objects & algorithms; implmt s/ware dvlpmt project solutions; write test cases for quality assurance testing of s/ware. Req: BS in Engg, Comp Sc or related field + 2yrs exp in job offd or as S/ware Dvlpr or similar duties under a different job title. 2 yrs exp w/CAE s/ware dvlpmt, C++ lang & object-oriented modeling, MS Dvlpmt Studio, Windows NT OS. Exp w/modeling real world engg systms w/simulation s/ware. Demonstrated knowl of data architecture & dsgn in engg s/ware systms, incl Comp Aided S/ware Systms. 40hrs/wk, $60K/yr. Must have proof of legal auth to work in US. Send your resume to IA Worldforce

IDLogix, Inc., a Concord Risk Management Company, seeks applications for the following positions: programmer analyst & architect (software and electronic engineer) to work in Longmont or Englewood Colorado.
All positions involve the development of embedded software which allows security devices to communicate with host computers.
Three positions require a bachelor's degree in computer science, computer engineering or electronic/ electrical engineering. The programmer analyst position requires experience in developing embedded software and related tools, databases and languages. The architect position requires experience in creating designs and schematics for electronic embedded software for electronic devices and assembly languages.
Resumes should be sent to Concord Corporate Services, Inc., Attn: DS/FC 1-1-95, 1100 Carr Road, Wilmington, DE 19809.

Yashoda Systems Inc., the Premier IT consulting and development firm leading the Way into the new millennium with its solutions for all the hi-tech, networking and web based programming needs. We are looking for the following position:

Software Engineers: Research, design, develop, implement and customize Client-Server Applications using Java, J2EE/EJB, C++, XML, Weblogic, JDBC, JNDI, RMI and RDBMS. Outstanding GUI development skills utilizing a variety of technologies including Java Swing, Java Server Pages, Servlets, and CSS. Involve in Database Development by Writing and Implementing Packages, Stored Procedures, Triggers and Functions using PL/SQL. Analyze Business Rules, Solve Production Problems, Redefine and Convert Data to a required Form. Requires a Master's in Computer Science or a related field and 2 years of experience

Send Resume to Mr. Vamshi Chinthapalpalli, Yashoda Systems Inc., 7100 Regency Square, Suite 230-4, Houston, TX-77036 or via email at: resumes@yashodasystems.com

SOFTWARE ENGINEER. Requirements: Design and development in client/server architecture using Oracle database and Oracle software development tools. Database administration. Analysis, design and development of software projects including Pro*C, PL/SQL, and front-end tools like SQL* Forms. Design and development of software projects using UNIX operating systems and Windows and software developing languages like C. The job duties are: Analyze, design, develop, and implement software projects using Oracle, Pro*C, PL/SQL, GUI tools, etc. Provide user training and documentation. Perform database administration in Unix and Windows. Requires Master's in Computers or equivalent. 40 hours per week at $71,000 per year. Please send 2 copies of resume to Case #200115224, Labor Exchange Office, 19 Staniford St, 1st Floor, Boston, MA 02114.

Software Engineer (Atlanta, GA) Under direct supervision, responsible for the analysis, design, programming, testing, debugging and modification of local, network or internet-related computer programs. Analyzes and formulates requirements and design product application features. Create computer programs from design specifications and verify functionality through unit test. Review existing programs or formulates logic for new features using structured programming or object oriented analysis and design techniques. Creates or revises application and user documentation to describe new functionality. Reviews code for accuracy and adherence to methodology. Work in a variety of languages, including Oracle and Java. Requirements: Bachelor's or equivalent degree* in Computer Science, Math, Engineering or related field. (*as determined by a recognized credentials evaluator) Competitive salary offered. Apply on-line at www.data.com/careers to job refs-00000760. Be sure to include CompWorld as the source code.

Manager of User Interface Software Development sought by NJ based Securities Dealer for Jersey City, NJ office. Must possess Bachelor's degree or equivalent in Computer Science or directly related field and 5 years exp. in software development/design/analysis. Exp. must include C/C++, JAVA, C#. Respond to: Human Resources Department, #KFP03-99, Knight Financial Products, 130 Cheshire Lane, Suite 102, Minnetonka, MN 55305.

Jnr. Programmers. Multiple Positions. Collect info. to help Snr. Progs. analyze, formulate & define specs & develop/ modify client server D/Base. Maintain documentation & guidelines. Req: Bachelors degree in Business Admin, Comp. Sci. Comp. Eng., or Electrical Eng. with 1 year exp. 40hr/wk. Job/Interview Site: Wilmington, DE. Send resume to: VXL Technologies, Inc. 1220 N. Market St., #606, Wilmington, DE 19801.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Systems Programmer. Serve as project/team leader. Devise procedures to solve complex problems with systems/applications. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with RDBMS, software design, and Java and/or C++ also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sita George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

SAP Basis Consultant, Atlanta: Assess client business requirements & provide analysis. Perform capacity planning, system design & configuration of SAP system. Implement, document, maintain & support system. Provide expertise to functional teams. Reengineer & customize where necessary. Specialize in SAP R/3 (ERP) & SAP BW (Data Warehouse) systems. Requ: Bach. Degree in Bus. Admin or MIS+2 yrs in job or as Systems Analyst performing SAP Basis Consulting. Mail resume to HR, Focused Systems, 325 Chastain Ct., Alpharetta, GA 30004.

PROGRAMMER/ANALYST - Analyze, design, program, implement, test & support advanced software applications utilizing Java, Java Script, Visual Basic, C and C++ under UNIX and/or Windows operating environment for client/server and/or internet-related applications. Responsible for integration of enterprise systems such as Messaging Middleware, CRM and SAP/R3. Req. Bachelors in Comp Sci., MIS, or Engg (any field) plus 2 yrs exp. Contact: International Systems Technologies, Inc., 1812 Front Street, Scotch Plains, NJ 07076.

PROGRAMMER/ANALYST - Analyze, design, program, implement & support advanced comp. applications utilizing JAVA-based Bluestone Software, Java, Java Script, ODBC, HTML, C and C++ under UNIX and/or Windows operating environment for client/server and/or internet-related applications. Req: Bachelors in Comp Sci., MIS, or Engg (any field) plus 3 yrs exp. Contact: International Systems Technologies, Inc., 1812 Front Street, Scotch Plains, NJ 07076.

Software Developer wanted by IT comp in NYC to design, develop and implement J2EE. Use XML JavaScript, Sybase, HTML, MS SQL, Weblogic, EJB and other tools. Resumes to Vitech Systems Group, 401 Park Ave South, NY, NY 10016.

Software Analyst needed to dvlp & support high-performance affiliate tracking (OLTP) s/ware using Mod-Perl, PostgreSQL, C, HTML, JavaScript; provide systm admin on FreeBSD & Linux servers; dsgn & support TCP-IP networks for Cisco router admin. Apply to: TrackingSoft, 124 S. Church St, Rogersville, TN 37857.

Heiroxys, LLC, based in Detroit, Michigan seeks Senior UNIX System Administrators and Senior Database Administrators for Detroit and nation-wide opportunities. All positions require B.S. in Computer Science. UNIX position requires two years high availability experience and MC/Service Guard certification. Database positions require two years experience in decision support application development or data warehousing in addition to standard suite of ORACLE administration tools. Apply via U.S. Mail with resume to Heiroxys, LLC., 3757 S. Baldwin Road #223, Lake Orion, MI 48359.

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Principal Software Engineer (Lake Forest, CA): Research & design s/w for continuous, discrete & batch manufact; apply C#, C++, COM, XML, XSL, HTML & .NET to design s/w in WinNT and XP; apply by resume: Job #WW/SK, Staffing, Invensys Systems, Inc. 26561 Rancho Parkway South, Lake Forest, CA 92630 or employment@wonderware.com. EOE.

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RCG Information Technology

The Pepsi Bottling Group is seeking a Supply Chain Developer, Somers, NY. Candidate will lead implementations of i2 Demand Planner application and integrate them with i2's Supply Chain Management suite of products, as well as Enterprise Resource Planning Systems. Will implement i2's Factory Planner application. Will develop the solution, training documentation, trained users and implementers on the technical and functional aspects of the solution. Will communication with Product Support and Development regarding application/solution enhancements and provide specifications for those enhancements when required. Will use knowledge of writing SQL code and TOAD software to retrieve data from data warehoused within Oracle databases. Will interact with end users to: (a) determine best statistical analysis tools and algorithms to use for forecasting business trends, sales and costs by using statistical forecasting techniques such as, including Multivariate Regression, Triple Exponential Smoothing, Bayesian Statistics, Box-Jones Jenkins and Croston's method; and (b) use knowledge of production planning and scheduling techniques such as Heuristic and Linear and Integer programming optimization algorithms, and operational techniques including Just In Time, Lean Manufacturing, Theory Constraints, Time Study Analysis, Dynamic Stock Replenishment Models, Material Requirements Planning (MRP) to deploy factory scheduling and network optimization applications to reduce production costs. Please fax resumes to J Abena Aggrey at (914) 767-1082. No phone calls please.

The Pepsi Bottling Group is seeking a Senior Software Developer, Somers, NY. Candidate will design, develop, debug, integrate and implement software for handheld PCs used by sales representatives of carbonated soft drink manufacturer to forecast future needs of retail sellers based on seasonal and special promotion consumption variables, current inventories and historical sales and price variables. Software will incorporate embedded and Wireless (802.11b) technology to allow handheld PCs to transfer data to and from mainframe Teamo database and Sybase database software. Developed software will also integrate field data with mainframe database to create sales reports, maintain distributor center inventory, and insure proper inventory load levels of delivery vehicles. Will design, develop and implement multi-user client server tools to aid the regression and integration testing of this software. Will use knowledge of NextGen, Visual C++, Java, HTML, XML, PowerBuilder, Visual BASIC, VBA and Sybase SQL stored procedures to perform duties. Will provide on call production support to field users. Travel required. Please fax resumes to J Abena Aggrey at (914) 767-1082 and reference job # CN01. No phone calls please.

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Supply Chain Business Analyst (multiple openings). Glendale, CA. Bach. degree or higher (or equivalent foreign education) in eng., operations research or related field & 2 yrs.' exp. in job offered or 2 yrs.' exp. (may be gained prior to degree completion) in dvlpmnt & implementation of decision support models incl. database dvlpmnt or programming. Stated exp. must include at least 1 yr. in a mfg. or supply chain environment. Coordinate effective dvlpmnt & implementation of quantitative methodologies & operations research for supply chain operations through dvlpmnt and implementation of decision support models incl. database dvlpmnt & programming. Optimize supply chain's performance by reducing operation costs & the risks associated w/ commercial operations. Apply w/ resume to: M. Simo, Nestle USA, Inc., 800 N. Brand Blvd., Glendale, CA 91203. NO PHONE CALLS OR THIRD-PARTY AGENTS PLEASE.

Level 3 Communications, Inc. is seeking a Manager of Network Engineers for Broomfield, CO. Candidate will direct and supervise voice and IP transmission network engineers who are responsible for: estimating equipment needs, network use, and budget requirements needed to provide rapid (7 days or less) on line ordering and connection of wavelength and optical multiplex telecommunications services in North America and Europe. Will direct and supervise voice and IP transmission network engineers who will use detailed knowledge of fiber optic systems including Dense Wave Division Multiplexing, optical amplifiers and North American and Euro-Asia SONET protocols to insure that projected network capacity is properly optimized to meet required rapid on line connection capabilities. Will direct and supervise voice and IP transmission network engineers who will meet optimization requirements by determining: (1) required amount of owned and lease fiber optic networks, (2) proper equipment selection, proper geographic equipment placement; (3) required network design, (4) and by interacting with equipment suppliers, construction and operating departments to insure fiber optic network expansion is achieved. Will also direct and supervise voice and IP transmission network engineers who are responsible for estimating the capital expenditure, operating and network maintenance costs required to meet projected network usage so annual expense budgets in excess of 250 million dollars can be calculated. Candidate must be a licensed professional engineer. Please email resumes to renate.dykman@level3.com. Reference job title when applying. No phone calls please.

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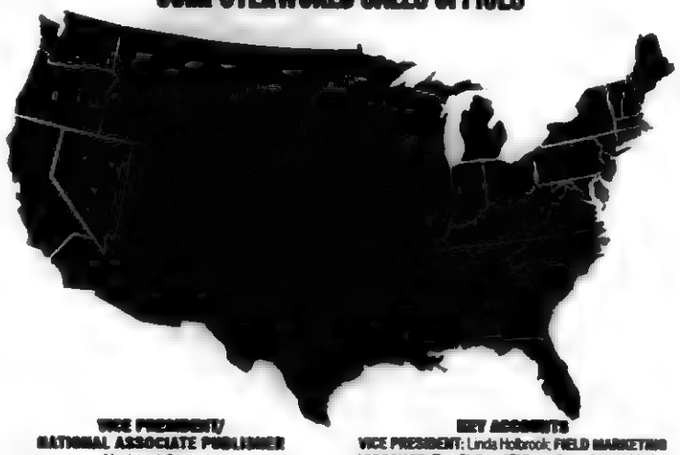

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Data Chief Expects Big Things From Content Tools

Q&A

[illegible] and content management and integration tools to leverage? The relational database is still a larger overall opportunity, but it's projected to grow in single digits. Content management is projected to grow in the 20% to 30% range. Within the next couple of years, it will become almost as large as [illegible].

[illegible] have information stored in many different places. When they want a view of their customers, they don't want to move the information to a central place. They want to be able to aggregate the information and access it from where it is now.

–Craig Stedman

MORE ONLINE

To read the unedited version of this interview, go to our Web site.

IBM's New Content Management Software

DB2 CONTENT MANAGER VERSION 8.2:

- Adds integration with Siebel and PeopleSoft CRM applications, plus support for caching content on LANs.
- Due to ship April 30 on Unix, Windows and mainframe systems; costs $24,000 per server, plus $2,000 for each concurrent user.

DB2 RECORDS MANAGER VERSION 2.1:

- Adds full integration with DB2 Content Manager and DB2 Universal Database, plus a redesigned user interface.
- Due to ship March 31 on Windows 2000 servers; costs $24,000 per server, plus $250 for each concurrent user.

Continued from page 1

Bar Codes

bar codes to drugs at a cost to a 150-bed hospital of $162,000 per year. That compares with a one-time cost of $250,000 to equip the hospital with bar-code technology and systems, she said.

Jeff Schou, director of worldwide health care markets at Symbol Technologies Inc. in Holtsville, N.Y., estimated that close to $1 billion will be spent on wireless LAN technology to provide connectivity for nurses dispensing drugs bedside. Schou said there are roughly 6,000 hospitals in the country and only 7% of them have installed WLANs. He estimated the cost of installing WLANs at hospitals that lack such systems at between $50,000 and $500,000 each, depending on the size of the facility.

Schou said the bar code readers could function in a batch, or disconnected, mode, but he added that WLANs will be the best way to manage the system.

Steve Rough, director of pharmacy at the University of Wisconsin Hospital and Clinics in Madison, agreed, noting that batch mode doesn't provide nurses with real-time information — a key to medication management.

The University of Wisconsin started deploying a medication management system, Admin-Rx from San Francisco-based McKesson Corp., in December 2001. That system incorporates bar codes, and according to Rough, it will revolutionize patient care and safety. Rough said the hospital has experienced an 87% reduction in the number of medication errors.

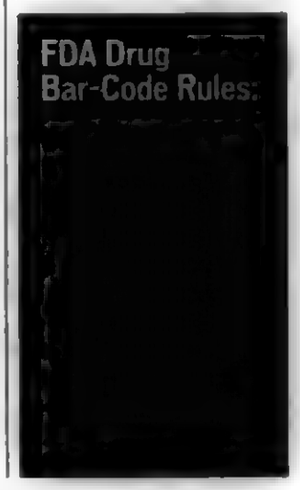
That's because the bar-code system provides multiple checks to ensure that a patient receives the correct drug. When nurses dispense medications, they first scan a bar code on their badges and then the code on the patient's bracelet and finally the code on the drug. This information is sent to a back-end database, which contains patient and prescription information.

Rough said the cost of wireless LANs could be spread over multiple applications, including computerized physician order entry systems and supply systems. While he declined to detail his costs to install the McKesson Admin-Rx system, he said a hospital his size should anticipate spending "a couple of million dollars over a five-year period."

Marybeth Navarra, director of patient safety at McKesson's Automation Group, called the FDA's bar-code regulations a "huge step forward" in the quest to eliminate patient errors. She said the regulations would also help break a standoff between pharmaceutical manufacturers, resellers and hospitals over the use of bar codes. The manufacturers didn't want to use bar codes because the hospitals didn't have readers, while the hospitals didn't want to install the technology because so few drugs had the bar codes.

Total costs for hardware and software for a 125-bed hospital would run about $200,000, Navarra said. A hospital that size with no wireless LAN, would add another $50,000 to hardware costs, she said.

The bar-code regulations will go into effect three years after the FDA publishes its final rules. That's expected to happen later this year, after the agency assesses comments filed in the next 90 days. ●



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DB2 RECORDS MANAGER VERSION 2.1

- Adds full integration with **DB2 Content Manager and DB2 Universal Database**, plus a redesigned user interface.
- Due to ship March 31 on **Windows 2000 servers**; costs $24,000 per server, plus $250 for each concurrent user.

Data Chief Expects Big Things From Content Tools

Janet Perna, general manager of IBM's data management division, last week spoke to *Computerworld* about her plan to use DB2 as an underlying technology for managing information stored in other databases or content repositories.

How do you expect sales of DB2 and your content management and integration tools to compare? The relational database is still a larger overall opportunity, but it's projected to grow in single digits. Content management is projected to grow in the 20% to 30% range. Within the next couple of years, it will become almost as large as databases are.

Why do you think your Xperanto federated database technology is worth doing? [Companies] have information stored in many different places. When they want a view of their customers, they don't want to move the information to a central place. They want to be able to aggregate the information and access it from where it is now.

– Craig Stedman

MORE ONLINE

To read an expanded version of this interview, go to our Web site:
QuickLink 39071
www.computerworld.com

Continued from page 1

Bar Codes

bar codes to drugs at a cost to a 150-bed hospital of $162,000 per year. That compares with a one-time cost of $250,000 to equip the hospital with bar-code technology and systems, she said.

Jeff Schou, director of worldwide health care markets at Symbol Technologies Inc. in Holtsville, N.Y., estimated that close to $1 billion will be spent on wireless LAN technology to provide connectivity for nurses dispensing drugs bedside. Schou said there are roughly 6,000 hospitals in the country and only 7% of them have installed WLANs. He estimated the cost of installing WLANs at hospitals that lack such systems at between $50,000 and $500,000 each, depending on the size of the facility.

Schou said the bar code readers could function in a batch, or disconnected, mode, but he added that WLANs will be the best way to manage the system.

Steve Rough, director of pharmacy at the University of Wisconsin Hospital and Clinics in Madison, agreed, noting that batch mode doesn't provide nurses with real-time information — a key to medication management.

The University of Wisconsin started deploying a medication management system, Admin-Rx from San Francisco-based McKesson Corp., in December 2001. That system incorporates bar codes, and according to Rough, it will revolutionize patient care and safety. Rough said the hospital has experienced an 87% reduction in the number of medication errors.

That's because the bar-code system provides multiple checks to ensure that a patient receives the correct drug. When nurses dispense medications, they first scan a bar code on their badges and then the code on the patient's bracelet and finally the code on the drug. This information is sent to a back-end database, which contains patient and prescription information.

Rough said the cost of wireless LANs could be spread over multiple applications, including computerized physician order entry systems and supply systems. While he declined to detail his costs to install the McKesson Admin-Rx system, he said a hospital his size should anticipate spending "a couple of million dollars over a five-year period."

Marybeth Navarra, director of patient safety at McKesson's Automation Group, called the FDA's bar-code regulations a "huge step forward" in the quest to eliminate patient errors. She said the regulations would also help break a standoff between pharmaceutical manufacturers, resellers and hospitals over the use of bar codes. The manufacturers didn't want to use bar codes because the hospitals didn't have readers, while the hospitals didn't want to install the technology because so few drugs had the bar codes.

Total costs for hardware and software for a 125-bed hospital would run about $200,000, Navarra said. A hospital that size with no wireless LAN, would add another $50,000 to hardware costs, she said.

The bar-code regulations will go into effect three years after the FDA publishes its final rules. That's expected to happen later this year, after the agency assesses comments filed in the next 90 days. ◗

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Outsourcing Angst

VIVEK PAUL IS WORRIED, and he has reason to be. He figures the clock is ticking on the software engineers who work for him today. Paul told a reporter last week that in as little as two years, it may be possible for much of that programming to be done in another country for a lot less money. In other words, Paul is facing the same offshore outsourcing threat as many U.S. programmers.

But Vivek Paul runs Wipro, one of India's biggest software development outfits. And he's looking over his shoulder at offshore programmers in Vietnam, China and the Philippines.

Paul told the AFP news service that salary costs in India are going up and that the seriously undervalued rupee could gain 20% to 30% against the dollar. That would eat away at the cost advantages of offshoring programming work to India.

Meanwhile, programming companies in other lower-wage countries figure they can move into the vacuum as Indian costs rise. They're building their own armies of C++ and Java programmers and aiming to do to the Indian software business what India is doing to us.

All of which is good news for U.S. IT department budgets. And it's actually not such bad news for U.S. programmers, either.

It's good news for IT budgets because competition will drive down the price of offshore software development. Right now, a typical big project costs 30% less in India than it would using U.S. outsourcers. That's largely because a typical Indian software engineer makes 88% less than a U.S. programmer. (Long-distance development adds other costs that reduce the potential savings.)

If programming shops in the Far East can mimic the Indian approach — which they're busy trying to do right now — the number of alternatives for an IT shop that's offshoring a big project will go way up. Competitive bidding will cut offshoring prices to the bone. Lean-and-hungry newcomers will keep the old-guard offshorers honest and on their toes.

That means we'll spend less and get more for the money we do spend. And who knows, maybe we'll even get to plow the savings into interesting new technologies.

On the other hand, for U.S. programmers facing an uncertain future, this may sound like the worst possible news: one more nail in the coffin for code jockeys who see their jobs evaporating as projects are shipped overseas. But don't kid yourself. There wasn't that much left to lose.

Look, we can't compete for projects that can be shifted offshore — not without some kind of programming fairy dust. Cutting an American programmer's salary by 30% to match offshoring prices isn't a viable option. Nor can U.S. companies simply decide not to send any projects offshore. No business can stay in the game while competitors get lower costs and greater flexibility on a key commodity, which is what big-project programming has become.

Offshoring is real, it's going on, and it's going to get bigger. There's a glut of generic programming talent worldwide, and the Internet makes it possible to tap that glut for big projects that need generic programmers. Within a few years, if a project can be offshored, it will be — whether it's to India or Russia or China or the Philippines.

So if you're a programmer in a U.S. IT shop, the future isn't really uncertain at all. It's a dead certainty that generic, big-project coding no longer has a future for you. And it's certain that you'll need to shift away from a pure coding focus, and toward smaller projects that require faster turnaround, specialized skills or an intimate knowledge of your organization — in short, the things offshore code shops can't compete with.

That way, you'll be able to add more IT value than ever. And you won't have to look over your shoulder anymore.

You can let the offshorers do that.

FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

What's Really Important

This VP wants a second laptop to use during the few hours a week she's at the main office. That'll bust our budget, says IT pilot fish. Can't she bring in the one she's already got? "She says it's too heavy," says fish's boss. Well, if she won't be carrying this one either, can I just install a desktop PC to save money? fish asks. "No," says boss, "she says that would not promote the perception of a VP on the move."

SHARK TANK

Aha!

Is the common key really broken on every PC in this user's department, as the work order says? Turns out they're using a new database application, pilot fish explains: "They used to enter names in 'last name, first name' format. Now last name and first name are in separate fields, and commas are disabled. Once we explained that they should use the Tab key, they were happy."

Out to Lunch

Tech support pilot fish starts eating lunch at his desk to save money. But every day for the first week, users start calling with problems just as he sits down to his soup or noodles. Then he notices a coincidence: "Turns out network connectivity is sporadic in the minutes before the problems appear – precisely when my food is cooking in my office microwave," fish says. "We moved it to a different circuit than the network switch."

Top Secret

Headache CIO logs into network admin pilot fish for "privacy lapses." What privacy lapses? fish asks? Boss points to the company's Web-based e-mail log-on page, which reminds employees to enter their full e-mail addresses, including the "@corporate.com" part. That's confidential information? boss says. "What?" says baffled fish. "You think people don't know our e-mail addresses and in '@corporate.com'?"

Good Description

User complains to support pilot fish that her floppy drive is "eating diskettes." Show me, he says. "She put a diskette in the slot, and you could hear it hit the motherboard," fish says. "Someone had taken the floppy drive and left the drive cover in place. I found four diskettes on the motherboard."

That'll Do It

This user tells document management pilot fish that mice are invading his department's file cabinets and eating the paper documents. "I'd be happy to set up a folder structure in our document management system and set up training and a plan for managing your documents," fish tells him. "Thanks anyway," says user. "What we really need is an exterminator!"

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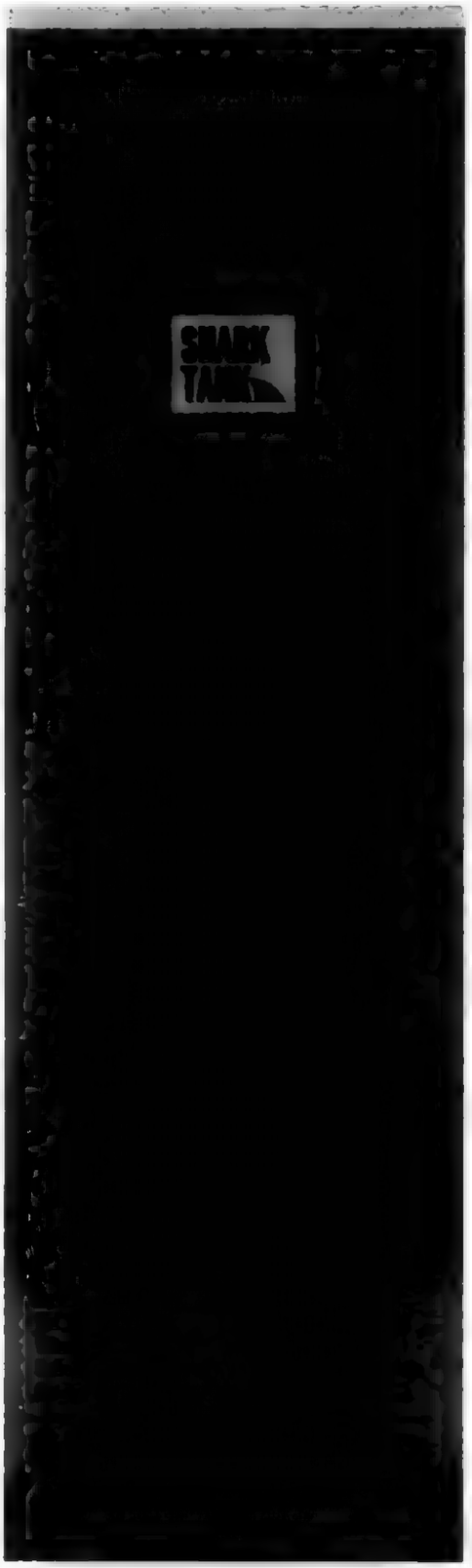
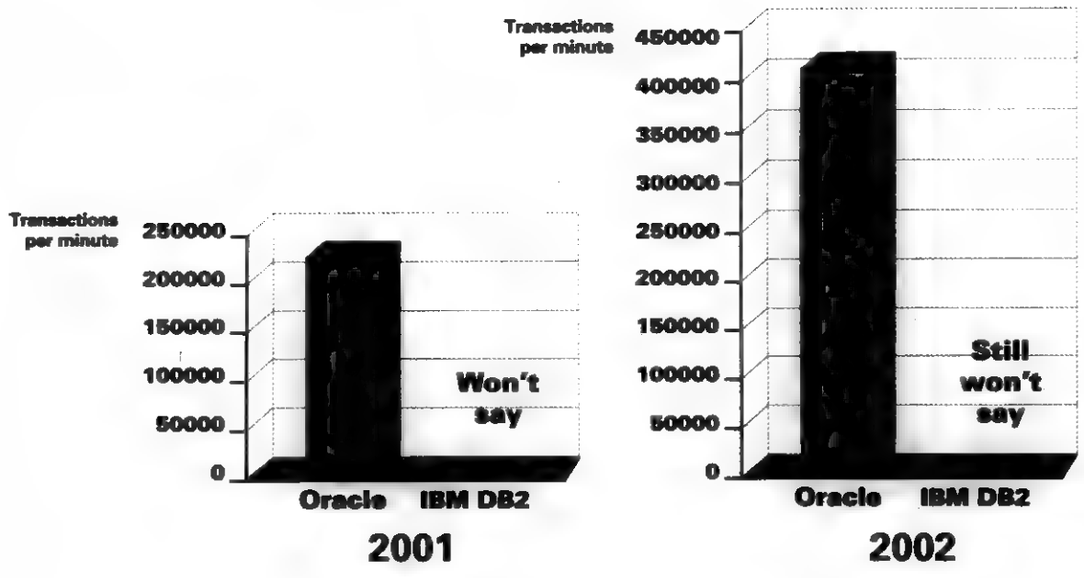


Still ~~What~~'s the fastest database on IBM's fastest computer



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Companies Review Their IT Security As War Breaks Out

BY JAIKUMAR VIJAYAN

Tom King, chief information security officer at investment banking firm Lehman Bros., last week was taking a hard second look at his company's IT security and business continuity plans.

As the countdown to war neared its end, King said he remained fairly optimistic that the conflict wouldn't provoke major cyberattacks against U.S. corporate targets. The review, he said, was a precautionary move to ensure that the company's "high-value production systems," network entry points and remote access processes are adequately shielded against random attacks.

IT Security, page 6

The IT community tackles disaster preparedness, project management and offshore outsourcing issues in the face of war.

WAR IN IRAQ

ANTICIPATING THE IMPACT

Reconstruction Plans for Postwar Iraq Depend on IT

BY DAN VERTON AND MATT HAMBLEN
WASHINGTON

The State Department and the Pentagon are already working with the private sector to plan for the rebuilding of Iraq's infrastructure, including IT and telecommunications systems.

Under a State Department program known as the Future of Iraq Project, Iraqi exiles with expertise in IT and other disciplines have delivered to the Bush administration studies and recommendations on reconstructing postwar Iraq.

David Staples, a spokesman for the Future of Iraq Project, which was initi-

Reconstruction, page 7

For updated reporting on the IT impact of the war in Iraq, visit our Web site.
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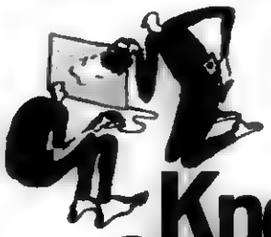

WHEN THEY WORK WELL, Web self-service apps offer cost savings for companies and convenience for users. When they don't, customers get frustrated and expenses rise. The keys to success are understanding what users need and building in flexibility. PAGE 25

Know Thy Customer

Microsoft Changes Tune On Client-only Longhorn

Company now says Windows version that's due in 2005 may be accompanied by server OS

BY CAROL SLIWA
LAS VEGAS

Microsoft Corp. went to great pains in November to get the word out that its Windows operating system code-named Longhorn would be a client-only release.

But during an interview at last week's Microsoft Management Summit here, Brian Valentine, the senior vice president who heads the company's Windows division, told *Computerworld* that there may be a new server operating system released with Longhorn, which is now pegged for 2005.

Valentine said support for some of the new client capabilities being enabled in Longhorn, such as richer collaboration and integrated storage, will require infrastructure services on top of the server operating system. How those additions or changes will be packaged and delivered — whether in a service pack, separate download, overlay or new operating system release — has yet to be decided, he said.

"We'll do whatever makes the most sense and is easiest on our customers," he said.

Longhorn, page 57

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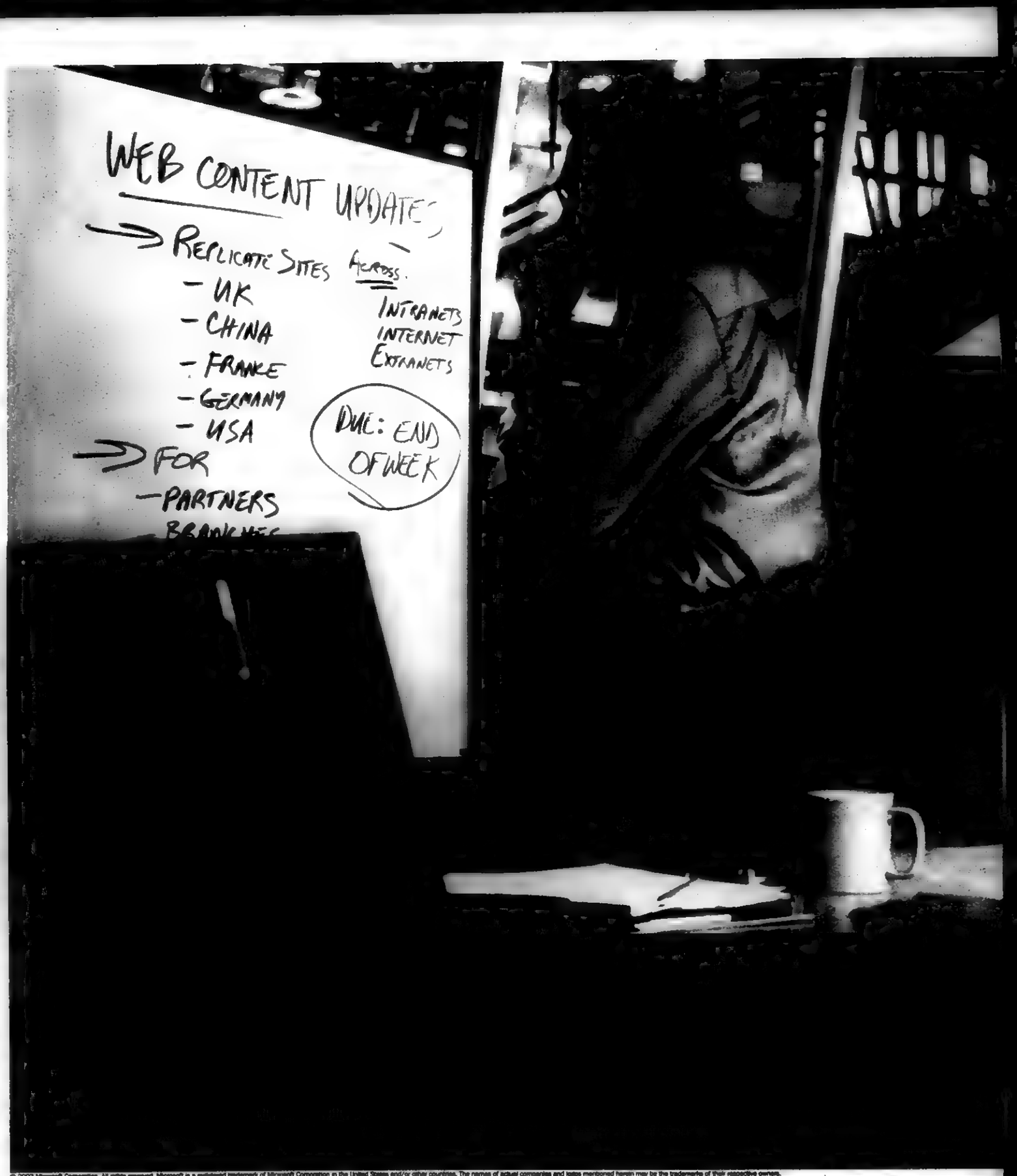

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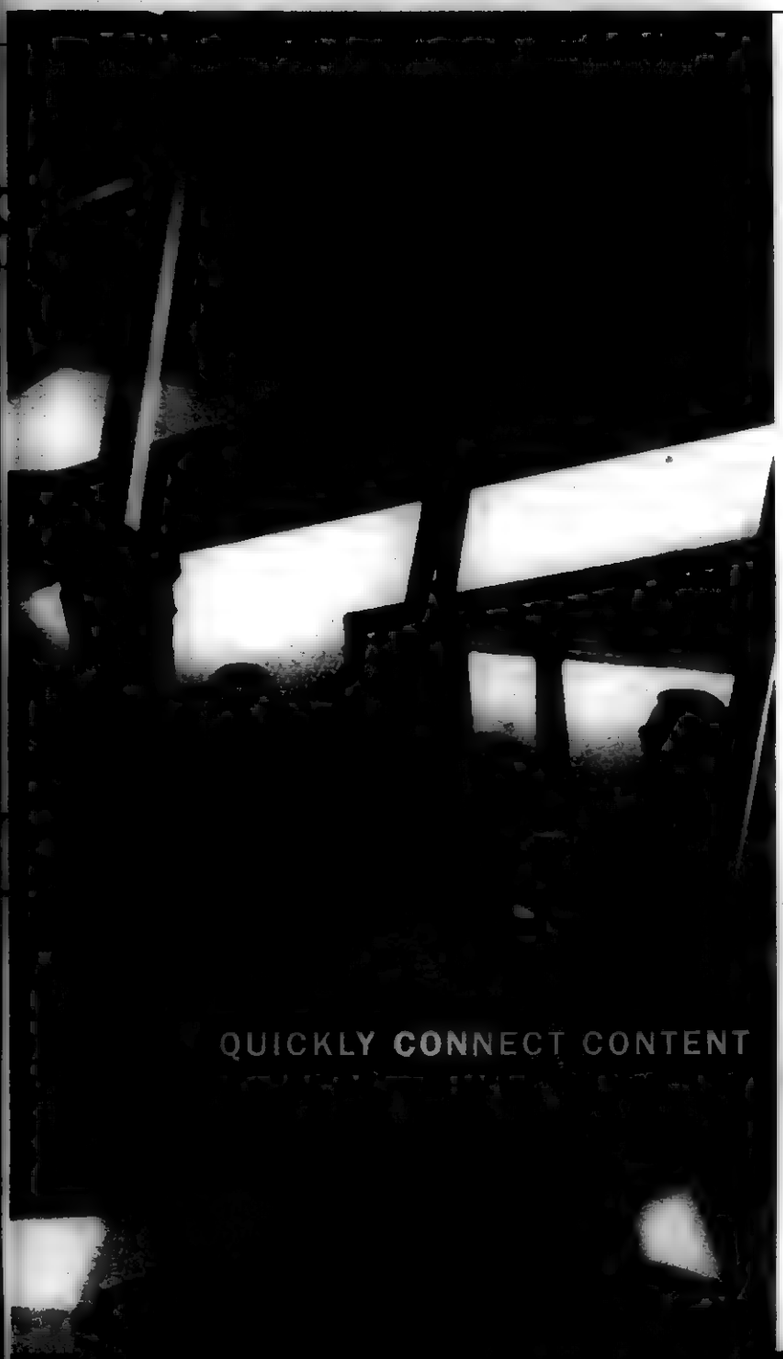

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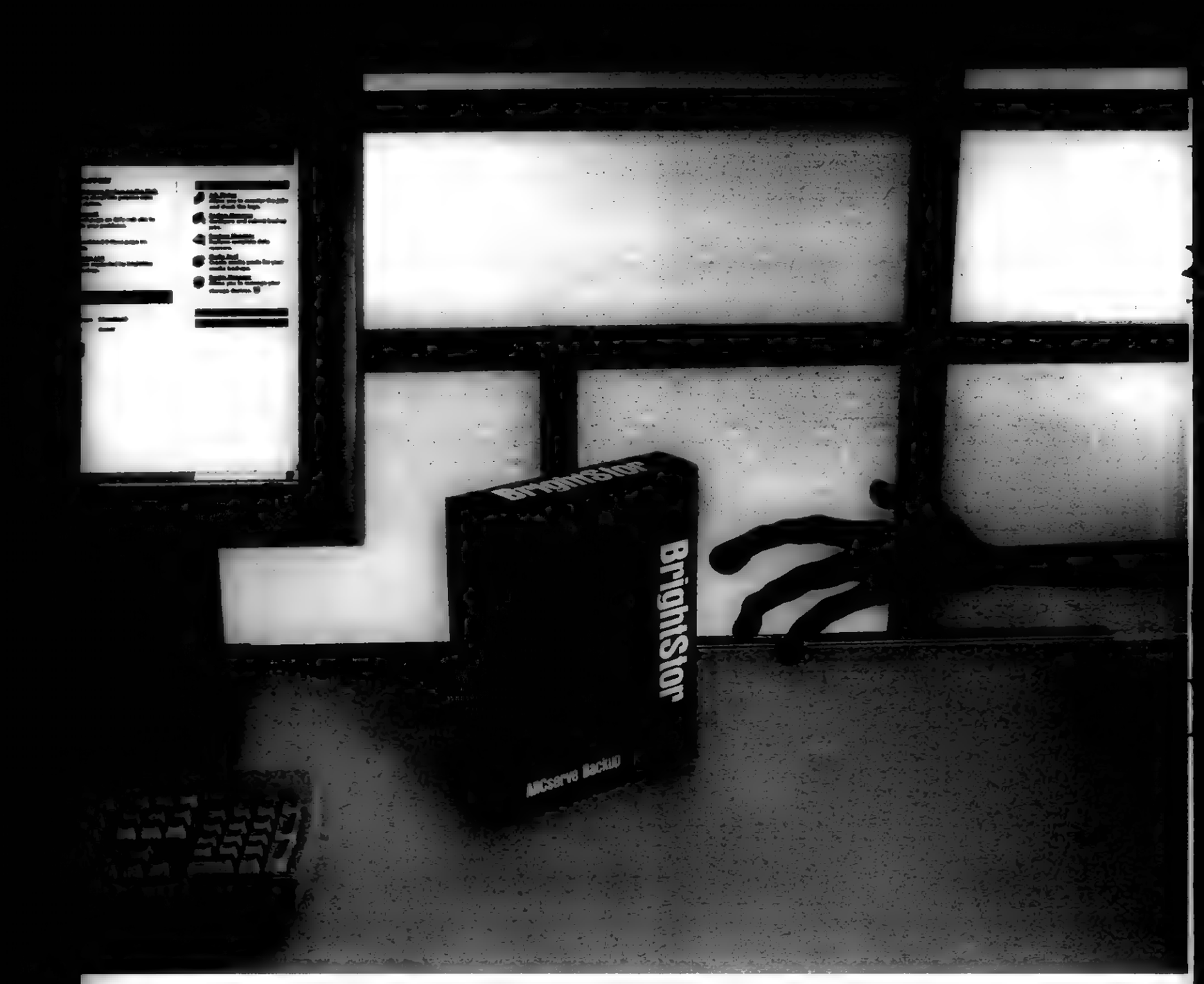

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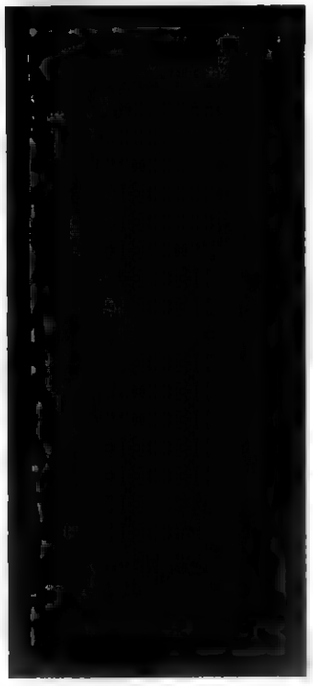

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SECURITY: The war against Iraq will likely trigger an increase in international hacker attacks. There are steps you can take to reduce your exposure. **QuickLink 37102**

IT Salaries Hold On
CAREERS: Meta Group's Maria Schafer, in her debut as a Computerworld.com career columnist, concludes that IT salaries and raises are faring better than those for non-IT jobs. **QuickLink 37107**

Should You Kill Your Project?
MANAGEMENT: Do you know when it's time to pull the plug on a project? Columnist Paul Glen tells you what you need to think about when making that decision. **QuickLink 37092**

Managed C# vs. Unmanaged C++
DEVELOPMENT: Which is faster? The answer may surprise .Net enthusiasts. **QuickLink 37088**

Keeping Blended Threats at Bay
SECURITY: David Aylesworth of eSoft examines a new generation of Internet worms and what you can do to defend your networks against them. **QuickLink 37089**

Review: PowerBook 17
MACINTOSH: We get our hands on one of Apple's superwide PowerBook 17 laptops and find that it's more of a portable desktop than a machine for road warriors — unless you have a large lap. **QuickLink 37105**

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6 The U.S. is on heightened cyberalert as the feds activate Operation Liberty Shield.

7 Postwar Iraq may emerge as a big IT market. It has the resources to be a Middle Eastern IT power.

8 CIOs don't expect the war to have a big impact on global IT projects. Travel may be curtailed, but Web and videoconferencing are alternatives.

8 The war may prompt firms to delay outsourcing their work offshore.

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Global Firms Confident About Disaster Recovery

Post-9/11, many businesses feel better prepared

BY LUCAS MEARIAN

SEVERAL LARGE companies last week said they're now better prepared for IT disaster recovery work that may be required as a result of the war with Iraq, thanks largely to investments they made after the Sept. 11, 2001, terrorist attacks.

For example, Loews Corp., a New York-based holding company that owns businesses in industries such as insurance, travel and offshore drilling, has been building up the end-user access capabilities on its corporate intranet as part of a business continuity plan that was put in place last year.

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Contingency Plans

Still, most U.S corporations aren't expecting a major business disruption from the war in Iraq, though a majority of companies have global IT contingency plans in place, according to the results of a survey of 60 companies released last week by Boston-based AMR Research Inc.

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"In terms of IT security, we continue to focus on business continuity for key systems and heightened vigilance for political hactivism," said Bill Smathers, director of enterprise security services at Avnet Inc., a $9 billion technology distributor in Tempe, Ariz., that has customers in 63 countries.

SOURCE: GARTNER INC., STAMFORD, CONN.

"Physical security is the most immediate focus. Avnet has a limited presence in the Middle East, and our highest priority would be the safety of our employees within the military theater of operations," Smathers said. The company has formed an emergency response team that includes key functions such as IT, corporate communications, quality assurance, transportation and travel, he said.

"All have plans in place to keep business interruptions to a minimum in the event of a crisis," Smathers said, declining to elaborate.

In some cases, previous preparations are paying off. All of Royal Caribbean Cruises Ltd.'s ships have been operating at the "highest level of security alert" since the attacks of Sept. 11, 2001, said Tom Murphy, CIO at the Miami-based company.

According to Murphy, Royal Caribbean is the first cruise company to be ready with the Advanced Passenger Information System, an electronic passenger-tracking system mandated by the U.S. Department of Homeland Security [QuickLink 35467]. As a result of such measures, "we don't have any specific concerns relative to IT security" stemming from the Iraq crisis, Murphy said.

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Country has financial, educational resources to be Middle Eastern IT power

BY PATRICK THIBODEAU
WASHINGTON

Even before the first missiles were launched at Baghdad last week, Iraq's IT infrastructure was primitive, a result of years of war and economic sanctions. But if Iraq emerges from the showdown with the U.S. as an open society, it could become a major technology market for U.S. companies.

"Every business-minded person is looking at Iraq after the war because it is a very rich country," said Riad Safar, director of Middle Eastern and North African operations at enterprise systems vendor Stratus Technologies Inc. in Maynard, Mass. "The needs are tremendous."

Stratus expects to focus on a horizontal market instead of vertical segments because it sees ubiquitous need for its systems in Iraq after any military actions have ended.

Safar said he believes Iraq's market potential, as it moves to replace out-of-date business and health systems, is bigger than that of many of its neighbors, including Jordan, Lebanon, Egypt, the United Arab Emirates and perhaps even Saudi Arabia.

Adel Ahmid agreed. The senior official at Kuwait-based systems integrator International Turnkey Systems said in a telephone interview last week that he thinks Iraq will be a "huge" market. Turnkey Systems is a Sun Microsystems Inc. partner.

Iraq currently has limited technology resources, said Ahmid. "It's like an empty place; you have to fill it out," he said.

One measure of Iraq's technological isolation is Internet use. Austin, Texas-based Matrix NetSystems Inc., which measures Internet performance, said that although the number of Internet hosts worldwide exceeded 200 million last year, there are none in Iraq. Moreover, there is only one domain with the Iraq country code of .iq, and it's registered in the United Arab Emirates.

Much remains uncertain. One U.S. Department of Commerce official pointed out that Iraq's potential will "depend on the nature of the post-Saddam regime, its openness and tolerance." Less-open regimes have proved less adept at integrating IT and communications infrastructures. Moreover, no one knows whether Saddam Hussein will act in ways that could make rebuilding the nation difficult, such as damaging oil wells or using radiological, chemical or biological weapons.

While the war naturally raises questions about the Middle Eastern country's future, Iraq has the population and wealth to finance an IT upgrade. It is about the size of California and has a population of 24 million, a literacy rate of nearly 60% and vast oil reserves.

"There does promise to be a limited bonanza [for IT companies] in the longer term," said Dan Miklovic, an analyst at Gartner Inc. in Stamford, Conn. Iraq relies on no-name PC clones, and export restrictions have kept it from buying enterprise servers from U.S. firms, he said. Much of its software is several releases old, Miklovic added, and the country is "heavily dependent on pirated software."

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The potential financial impact on U.S. firms is hard to gauge. Bill Wyman, an analyst at Washington-based The Precursor Group, which advises institutional investors, said the needs of Iraq aren't likely by themselves to make a meaningful difference to the bottom lines of large vendors.

But if U.S.-subsidized IT spending in Iraq were to hit $5 billion initially, that — coupled with U.S. government IT spending, which Precursor expects to rise by 15% next year from roughly $50 billion in 2003 — "is substantial enough to matter," he said.

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"It could definitely go much faster," said Sandi. "But nobody really knows exactly how to assess the infrastructure without knowing what the damage will be. So we analyzed everything as is."

Ahmed Al-Hayderi, a member of the infrastructure working group who defected from Iraq in 1980, works for a global telecommunications firm in the U.S. According to Al-Hayderi, the community of 4 million Iraqi exiles includes many senior corporate executives from technology companies that are eager to invest in Iraq and assist in the rebuilding.

"There is significant infrastructure available in the military sector," said Al-Hayderi, adding that the working group is concentrating on how to leverage that infrastructure to "leapfrog to a cost-effective deployment of a fully ubiquitous telecommunications infrastructure throughout Iraq."

Similarly, the U.S. Department of Defense is engaged in planning for the IT and telecommunications requirements of occupation forces that can serve as a framework for a more permanent infrastructure for postwar Iraq.

A spokesman for the Defense Information Systems Agency (DISA), the Pentagon's central network systems provider, said the agency has already contracted for significant commercial information systems support.

Although the spokesman declined to name companies that will be involved in the work, he said some of the contracts are focused on providing OC3 terrestrial connections throughout the region. DISA plans to rely on commercial contractors "to the maximum extent possible" and will bring them in once planning for a postwar communications infrastructure is complete, the spokesman said.

SOURCE: CIA

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GUARDING AGAINST WAR-PROVOKED CYBERATTACKS

- Evaluate and beef personnel security, including background checks, access to facilities and interaction with electronic systems.
- Provide multiple communication methods for computer incident response teams and all critical personnel.
- Update all systems with current security patches. Update virus signatures daily.
- Initiate vulnerability assessments, including penetration testing.
- Monitor security distributions lists for the latest updates and trends.
- Review external service providers' security readiness.

SOURCE: GARTNER INC., STAMFORD, CONN.

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Feds Activate Operation Liberty Shield

BY DAN VERTON
WASHINGTON

The Department of Homeland Security (DHS) is asking all Americans, especially businesses and operators of critical infrastructures, to report any suspicious cybersecurity incidents or intrusions, as part of a nationwide action plan code-named Operation Liberty Shield.

"We ask the private sector and general public to report unusual activity, such as intrusions, hacking, probes and such, to us via the National Infrastructure Protection Center Web site or the FBI," said Dave Wray, a spokesman for the DHS. "We are increasing monitoring of the Internet, contact with our Information Sharing and Analysis Centers [ISACs], Internet service providers and the Internet security industry."

Secretary of Homeland Security Tom Ridge activated Operation Liberty Shield on March 18, soon after President Bush issued Saddam Hussein an ultimatum to leave Iraq or face military action.

"We will continue to monitor the Internet for signs of a potential terrorist attack, cyberterrorism, hacking and state-sponsored information warfare," said Ridge. The Department of the Treasury has also increased its monitoring of the nation's financial networks and payment systems, Ridge said.

Shortly after Ridge activated Liberty Shield, DHS held a teleconference to clarify specific threat data with the various private-sector-run ISACs. ISACs operate information-sharing between the private owners of critical systems and the government. ▶

Postwar Iraq May Be Big IT Market

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BY PATRICK THIBODEAU
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Much remains uncertain. One U.S. Department of Commerce official pointed out that Iraq's potential will "depend on the nature of the post-Saddam regime, its openness and tolerance." Less-open regimes have proved less adept at integrating IT and communications infrastructures. Moreover, no one knows whether Saddam Hussein will act in ways that could make rebuilding the nation difficult, such as damaging oil wells or using radiological, chemical or biological weapons.

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SOURCE: EIA

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CIOs Don't Expect War to Have Major Impact on Global IT Projects

Travel could be a problem, but Web and videoconferencing seen as alternatives

BY THOMAS HOFFMAN

ALTHOUGH CIOs interviewed last week said they're deeply concerned about the potential business impact of the war with Iraq, few foresee any significant effect on international IT projects that are under way or in the pipeline.

But some IT executives warned that that could change if the war causes travel problems for their companies' employees or customers.

For example, Cardinal Health Inc. in Dublin, Ohio, is working on multiple enterprise resource planning (ERP) projects "that may experience travel-related impacts to their schedules," said Richard Gius, the medical equipment supplier's senior vice president of IT.

The projects most at risk are those that require consultants or other external workers to travel from country to country, Gius said. IT projects contained within individual countries on any of the five continents where Cardinal has operations should see little impact from the war, he added.

Mark Hedley, senior vice president and chief technology officer at Wyndham International Inc., said the Dallas-based operator of hotels and vacation resorts doesn't have any major IT projects in the works in the U.S. or internationally that are likely to be adversely affected by the war.

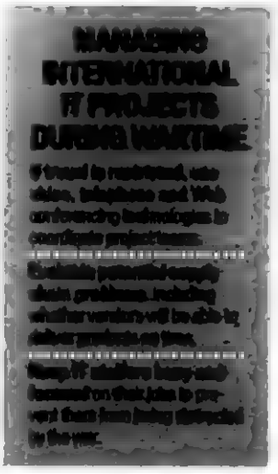
However, Hedley added that if the war continued for more than a week or two and adversely affected the travel industry, Wyndham would have to make adjustments to shore up its business. "I'm most concerned with domestic air travel and lack of passenger activity," he said. "Airlines are feeders to our hotel markets."

MasterCard International Inc. doesn't expect the Iraq conflict to affect any of its international projects, including an ongoing conversion of its European systems to its global IT architecture, said Jerry McElhatton, president of global technology and operations at the credit card company's data center in O'Fallon, Mo.

If international travel disruptions do arise, Purchase, N.Y.-based MasterCard plans to expand its use of teleconferencing, McElhatton said. Teleconferencing technology "is not always a suitable alternative" to travel, but it can facilitate communications when necessary, he noted.

Three of MasterCard's IT staffers have been called up to active military duty, and a few more could follow. But McElhatton said he hasn't had to replace anyone with interim contractors, nor has he had to create internal work-arounds to support MasterCard's operations.

There are signs that the uncertainties preceding the war affected IT spending. For example, Oracle Corp. last week reported a 4% decline in sales of new software licenses for its third quarter, which ended Feb. 28. Jeff Henley, Oracle's chief financial officer, said the looming war led corporate users to hold off on purchases last month after business was relatively strong in December and January.



Unisys Corp. has already completed the bulk of a global rollout of Oracle's ERP applications and Siebel Systems Inc.'s customer relationship management software, with the exception of putting some final touches on an ERP implementation in Latin America. "So a great deal of our heavy lifting is behind us," said John Carrow, CIO at the Blue Bell, Pa.-based IT vendor.

Like many other companies, Unisys has cut back on corporate travel because of the weak economy and is now "very adept" at conducting IT-related business via teleconferences, videoconferences and the Web, Carrow said.

War May Prompt Firms To Delay Offshore Work

BY PATRICK THIBODEAU
WASHINGTON

The Iraq war's impact on offshore outsourcing could be similar to what happened last year during the crisis between Pakistan and India, when for several months there was a decline in offshore contracts and a renewed focus on contingency planning. Once the threat declined, outsourcing to India largely returned to normal.

> There's a reluctance to travel, even in the U.S.
>
> VP of Operations, Telvista Co.

But if the Iraq war is protracted and U.S. interests, such as India's outsourcing centers, are attacked by terrorists, then U.S. businesses will likely pull operations back in-house, said Debashish Sinha, an analyst at Gartner Inc. "There is an infinite number of variables that could affect this," Sinha said.

Meta Group Inc. last month predicted that offshore outsourcing would grow 20% annually, and Dean Davison, an analyst at the Stamford, Conn.-based firm, said he's not expecting that growth rate to be "significantly hindered" by the war.

But Davison, who canceled a trip to India he was planning to take this week, said his forecast could change if the war prompts global unrest. "If this expands . . . then all bets are off," he said.

The war is already having a short-term impact on outsourcing, primarily because of travel concerns.

For instance, Telvista Co., an Austin, Texas, firm that provides offshore services in Mexico, decided to reschedule a conference planned this week in San Diego after numerous clients canceled travel plans because of the war. "There's a reluctance to travel, even in the U.S.," said Suzy Weaver, Telvista's vice president of operations.

But analysts expect businesses to continue with their longer-range offshore planning, if warily.

Baltimore-based investment management firm T. Rowe Price Group Inc., which manages more than $140 billion in assets, does a significant amount of its new-application development, platform rehosting and application management work via an India-based outsourcing firm. The war so far has not affected its overseas work, said Ram Mouli, the company's vice president of technology planning and development.

"The challenges during a war-type emergency are the issues related to travel from and to India by the on-site resources," Mouli said. But future projects that are under consideration, such as application hosting and the setting up of a disaster recovery site in India, may be reconsidered. "We are re-evaluating these projects, as we are worried about the war and the long-term effect on system and application access," Mouli said.

Marty Clague, president and CEO of Covansys Corp., a Farmington Hills, Mich.-based company that provides offshore services in India, said he expects some trip cancellations and deferrals in offshore work. But being ready for problems is part of offshore planning, he said.

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Reporter Jaikumar Vijayan contributed to this report.

FINE PRINT

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CIOs Don't Expect War to Have Major Impact on Global IT Projects

Travel could be a problem, but Web and videoconferencing seen as alternatives

BY THOMAS HOFFMAN

ALTHOUGH CIOs interviewed last week said they're deeply concerned about the potential business impact of the war with Iraq, few foresee any significant effect on international IT projects that are under way or in the pipeline.

But some IT executives warned that that could change if the war causes travel problems for their companies' employees or customers.

For example, Cardinal Health Inc. in Dublin, Ohio, is working on multiple enterprise resource planning (ERP) projects "that may experience travel-related impacts to their schedules," said Richard Gius, the medical equipment supplier's senior vice president of IT.

The projects most at risk are those that require consultants or other external workers to travel from country to country, Gius said. IT projects contained within individual countries on any of the five continents where Cardinal has operations should see little impact from the war, he added.

Mark Hedley, senior vice president and chief technology officer at Wyndham International Inc., said the Dallas-based operator of hotels and vacation resorts doesn't have any major IT projects in the works in the U.S. or internationally that are likely to be adversely affected by the war.

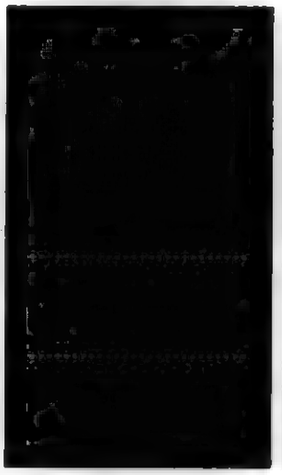
However, Hedley added that if the war continued for more than a week or two and adversely affected the travel industry, Wyndham would have to make adjustments to shore up its business. "I'm most concerned with domestic air travel and lack of passenger activity," he said. "Airlines are feeders to our hotel markets."

MasterCard International Inc. doesn't expect the Iraq conflict to affect any of its international projects, including an ongoing conversion of its European systems to its global IT architecture, said Jerry McElhatton, president of global technology and operations at the credit card company's data center in O'Fallon, Mo.

If international travel disruptions do arise, Purchase, N.Y.-based MasterCard plans to expand its use of teleconferencing, McElhatton said. Teleconferencing technology "is not always a suitable alternative" to travel, but it can facilitate communications when necessary, he noted.

Three of MasterCard's IT staffers have been called up to active military duty, and a few more could follow. But McElhatton said he hasn't had to replace anyone with interim contractors, nor has he had to create internal work-arounds to support MasterCard's operations.

There are signs that the uncertainties preceding the war affected IT spending. For example, Oracle Corp. last week reported a 4% decline in sales of new software licenses for its third quarter, which ended Feb. 28. Jeff Henley, Oracle's chief financial officer, said the looming war led corporate users to hold off on purchases last month after business was relatively strong in December and January.



Unisys Corp. has already completed the bulk of a global rollout of Oracle's ERP applications and Siebel Systems Inc.'s customer relationship management software, with the exception of putting some final touches on an ERP implementation in Latin America. "So a great deal of our heavy lifting is behind us," said John Carrow, CIO at the Blue Bell, Pa.-based IT vendor.

Like many other companies, Unisys has cut back on corporate travel because of the weak economy and is now "very adept" at conducting IT-related business via teleconferences, videoconferences and the Web, Carrow said.

War May Prompt Firms To Delay Offshore Work

BY PATRICK THIBODEAU
WASHINGTON

The Iraq war's impact on offshore outsourcing could be similar to what happened last year during the crisis between Pakistan and India, when for several months there was a decline in offshore contracts and a renewed focus on contingency planning. Once the threat declined, outsourcing to India largely returned to normal.

> There's a reluctance to travel, even in the U.S.

But if the Iraq war is protracted and U.S. interests, such as India's outsourcing centers, are attacked by terrorists, then U.S. businesses will likely pull operations back in-house, said Debashish Sinha, an analyst at Gartner Inc. "There is an infinite number of variables that could affect this," Sinha said.

Meta Group Inc. last month predicted that offshore outsourcing would grow 20% annually, and Dean Davison, an analyst at the Stamford, Conn.-based firm, said he's not expecting that growth rate to be "significantly hindered" by the war.

But Davison, who canceled a trip to India he was planning to take this week, said his forecast could change if the war prompts global unrest. "If this expands . . . then all bets are off," he said.

The war is already having a short-term impact on outsourcing, primarily because of travel concerns.

For instance, Telvista Co., an Austin, Texas, firm that provides offshore services in Mexico, decided to reschedule a conference planned this week in San Diego after numerous clients canceled travel plans because of the war. "There's a reluctance to travel, even in the U.S.," said Suzy Weaver, Telvista's vice president of operations.

But analysts expect businesses to continue with their longer-range offshore planning, if warily.

Baltimore-based investment management firm T. Rowe Price Group Inc., which manages more than $140 billion in assets, does a significant amount of its new-application development, platform rehosting and application management work via an India-based outsourcing firm. The war so far has not affected its overseas work, said Ram Mouli, the company's vice president of technology planning and development.

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If you're busy monitoring your servers, who's watching your business?

The new HP ProLiant DL740 8-way with hot-plug RAID memory.

- Ultradense 4u modular chassis with up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 6-64 bit/100 MHz PCI-X slots
- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.

The new HP ProLiant DL760 G2 8-way with hot-plug RAID memory.

- Up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 10-64 bit/100 MHz PCI-X, 1-64 bit 33 MHz slots
- Remote Insight Lights-Out Edition II (optional) for Remote Server Mgmt.

What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that predict, self-diagnose and fix many fault conditions. And now with hot-plug RAID memory exclusively from HP, you can add or replace DIMMs without turning your systems off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

At the end of the day, you'll have more control over your infrastructure, help avoid unplanned downtime and reduce overall maintenance costs. Not to mention freeing yourself up for more important things.

To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YPH.

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AT DEADLINE

EDS Replaces Its Top Executive . . .

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. . . And Loses User Certegy to IBM

Certegy Inc. in Alpharetta, Ga., said it severed a U.S. IT services contract with EDS and signed a 10-year deal with IBM. The new pact is valued at $150 million and adds to agreements under which IBM does IT services work for Certegy in the U.K. and Australia. Certegy, which provides credit and debit processing services, said it will take a charge of up to $10 million to cover early-exit payments to EDS.

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MARK HALL ▪ ON THE MARK

Web Services Remain Behind Firewall . . .

. . . and probably will stay there for the next year or longer. Or so say vendors and developers who work in the field. **Everything from immature standards to security concerns** seems to be holding Web services in check, they say. "It's an immature field, and the standards are still evolving," observes James Franklin, director at Extreme Logic Inc. in Atlanta. He says only 10% to 20% of the clients of his 200-person IT consultancy are dipping their toes into Web services, and they're doing so only for internal integration work. "Most of our customers are not ready for depending on outside Web services," he says, noting that **users are unnerved by the fact that new standards "will always crop up,"** such as the recent announcement of one for Web services management. Keith Franklin (no known relationship to James), president and chief software architect of Empowered Software Solutions Inc., a .Net consultancy in Burr Ridge, Ill., claims that while effective security is possible with Web services, people remain skeptical "because it's not part of the specification."

▪ Mercury Interactive Corp. has leapt into the Web services tools business. But according to Vincent Rerolle, vice president of business development, the Sunnyvale, Calif.-based software company has seen virtually all the demand focused on testing tools, which leads him to conclude users aren't deploying these new applications outside their companies because that would require a different set of production and management tools. Part of the problem resides in the issue of responsibility. For example, service-level agreements (SLA) are well defined and managed among current business-partner applications. "But," Rerolle says, **"SLAs are still nascent on the Web services side."** ▪ If you're ready to experiment with Web services, but all you hear from management is **"ROI! ROI! ROI!"** Franklin (James, not Keith) argues that .Net is the hands-down winner on cost to deploy, primarily because of Microsoft Corp.'s stronger development tools. Still, he acknowledges that if you already have a Java 2 Enterprise Edition (J2EE) environment, switching to .Net is unlikely to deliver meaningful returns on investment. If you want to jump into the .Net vs. J2EE Web services debate, visit *www.webservicesarchitect.com/* and join the fray. ▪ **That fray going on in Iraq** has affected the Franklin boys differently. One (James) attributes the hesitation about corporate IT buying decisions to the lingering uncertainty of war. However, he says, "if the war is quick, there could be a bit of a bounce in business." The other (Keith) says the war with Iraq hasn't changed his software consulting business at all. "I haven't heard a peep from one our clients," he says. "They're not even asking for extra security screening of our on-site staff." ▪ However the war affects IT business, one thing you can bet on is that **Linux will emerge victorious.** Research from Evans Data Corp. shows that 52% of developers now target the open-source operating system to run their software. And Linux will get another boost next week when Austin, Texas-based Metrowerks, a wholly owned subsidiary of Motorola Inc., unveils its Smart Gateway 857 hardware/software development combo for large network systems such as switches and routers. The new development tools will put Linux inside systems that previously depended on proprietary operating systems. Reason? Operating system licensing fees are too steep. **The 857's evaluation and developer kits are available now.** Expect to see a voice module for voice over IP developers by June. ▪ No foolin', **computer games will make 3-D displays ubiquitous,** according to Joel Pollack, vice president for business development at Sharp Microelectronics of the Americas in Camas, Wash. He claims that the phenomenon will begin with 3-D games on cell phones in Japan this year and help drive down costs to the point that, within the next couple of years, IT managers at medical and R&D sites will need to bone up on 3-D displays. And you thought flat panels would be the end of it. ▪

Apple Computer Inc. will ship its upgraded Xserve Unix-based servers in late April. The new machines include single or dual 1.33-GHz Power PC processors, up to 720GB of mass storage and a 10-client Mac OS X license for $2,799.

Linux lovers who are spam haters will appreciate Ximian Inc. System Corp.'s announcement this week that it's adding SpamBouncer to its NetMax Professional Suite, a preconfigured Linux server environment. The add-on costs $100.

Unisys Updates Server Sentinel Software

BY TOM KRAZIT

Unisys Corp. today is releasing the newest version of its server management software, along with new software that manages applications on its data center servers.

Server Sentinel 2.0 will be bundled with the company's ES7000 series servers, which use eight to 32 Xeon processors or 32 Itanium processors from Intel Corp. The software is designed to ease systems administration through self-management and self-healing features, said Jon Burns, director of Sentinel programs at Blue Bell, Pa.-based Unisys.

The software was developed to detect hardware failures before they happen and prevent those failures from cascading around a network, Burns said. Server Sentinel will determine what conditions might lead to a specific problem and direct traffic on a network to fail over to the "best fit" node based on that specific problem, he said. This will allow systems administrators to isolate and repair failures without losing the entire network, Burns added.

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The consolidation module allows companies to run the same applications on fewer servers by doing an inventory of existing server resources and analyzing how to best distribute the load, Burns said.

The software is available with ES7000 servers, which start at about $100,000 for an eight-way configuration, Burns said. However, Unisys also plans to launch a new ES7000 server in the next few weeks at a much cheaper price, he said. Pricing hasn't been finalized for the new product. ▪

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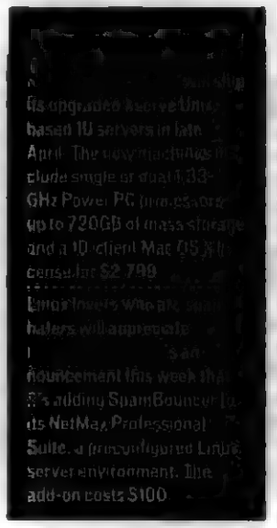

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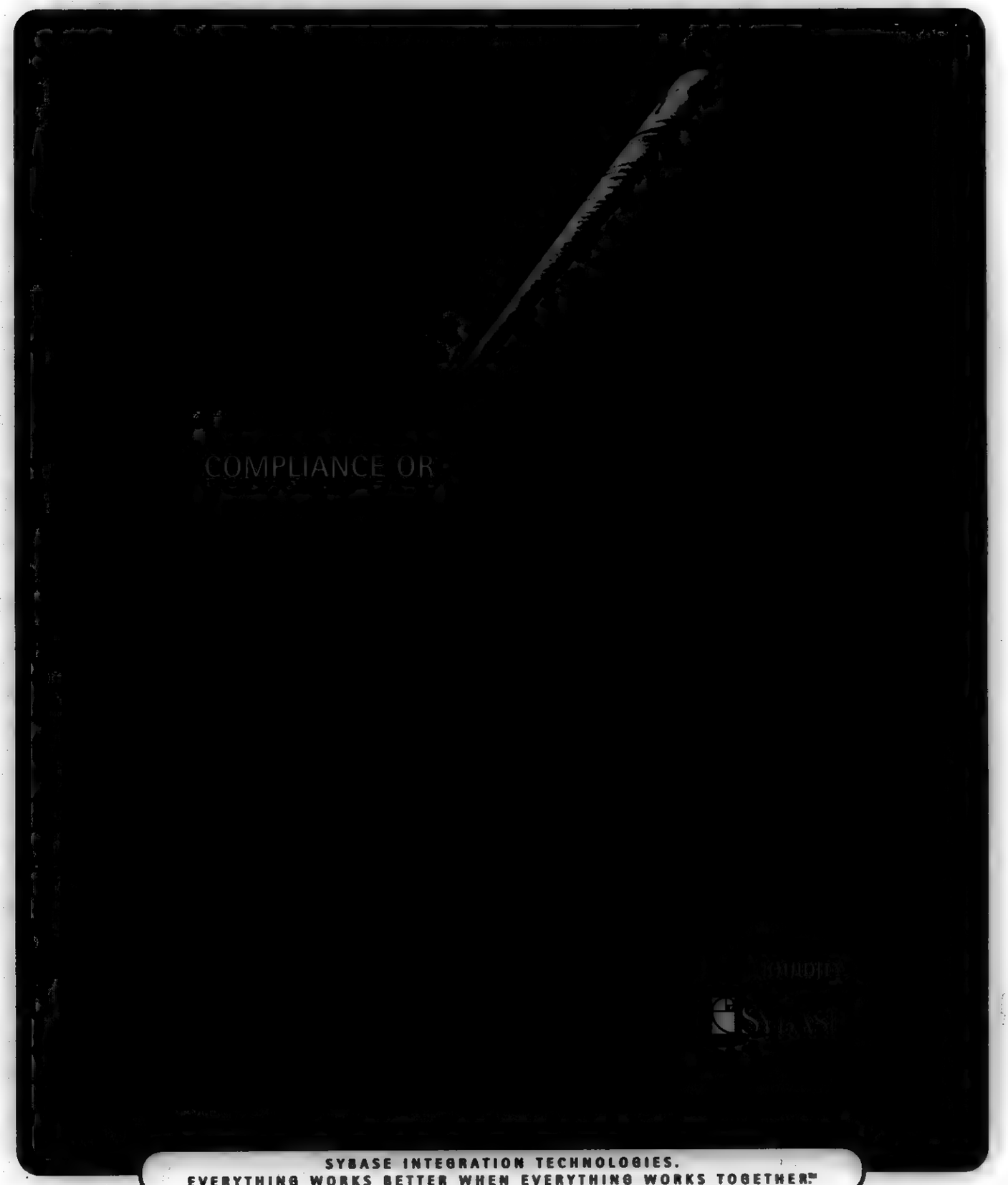

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BRIEFS

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Huawei Rejects Cisco's Claims . . .

Huawei Technologies Co., a networking vendor in Shenzhen, China, responded to charges of patent infringement and technology-copying that Cisco Systems Inc. lodged in January. In a filing to the U.S. District Court in Marshall, Texas, Huawei denied many of Cisco's claims and challenged its legal standing to bring others.

. . . And Inks Sales Deal With 3Com

Huawei and Santa Clara, Calif.-based 3Com Corp. said they're forming a joint venture to develop and sell networking products. 3Com is investing $160 million in the Hong Kong-based joint venture and will initially hold a 49% interest, with Huawei owning the rest. The joint venture will sell its products in China and Japan, and 3Com will sell them under its own brand in the rest of the world.

Short Takes

The Kerberos development team at MIT warned of "critical" cryptographic shortcomings in Version 4 of the end-user authentication protocol. It added that details of the flaw have been leaked on the Internet. . . . GATEWAY INC. in Poway, Calif., said it's cutting 17% of its workforce. The company also said it will launch new corporate servers next month.

Microsoft Plans Move To Autonomic Territory

Initiative to make 'operationally aware' applications should ease management

BY CAROL SLIWA
LAS VEGAS

MICROSOFT CORP. last week took the occasion of its annual Management Summit to lay out a long-term vision to help IT shops simplify and automate their operations and manage and monitor their systems.

Company executives introduced a Dynamic Systems Initiative (DSI) that aims to simplify the design, development and deployment of applications that are "operationally aware." IT professionals will gain the flexibility to expand and contract hardware and software resources based on business logic and automate operations, said Bill Veghte, vice president of the Windows Server Group.

The Dynamic Systems Initiative essentially is Microsoft's belated, but much needed, response to the autonomic computing plans that IBM, Hewlett-Packard Co. and Sun Microsystems Inc. are promoting for self-healing, self-configuring and self-optimizing systems, analysts said.

Major Differences

But Microsoft's initiative differs from the competition's plans in two major ways. The Dynamic Systems Initiative focuses on Microsoft products, whereas the competing initiatives better account for the heterogeneous systems found in large data centers, according to analysts.

Another difference is Microsoft's focus on designing systems that are "operationally aware" from the outset. Microsoft is creating an XML-based System Definition Model (SDM) to define and capture the resource, operational and deployment requirements of an application.

The initial incarnation of the SDM is due in 2005 with the Windows release code-named Longhorn, Microsoft officials said (see related story, Page One). Plans call for the SDM to eventually be baked into Microsoft products and development tools, so that any Windows-based application a customer buys or builds can be managed, provisioned and adapted more easily as workload or business needs change.

Michael Niehaus, an IT consultant at Marathon Oil Corp. in Houston, said the SDM concept looks interesting, but he said he doubts that it will be viewed as a top priority at his company.

"At this point in time, that entire concept would be lost on most of our developers," he said. "Our developers are struggling with the concept of making applications that can work across slower network links."

The first fruits of Microsoft's DSI are due with the Windows Server 2003 operating system, although they won't all necessarily make the April 24 launch date. For instance, the Windows System Resource Manager, which will allow IT managers to allocate CPU and memory to an application, is due to ship via a separate CD.

Another highly touted new feature, called Automated Deployment Services, is due in June. With that tool, a company will be able to deploy hundreds of customized Windows server system images in minutes, according to Microsoft. A beta copy was made available to early adopters last week.

Many of the new features and tools eventually may become appealing to IT shops, but they didn't appear to engender much enthusiasm among conference attendees. Several IT managers expressed confusion about or indifference to the new long-term strategy, and they directed their attention at Microsoft's more immediate product plans.

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Microsoft gets more serious about systems management.
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Sara Scuereb, an infrastructure engineer at Daimler-Chrysler Services North America LLC, said she was frustrated to learn that the long-delayed Systems Management Server (SMS) won't be released to manufacturing until September. At last year's Management Summit, Microsoft said the product would ship by the end of June.

"We can only wait so long," she said.

Scuereb said her company is anxious to use the mobile client and asset management features in the SMS 2003 product, but the delay has prompted it to look at a competing product from Altiris Inc. in Lindon, Utah.

The other main product in Microsoft's management arsenal is also being refreshed. The company announced last week that a new version of Microsoft Operations Manager (MOM), its event and performance management software for servers and applications, is due in 2004. New features will include a task-based operator console, auto-alert resolution, improved reporting capabilities and a broader array of management packs for managing Microsoft products, such as Exchange Server and SQL Server.

New Product

As part of the DSI, Microsoft also announced that SMS and MOM will be integrated into a new product called System Center. The initial version, due next year, will bundle the two products and enable them to share the same data warehouse for unified reporting. The follow-on, due in 2005, will feature deeper integration of the two products and build on the SDM foundation, said Kirill Tatarinov, vice president of Microsoft's enterprise management division.

While some users lauded the move and said that they expect System Center to be useful, others questioned how the product will fit with their organizational structures.

Brad Jacobson, an operating systems engineer at Wells Fargo Financial Inc. in Des Moines, Iowa, said large companies often have departments focusing on different areas of management. SMS is typically used for desktop administration, and MOM is for servers.

"Putting MOM and SMS together doesn't fit our company structure," he said.

Tatarinov said SMS and MOM will also continue to be available separately.

Microsoft's Dynamic Systems Initiative

Automated Deployment Services
Definition: Provisioning and administration tool that allows companies to deploy servers in a data center environment from a bare-metal state.
Due: June 2003.

System Definition Model
Definition: An XML-based manifest, or blueprint, defining the resources on which an application depends, the application's operational behavior and the manner in which it is deployed and updated.
Due: Starting in 2005.

System Center
Definition: Management suite that will include Microsoft Operations Manager and Systems Management Server.
Due: Initial MOM 2004 and SMS 2003 bundle in summer 2004; fully integrated product in 2005.

Source: Microsoft Corp.

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Short Takes

The Kerberos development team at MIT warned of "critical" cryptographic shortcomings in Version 4 of the end-user authentication protocol. It added that details of the flaw have been leaked on the Internet. . . . GATEWAY INC. in Poway, Calif., said it's cutting 17% of its workforce. The company also said it will launch new corporate servers next month.

Microsoft Plans Move To Autonomic Territory

Initiative to make 'operationally aware' applications should ease management

BY CAROL SLIWA
LAS VEGAS

MICROSOFT CORP. last week took the occasion of its annual Management Summit to lay out a long-term vision to help IT shops simplify and automate their operations and manage and monitor their systems.

Company executives introduced a Dynamic Systems Initiative (DSI) that aims to simplify the design, development and deployment of applications that are "operationally aware." IT professionals will gain the flexibility to expand and contract hardware and software resources based on business logic and automate operations, said Bill Veghte, vice president of the Windows Server Group.

The Dynamic Systems Initiative essentially is Microsoft's belated, but much needed, response to the autonomic computing plans that IBM, Hewlett-Packard Co. and Sun Microsystems Inc. are promoting for self-healing, self-configuring and self-optimizing systems, analysts said.

Major Differences

But Microsoft's initiative differs from the competition's plans in two major ways. The Dynamic Systems Initiative focuses on Microsoft products, whereas the competing initiatives better account for the heterogeneous systems found in large data centers, according to analysts.

Another difference is Microsoft's focus on designing systems that are "operationally aware" from the outset. Microsoft is creating an XML-based System Definition Model (SDM) to define and capture the resource, operational and deployment requirements of an application.

The initial incarnation of the SDM is due in 2005 with the Windows release code-named Longhorn, Microsoft officials said (see related story, Page One). Plans call for the SDM to eventually be baked into Microsoft products and development tools, so that any Windows-based application a customer buys or builds can be managed, provisioned and adapted more easily as workload or business needs change.

Michael Niehaus, an IT consultant at Marathon Oil Corp. in Houston, said the SDM concept looks interesting, but he said he doubts that it will be viewed as a top priority at his company.

MANAGEMENT MUSCLE
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"At this point in time, that entire concept would be lost on most of our developers," he said. "Our developers are struggling with the concept of making applications that can work across slower network links."

The first fruits of Microsoft's DSI are due with the Windows Server 2003 operating system, although they won't all necessarily make the April 24 launch date. For instance, the Windows System Resource Manager, which will allow IT managers to allocate CPU and memory to an application, is due to ship via a separate CD.

Another highly touted new feature, called Automated Deployment Services, is due in June. With that tool, a company will be able to deploy hundreds of customized Windows server system images in minutes, according to Microsoft. A beta copy was made available to early adopters last week.

Many of the new features and tools eventually may become appealing to IT shops, but they didn't appear to engender much enthusiasm among conference attendees. Several IT managers expressed confusion about or indifference to the new long-term strategy, and they directed their attention at Microsoft's more immediate product plans.

Sara Scuereb, an infrastructure engineer at Daimler-Chrysler Services North America LLC, said she was frustrated to learn that the long-delayed Systems Management Server (SMS) won't be released to manufacturing until September. At last year's Management Summit, Microsoft said the product would ship by the end of June.

"We can only wait so long," she said.

Scuereb said her company is anxious to use the mobile client and asset management features in the SMS 2003 product, but the delay has prompted it to look at a competing product from Altiris Inc. in Lindon, Utah.

The other main product in Microsoft's management arsenal is also being refreshed. The company announced last week that a new version of Microsoft Operations Manager (MOM), its event and performance management software for servers and applications, is due in 2004. New features will include a task-based operator console, auto-alert resolution, improved reporting capabilities and a broader array of management packs for managing Microsoft products, such as Exchange Server and SQL Server.

New Product

As part of the DSI, Microsoft also announced that SMS and MOM will be integrated into a new product called System Center. The initial version, due next year, will bundle the two products and enable them to share the same data warehouse for unified reporting. The follow-on, due in 2005, will feature deeper integration of the two products and build on the SDM foundation, said Kirill Tatarinov, vice president of Microsoft's enterprise management division.

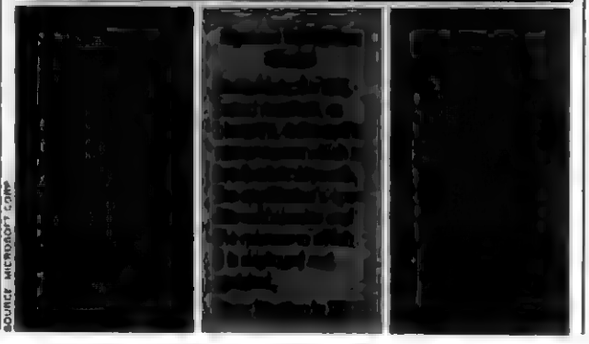
While some users lauded the move and said that they expect System Center to be useful, others questioned how the product will fit with their organizational structures.

Brad Jacobson, an operating systems engineer at Wells Fargo Financial Inc. in Des Moines, Iowa, said large companies often have departments focusing on different areas of management. SMS is typically used for desktop administration, and MOM is for servers.

"Putting MOM and SMS together doesn't fit our company structure," he said.

Tatarinov said SMS and MOM will also continue to be available separately.

Microsoft's Dynamic Systems Initiative



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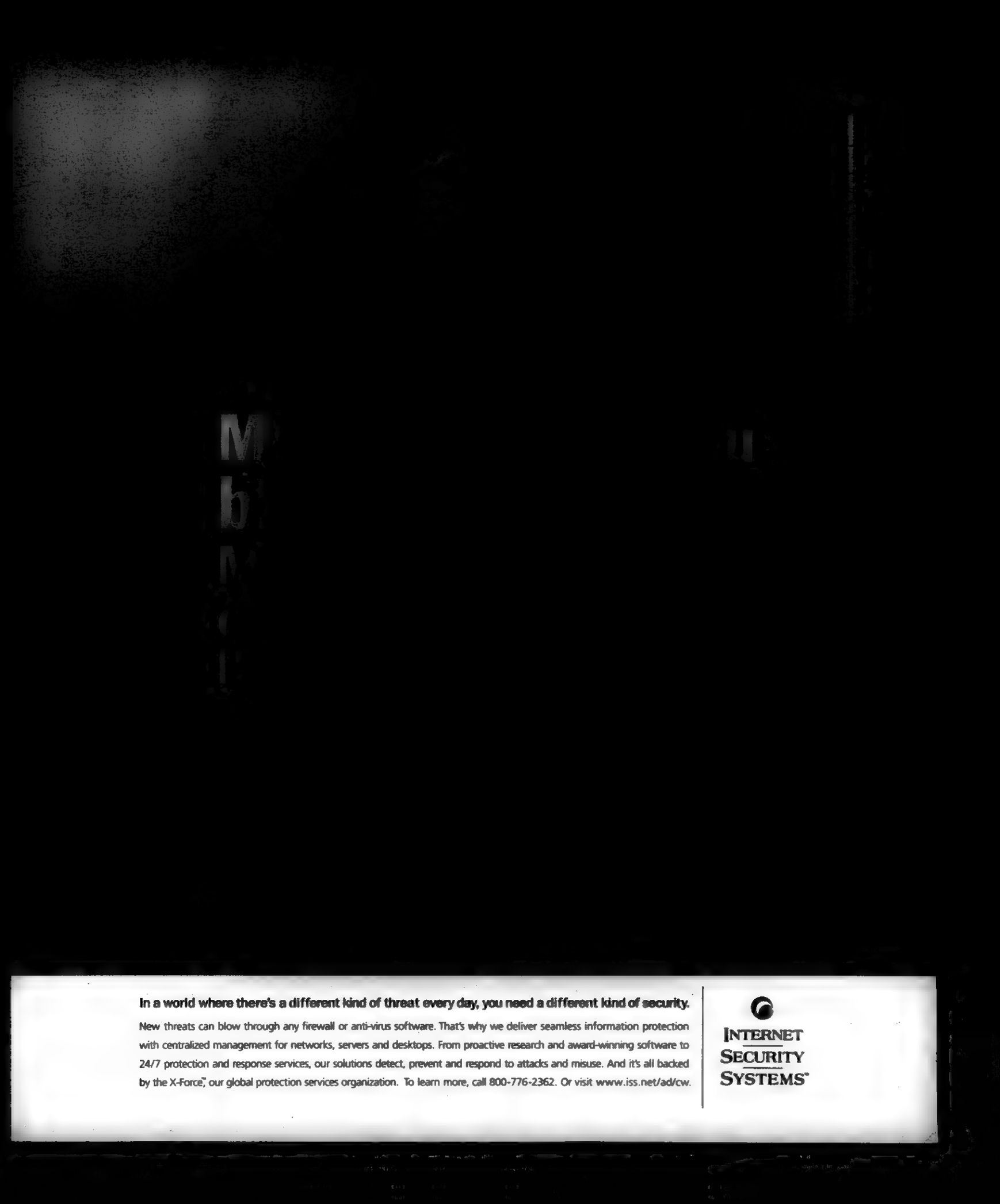

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INTERNET SECURITY SYSTEMS™

L.A. Police Seek Bandwidth Boost From WLAN Technology

Officials expect new systems to speed deliveries of graphical data to officers

BY BOB BREWIN
NEW ORLEANS

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Roger Ham, deputy chief for communications at the LAPD, said at the Cellular Telecommunications & Internet Association's Wireless 2003 conference here that the WLANs will be used to send mug shots, maps and other graphical data to police officers. Transmissions like that aren't feasible on the wireless wide-area network the department installed citywide two years ago.

As part of the WLAN project, the LAPD plans to deploy about 1,500 Pocket PC handheld computers to officers working in vehicles and on foot patrols. The handhelds, made by Symbol Technologies Inc. in Holtsville, N.Y., will include 802.11b WLAN cards designed to let them communicate with wireless access points inside the police stations at raw data transfer rates of up to 11M bit/sec. By comparison, the LAPD's wireless WAN delivers peak throughput of 19.2K bit/sec.

Faster Mug Shots

The range of WLAN transmissions is limited to about 300 feet, but Ham said the technology will make it easier to distribute images to police officers in real time. Currently, mug shots are handed out on paper at the roll call for each shift. The WLAN system could also provide a fast way to distribute photos of lost children as part of the Amber Alert system, Ham said.

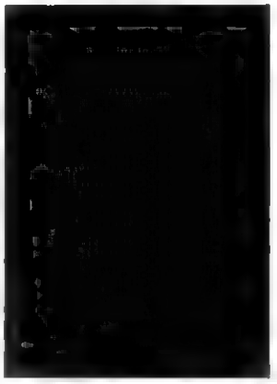
Will Strauss, an analyst at Forward Concepts Co. in Tempe, Ariz., called the LAPD's plan "a cheap way to get bandwidth" that officers could use to periodically download important data as they passed by police stations.

Ham, who declined to disclose the expected cost of the project, said he eventually wants to develop an interface between the WLAN radios built into the Symbol handhelds and the WAN-based Motorola Inc. radios that are now used in police cars. That would let officers use the handhelds as remote units connected to the WAN while outside their vehicles, he noted.

Other police departments, including the ones in Baltimore and in Glendale, Calif., have already installed similar WLAN-to-WAN systems.

Mike Shlasko, director of the public-safety business unit at Symbol, said the company will provide ruggedized handhelds running Microsoft Corp.'s Pocket PC operating system to the LAPD. He added that Symbol is a subcontractor on the WLAN project to Vytek Wireless Inc. in White Plains, N.Y. The deal between the two firms and the LAPD was finalized during the past few weeks but has yet to be announced, according to Shlasko and Ham. Vytek, a developer of wireless applications, wouldn't comment about the project.

Ham said that he views WLANs as a stopgap measure and added that the LAPD needs additional WAN spectrum for routine duties and



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Microsoft issues patch, but some users may have reboot problems

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Microsoft typically issues security bulletins on Wednesdays, but Jones said it decided to post the WebDAV warning on its Web site last Monday because of the reports of active attacks.

The company also specified work-arounds for users who may not be able to apply the fix right away.

"We're trying to put an extra emphasis on alternative ways to protect yourself," he said.

Indeed, Microsoft acknowledged that the patch itself could cause problems for some users of Windows 2000 and its Service Pack 2 bug-fix update. After issuing the patch, the company said that it's incompatible with a dozen other fixes developed for the operating system from December 2001 to February 2002.

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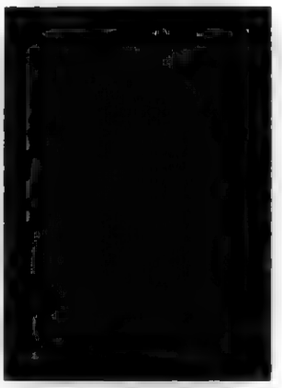

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BRIEFS

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i2 Looks to Simplify Supply Chain Software With Upgrade

New release includes vertical industry templates, support for Web services

BY MARC L. SONGINI

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The Dallas-based software vendor said its i2 Six release will be less expensive to install and easier to use than prior versions were. The new applications include prebuilt templates for various vertical industries and will support out-of-the-box integration with enterprise resource planning systems, according to i2.

In addition, the company is building Web services support into the new applications. For users, that should speed up the process of developing data integration links between i2 Six and applications developed by other vendors, i2 officials said. The new software will also be able to exploit technologies such as Java 2 Enterprise Edition and XML.

Pallab Chatterjee, president of solutions operations at i2, said the company's goal is to reduce the pain users feel when they install the applications and to speed up the returns on their investments.

"We believe if we can help the CIO reduce the total cost and then send some money back to the CEO, he can get some brownie points," he said.

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Mitsubishi Caterpillar was also able to optimize its modeling processes by factoring in transportation and supplier data that wasn't taken into account by the older i2 application, Hornbacker said. The company now plans to use i2 Six to collaborate with a third-party logistics company in a bid to improve transportation performance, he added.

The fact that i2 has developed an integrated system that supports high-velocity supply chain integration is of particular interest, said Dwight Klappich, an analyst at Meta Group Inc. in Stamford, Conn. But i2 Six will simultaneously support real-time data exchanges and the more typical batch processing, Klappich said. "A completely real-time supply chain is a dangerous thing," he said. "It would be anarchy."

New in i2 Six

- A tool kit designed to help users build information workflows
- Support for J2EE, XML and Web services technology
- Enhanced event management capabilities to give users real-time views of supply chains
- Industry-specific templates and simplified data integration tools

The upgraded applications are available now, said i2.

The company, which has reported five straight quarterly losses, in January acknowledged that the SEC had launched an informal inquiry into the accounting procedures it used in 2000 and 2001 [QuickLink 36004].

Fidelity Installs SAN Management Tool

Company switches from homegrown provisioning app

BY LUCAS MEARIAN

Fidelity Investments this week plans to announce that it's rolling out a packaged storage-area network (SAN) management tool to replace an in-house application used to automatically provision storage space and charge business units for using the capacity.

For the past three months, Boston-based Fidelity has been working to install InterSAN Inc.'s Pathline 2.5 software at multiple data centers. Scotts Valley, Calif.-based InterSAN said it will formally announce that version this week; the software includes features such as chargeback reports and automated reconfiguration of data paths.

Ken Ayotte, a systems architect at Fidelity, said the mutual funds company is using Pathline to help its IT staff centrally manage about 50% of a SAN with more than 200TB of data stored primarily on EMC Corp.'s Symmetrix disk arrays and IBM's Shark devices. By year's end, Fidelity plans to use the software to manage 100% of the networked storage, Ayotte added.

Fidelity has already been auto-provisioning its storage devices for the past 18 months with homegrown software; switching to a commercial application has let the company free up several systems architects who had been working to maintain the in-house technology, said Ayotte.

"For anybody who's got a team of architects, that's the last thing you want them doing full time," he said. "You want them looking out into the future and doing architect work." Ayotte declined to disclose how much Fidelity is spending to install the Pathline software.

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Storage administrators at Fidelity sometimes handle more than 100 provisioning requests per month, which can translate into hundreds of changes to the company's SAN. Ayotte said the IT department saved hundreds of man-hours on a monthly basis by moving from a manual provisioning model to the homegrown application.

Now the addition of Pathline is giving Fidelity the ability to tie available storage capacity on the SAN to specific applications and then provision the disk space for "an application instead of a server," Ayotte said.

Switching to the packaged software has also helped the company automate tasks such as storage inventory management, SAN performance monitoring and device configuration, he added.

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Ken Ayotte, a systems architect at Fidelity, said the mutual funds company is using Pathline to help its IT staff centrally manage about 50% of a SAN with more than 200TB of data stored primarily on EMC Corp.'s Symmetrix disk arrays and IBM's Shark devices. By year's end, Fidelity plans to use the software to manage 100% of the networked storage, Ayotte added.

Fidelity has already been auto-provisioning its storage devices for the past 18 months with homegrown software; switching to a commercial application has let the company free up several systems architects who had been working to maintain the in-house technology, said Ayotte.

"For anybody who's got a team of architects, that's the last thing you want them doing full time," he said. "You want them looking out into the future and doing architect work." Ayotte declined to disclose how much Fidelity is spending to install the Pathline software.

READ MORE

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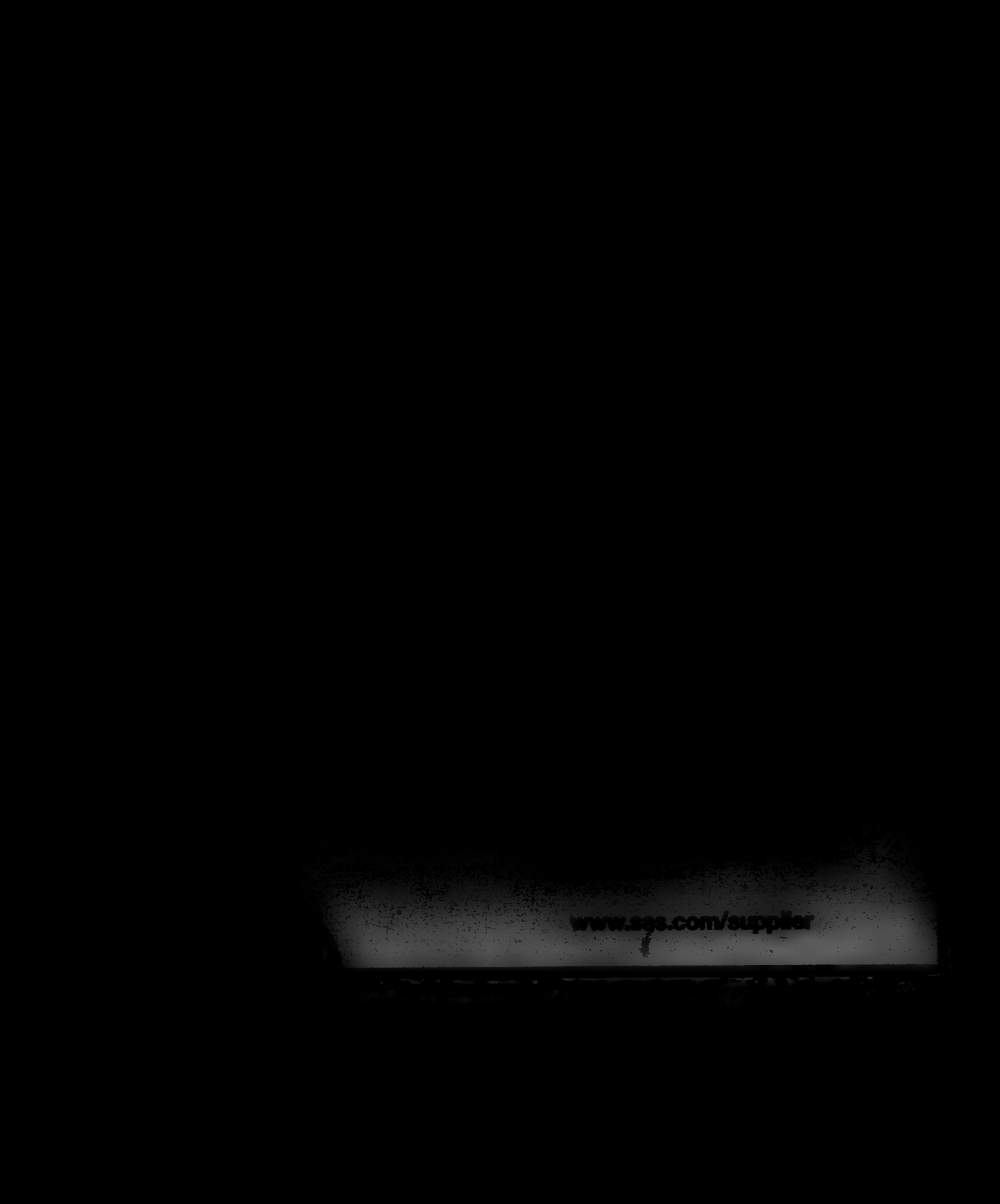
Storage administrators at Fidelity sometimes handle more than 100 provisioning requests per month, which can translate into hundreds of changes to the company's SAN. Ayotte said the IT department saved hundreds of man-hours on a monthly basis by moving from a manual provisioning model to the homegrown application.

Now the addition of Pathline is giving Fidelity the ability to tie available storage capacity on the SAN to specific applications and then provision the disk space for "an application instead of a server," Ayotte said.

Switching to the packaged software has also helped the company automate tasks such as storage inventory management, SAN performance monitoring and device configuration, he added.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Sun Server Exec Calls Linux a 'Friend'

BY JAIKUMAR VIJAYAN

In an interview this month, **Neil Knox,** *executive vice president of Sun Microsystems Inc.'s volume systems product group, talked about blade servers, Linux support and the company's low-end server strategy.*

How has Sun's new quarterly product-release schedule affected your low-end direction? I think it's no longer just a question of providing low-cost hardware. That's an old, single-element strategy. So this is where the design of the Sun Fire blade [server] platform really comes into play. We gave it a mix-and-match environment so that [users] can pick their architectures. If they want SPARC/Solaris or Solaris/x86 or Linux/x86 environments, they have that choice.

What is Sun's Linux strategy? It isn't a competitor to us; it's a friend. Anybody that buys or installs Linux means they're not buying [Windows]. I think you'll see us over a period of time go more and more to a general-purpose Linux environment.

That's why we announced the blades with the mix, match and manage environment for Solaris and Linux. Some people think we're not serious [about Linux]. But we are deadly serious.

Is Sun struggling over whether to push Solaris or Linux at the low end? Customers are coming to us and saying, "You've got to continue providing us with the environment that we have become used to on Solaris." On the other hand, they may also be deploying Linux somewhere else, and they want to be able to get that from Sun. I don't believe we're struggling at all. I think we have a very simple and very effective architecture strategy.

What is driving Sun's low-end thrust after years of pushing high-end stuff? I'm on the second floor. Every time I hear this question, I want to jump out of the window. Where do you think we came from? We were a low-end shop when we started. Yes, we were supersuccessful with the Cray acquisition, and we have introduced killer [high-end] products. In the meantime, the little volume-server business has continued to be a major element in the company. I think our success at the high end has kind of overshadowed [that].

MORE ONLINE

To read an expanded version of this interview, visit our Web site:

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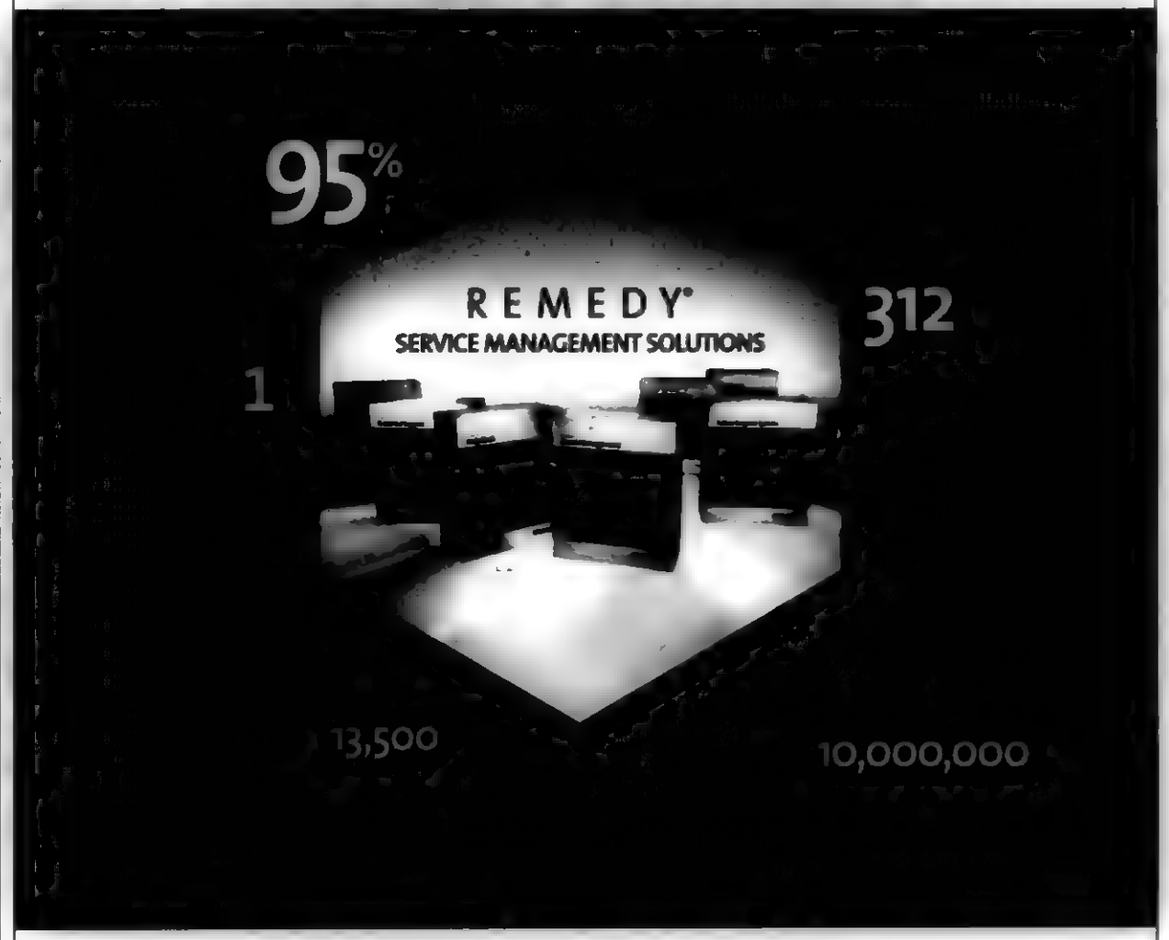

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Canadian Credit Union Installs Wireless SAN Link

BY LUCAS MEARIAN

In one of the first projects of its kind, a Canadian credit union this month said it has set up a wireless IP network to replicate banking data and other information from its primary data center to a disaster recovery site 32 miles away.

Steinbach Credit Union Inc. in Steinbach, Manitoba, said it's saving $70,000 (Canadian) per month by using the wireless setup instead of a leased virtual private network. Steinbach went live in February with the wireless link between the data center at its headquarters and a backup facility at a branch office in Winnipeg, Manitoba.

The credit union is using the wireless wide-area network to replicate customer data stored in Microsoft SQL Server databases, as well as loan origination information, other banking data, e-mail messages and streaming video from surveillance cameras. About 600GB of data is continually being updated between the two facilities.

Denis Van Dale, network administrator at Steinbach, said the company built three radio towers that are each more than 100 feet tall, bought four transmitters and installed new storage-area network (SAN) equipment for a total of about $700,000 (Canadian). It also spent an unspecified amount of money on things such as planning and consulting services, he added. Steinbach expects to get a return on its investment within 20 months, Van Dale said.

The wireless connection offers full-duplex bandwidth of 100M bit/sec., according to Van Dale. About 65M bit/sec. is reserved for data replication, and the remainder is used for Internet connectivity, other data transfers and remote data sharing.

Steinbach installed multiprotocol switches made by Nishan Systems Inc. in San Jose to wrap Fibre Channel data packets in IP headers for transmission over the wireless network. Ethernet switches from Cisco Systems Inc. convert the data transmissions between 100M bit/sec. speeds and the Gigabit Ethernet rates used inside the two data centers (see diagram).

Proxim Corp. in Sunnyvale, Calif., provided the wireless WAN bridging technology, which includes built-in data-scrambling capabilities for encrypting information. The switches and bridges link two disk arrays made by XIOtech Corp. in Eden Prairie, Minn. Steinbach also uses XIOtech's data replication software.

Robert Gray, an analyst at IDC in Framingham, Mass., said it's extremely rare for companies to use wireless links for data backup and disaster recovery purposes. Steinbach's installation shows how flexible IP networks can be, he said. But, Gray added, such setups "could face interference, degradation over distance or objects such as buildings and people in the path."

Earlier this month, Steinbach ran into transmission difficulties when a radio station at the University of Manitoba in Winnipeg began broadcasting on the frequency used by the credit union's WAN. That added to the WAN's data stream, sending bit levels above certain thresholds and causing network disconnects, Van Dale said. Proxim resolved the issue by adjusting Steinbach's frequency.

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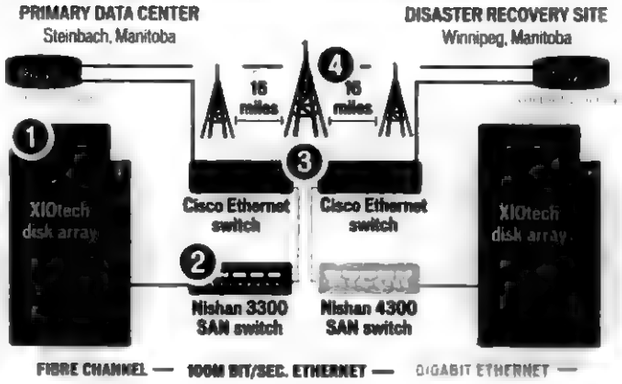
Wireless WAN/SAN Combination



1) The data is stored on matching **XIOtech disk arrays** with 600GB storage capacities.

2) **Nishan storage switches** convert the data between Fibre Channel and IP formats.

3) **Cisco network switches** handle conversions between Gigabit Ethernet and 100M bit/sec. Ethernet speeds.

4) **Proxim bridges and Steinbach-owned transmission towers** connect the data centers via two 16-mile wireless links.

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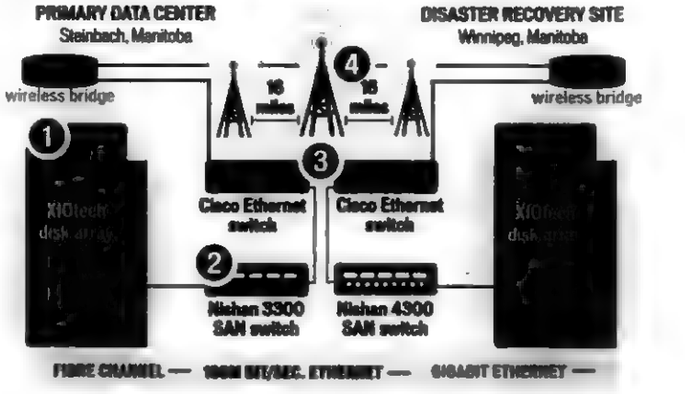

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PATRICIA KEEFE

Backing Up ROI

IN THE FACE OF A WAR that's being launched as I write this, it seems trivial to talk about ROI. And yet, inside the halls of cash-crunched corporations nationwide, there's no greater battle cry.

You've read the articles, sat through the panel discussions and studied the methodologies [QuickLink k2340]. You work it, you eat it, you dream it. But while ROI tops every project checklist and turns up in most project pitches, that's pretty much where it stays. Once a project is completed, few IT organizations go back and audit ROI expectations.

Figuring out what to put in those models — especially when working with major infrastructure projects that don't have an immediate ROI to speak of — and trying to cost-justify finished deployments when 10 other must-do projects await your attention are the missing parts of the ROI equation.

As Management editor Julia King so succinctly puts it, as much as CEOs and CFOs hammer away at IT to demonstrate ROI, IT is often powerless to do so without the business unit's help. And the business side? It doesn't have a clue how to translate improvements made possible by IT into any kind of IT-related ROI metrics.

The argument could be made that it's not the IT managers who need executive education to learn how to demonstrate ROI and come up with metrics; it's the middle managers and heads of the business units.

Take Ascential Software Corp.'s customer advisory board, which is made up of its 13 largest customers — companies like General Motors, McKesson, DHL and New York Life. How to calculate the ROI at the end of projects and where to go for help were hot topics at the board's recent meeting.

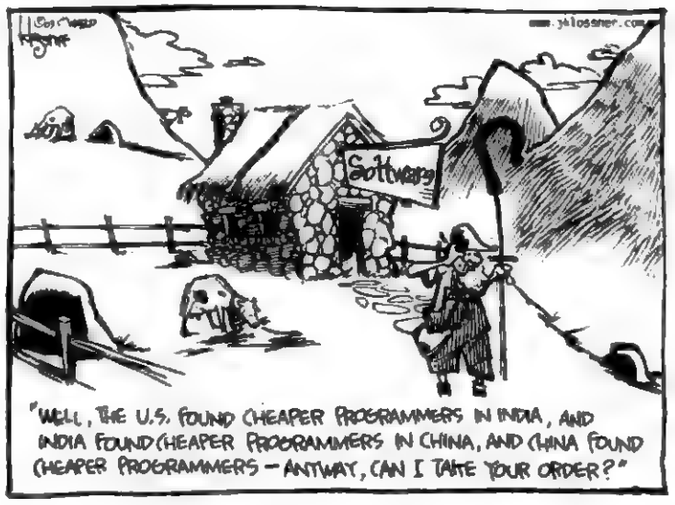
The board members were pretty clear about what they need: They need the business units to commit to the ROI upfront and to include the ongoing costs of support and maintenance in those calculations. Interestingly, they want Ascential's strategic vendors to lend a hand as well, especially in those cases where the ROI is intangible.

These ROI postmortems are important. ROI models are, after all, expectations, not exact compass headings. Testing those assumptions can help wring out inefficiencies. The information gained can become part of the collective knowledge that's used to support and inform future project planning. This benefits everyone.

But none of this can be accomplished unless the business units — which these days are often the ones funding the projects — are held accountable for the bets they place on these capital investments. As one Ascential customer notes, "Business owners have . . . to accept some responsibility for executing on the new data and achieving some business impact."

If upper management is really serious about wanting to infuse IT projects with more economic justification, it must mandate the cooperation that IT needs to produce and support those ROI numbers. The whole exercise has to be built on a shared understanding of the costs and benefits that the business unit will extract from the IT investment, says IT management consultant and *Computerworld* columnist John Berry [QuickLink s3000].

I think Ascential's advisory council is onto something. As Berry says, this kind of teamwork should happen if IT is the fabric of the business. "All these islands of responsibility, prerogative and control simply can't exist in a well-functioning organization where there is the need and desire for economic value out of the IT investment." Amen to that.



PIMM FOX

P2P for Grown-ups

IT'S EASY to understand why peer-to-peer computing gets overlooked in the enterprise. It's viewed primarily as a way to use disparate resources, but with loads of extra security and management hassles.

Yet P2P is more than kids swapping bootlegged music on Napster. Inside the enterprise, P2P can encompass collaboration and communication to and from any networked device, anywhere. And now P2P tools are maturing to a point where you can knit together your network without eliminating safeguards and supervision. For example, Sun Microsystems' open-source P2P technology, dubbed JXTA, is a development standard capable of supporting initiatives for laptops, cell phones, PDAs and just about any digital device or sensor.

JXTA eliminates interoperability roadblocks. That means that adding chat or directory look-up features to different devices doesn't require a rewrite of code. By offering standard protocols, JXTA makes possible a P2P community whose members might — if they're thoughtful enough — create a development environment that crosses languages and devices. There are already JXTA implementations in C, Java, Perl, Python and C# for .Net that let you do device or service discovery. More are needed.

I think there are three areas in which P2P might be used inside companies. The first is in content-delivery networks. Rather than making a call on a central server for each query, it may be faster and cheaper to fetch data from a device that's already cached the information. Why go to a central server to view the CEO's media presentation when you can get it from someone in your department who has already viewed it?

Second, a class of real-time collaboration and workgroup applications

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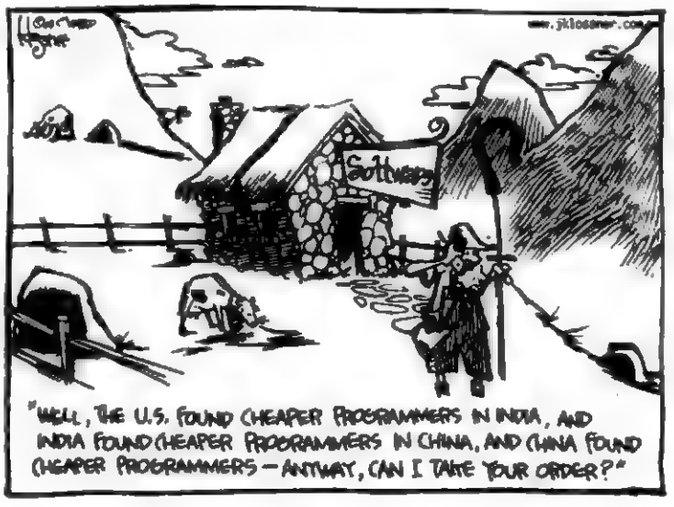

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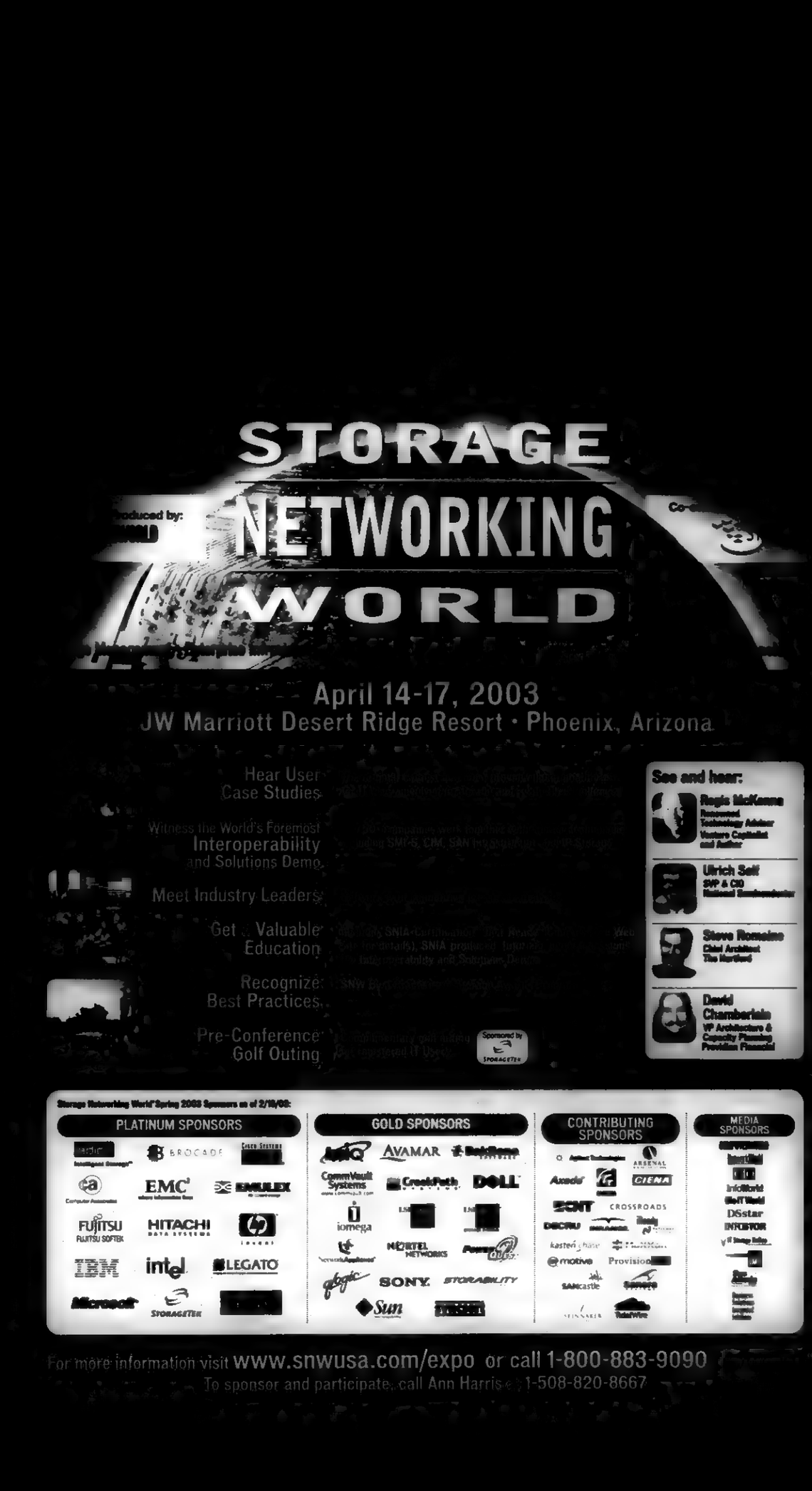
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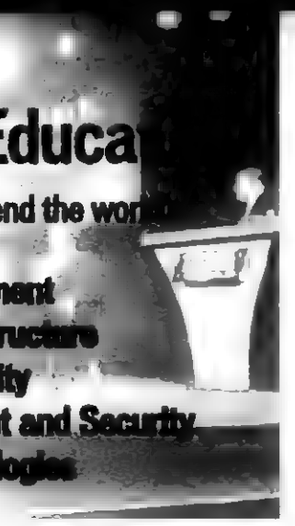

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FRED VAN DEN BOSCH
EVP & CTO
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Agenda Snapshot*

For details, updates, and to register visit **www.snwusa.com/expo**

*subject to change

Monday, April 14
(Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Primer
12:00pm-5:00pm	Golf Outing
1:00pm-2:00pm	SNIA Tutorial Sessions - choose from five different sessions
2:00pm-2:10pm	Break
2:10pm-3:10pm	SNIA Tutorial Sessions - choose from five different sessions
3:10pm-3:20pm	Break
3:20pm-4:20pm	SNIA Tutorial Sessions - choose from five different sessions
4:20pm-4:30pm	Break
4:30pm-5:30pm	SNIA Tutorial Sessions - choose from five different sessions
7:00pm-9:00pm	Pre Conference Networking Reception

Tuesday, April 15
(General Conference - Day One)

7:15am-8:15am	Continental Breakfast
8:30am-9:15am	Opening Keynote: Regis McKenna
9:15am-12:00pm	General Sessions
12:15pm-1:30pm	Networking Luncheon
1:45pm-4:00pm	General Sessions
4:00pm-5:30pm	Technical, Technical/Business and Business Tracks
5:30pm-8:30pm	Expo, Buffet Dinner, Interoperability and Solutions Demo

Wednesday, April 16
(General Conference - Day Two)

7:15am-8:15am	Continental Breakfast
8:30am-9:05am	Opening Keynote: David Chamberlain
9:15am-12:00pm	General Sessions
12:00pm-1:30pm	Expo, Buffet Luncheon
12:00pm-7:15pm	Interoperability and Solutions Demo Open
1:45pm-3:50pm	General Sessions
3:50pm-4:00pm	Break
4:00pm-5:00pm	Technical, Technical/Business and Business Tracks
5:15pm-7:15pm	Expo Open
7:30pm-9:00pm	Gala Evening

Thursday, April 17
(Tutorial and Workshop Sessions)

7:30am-8:30am	Continental Breakfast
8:30am-11:45am	Technical, Technical/Business and Business Tracks
11:45am	Conference Concludes

Register Today!

Options for IT End-Users*	**Pre-Registration** (through April 11th)	**On-Site Registration** (after April 11th)
General Conference Package (Apr. 15, 16): (Includes Expo, Meals and Receptions)	$1,095	$1,245
Total 4-day Package (Apr. 14, 15, 16, 17): (Includes General Conference Package; Technical and Business Tracks; SNIA-produced Tutorials; SNIA-Certification "Test-Ready" Courses, Expo, Meals and Receptions)	$1,490	$1,690
Options for IT Vendors**		
Total 4-day Package (Apr. 14, 15, 16, 17): (Available to Sponsoring Vendors and their Resellers/Integrators, Industry Consultants, and Storage Solutions Implementors)	$1,490	$1,690
Non-Sponsoring/Exhibiting Vendor Package:	$5,000	$5,000

* See IT End-Users description on the Registration Application on the reverse. ** See Non-Sponsoring Vendor description on the Registration Application on the reverse.

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To reserve your accommodations:
visit **www.stcentral.com OR**
call **1-800-340-2282 (or 1-508-620-9600)**

Pre-Conference Golf Outing

Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Palmer Course at Wildfire, located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

For details: contact Chris Lager at **1-508-620-8277**

STORAGE NETWORKING WORLD

April 14-17, 2003
JW Marriott Desert Ridge Resort
Phoenix, Arizona
www.snwusa.com

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SNIA

Application for Conference Registration

TO REGISTER:
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- Or register online at www.snwusa.com/expo
- You will receive a confirmation via email

QUESTIONS?
- Call: our Customer Service Line at 800-883-9090
- Email: snwreg@computerworld.com

CODE: EXPO

Options for IT End-Users*	Pre-Registration (through April 11th)	On-Site Registration (after April 11th)
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* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/purchase hardware/software/services/etc. from our conference sponsors and exhibitors. As such, account representatives/business development from any company, analysts, venture capitalists, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Enforcement of this interpretation and policy is at the sole discretion of Computerworld. Questions? Please call 1-800-883-9090.

** Vendors are encouraged to participate at Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 1-508-820-8667.) Alternatively, vendors (as well as venture capitalists, equity analysts, and other "non-IT end-user" professionals as defined by Computerworld), may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld. You will also be required to adhere to our non-solicitation policy posted on-site.

Registration Information: (This section must be completed in order to process your application)

First Name: _____ Middle Initial: _____ Last Name: _____

Title: _____ Company: _____

Street Address: _____ Suite, Apt., etc.: _____

City: _____ State/Prov: _____ Zip/Postal Code: _____

Country: _____ Phone Number: _____ Extension: _____

Fax Number: _____ E-Mail Address: _____

Badge Name: _____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about playing in the golf outing on Monday, April 14th (PM)? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

Attendee Profile: (This section must be completed in order to process your application)

SECTION A - FOR IT END-USERS ONLY

Your Business/Industry:
- ❑ Transportation/Utilities
- ❑ Mining, Oil, Gas
- ❑ Media, Publishing
- ❑ Banking, Finance, Insurance
- ❑ Telecommunications
- ❑ Wholesale/Retail (Non-IT)
- ❑ Advertising/Marketing/Public Relations
- ❑ Education
- ❑ Government/Military
- ❑ Healthcare
- ❑ Manufacturing (Non-IT)
- ❑ Other

Your Job Title/Function:
- ❑ CEO/COO/Chairman, President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (External) or Other

Select item below that most closely matches your involvement in IT decisions:
- ❑ Specify features/Technical requirements
- ❑ Evaluate/Recommend Products, Brands, Vendors
- ❑ Create strategy/Determine the need to purchase
- ❑ Set budget for expenditure
- ❑ Authorize/Approve purchase
- ❑ None of the above

Employees in your entire Company:
- ❑ 10,000+
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ Less than 100

Estimated annual revenue of your entire company:
- ❑ $10 Billion+
- ❑ $5 Billion - $9.9 Billion
- ❑ $1 Billion - $4.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $50 Million - $99 Million
- ❑ Less than $50 Million

Annual company IT budget (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Annual company IT budget (Storage products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

Your personal IT spending authority (All IT products and services):
- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

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- ❑ $100 Million+
- ❑ $50 Million - $99.9 Million
- ❑ $20 Million - $49.9 Million
- ❑ $10 Million - $19.9 Million
- ❑ $5 Million - $9.9 Million
- ❑ $1 Million - $4.9 Million
- ❑ $500,000 - $999,999
- ❑ Less than $500,000

SECTION B - FOR IT VENDORS ONLY

Your Business/Industry:
- ❑ VAR/VAD/ASP/System Integrator
- ❑ Industry Consultant/Storage Solution Integrator
- ❑ Manufacturing (IT)
- ❑ Computer Retailer/Dealer/Wholesaler
- ❑ Software Development (Storage)
- ❑ Other Computer Related (Non-Storage)

Your Job Title/Function:
- ❑ CEO/COO/Chairman/President
- ❑ CFO/Controller/Treasurer
- ❑ VP/GM/Director
- ❑ Sales/Marketing/Product Staff
- ❑ CIO/CTO/Other IS/IT Manager
- ❑ Engineering Staff
- ❑ Press

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Cancellation Policy (*All of the below options require written notification.*)
In the event of cancellation, the registrant has three options:
1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the Fall 2003 Storage Networking World* conference, if written notice is received by March 31, 2003.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by March 31, 2003.

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Schedule of Conference Events (subject to change)

Monday, April 14, 2003
- Pre-Conference Golf Outing
- Pre-Conference Networking Reception
- Tutorial Sessions

Tuesday, April 15, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition

Wednesday, April 16, 2003
- General Conference
- Interoperability and Solutions Demo
- Exposition
- Gala Evening

Thursday, April 17, 2003
- Tutorial Sessions

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The DMCA Jury Is In

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High-stakes lobbying and court battles brought us a law called the Digital Millennium Copyright Act (DMCA), which both extends copyright protection to digital works and makes it a crime to use or distribute tools that help to break the copyright protection of digital works. These "anticircumvention" provisions have been controversial both with civil liberties advocates, who see them as restricting free speech, and with some people in the computer industry, who worry that they will regulate out of existence basic system functions such as cut and paste. The debate is far from over, but whatever the result, it will certainly have a fundamental impact on the kinds of computing tools available to the enterprise.

The technology for anticircumvention has also been quite controversial. Should computing platforms in the enterprise and the home be built to assure that it's impossible to copy documents, songs or images unless we have the explicit permission of the copyright holders? While this might help reduce the widespread infringement of music files, what effect would it have on the flexibility of basic enterprise computing? How about the free flow of information — the driving engine of the Internet and the key to productivity improvements brought about by networked computing?

Still, if computers don't enforce copyrights on digital works, will the entertainment industry suffer irrevocably?

For the first time in this debate, a federal jury decided on this contentious question. They were asked whether software that breaks eBook copy protection codes violates the DMCA. In considering criminal charges leveled against a Russian software company that makes software to break the copy protection built into eBooks, the jury, in a federal court in San Jose, found that the software isn't criminal because there are legitimate reasons to allow users to make copies of information in eBook format. In the view of this jury, at least, it's not right to impose restrictive tools on all users just to catch a few lawbreakers.

This decision calls into question the tough provisions enacted by legislators all around the world. Ordinary folks, it seems, are much less inclined to throw people in jail in order to assure copyright holders that their works will be perfectly secure on the Internet.

Whether or not you agree with the jury's view, it does suggest that it's time to rethink the heavy-duty lock-and-key approach that many digital rights management systems are taking to protecting copyrighted works.

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READERS' LETTERS

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'Onshore Offshore' Is Better Way to Go

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Gil E. Gordon
President, Gil Gordon Associates, Monmouth Junction, N.J., gil@gilgordon.com

Saving Face

FRANK HAYES hit the nail on the head regarding the amount of IT work that requires "face time" with business people ["Offshore Face-off," QuickLink 36668].

If IT departments are truly going to be integral in redesigning (and redefining) business processes, we need to become both visible and vocal in all areas of the business. That means attending more of those meetings that "never applied" to IT before.

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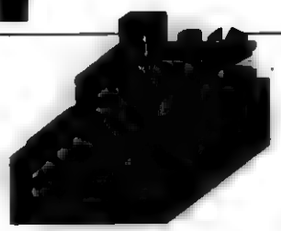
HANDS-ON REVIEWS
Microsoft's Suite Dreams
The enhancements to Outlook are enough to make IT managers consider an upgrade to Office 2003, and there are plenty of other new and improved features in the suite, says reviewer Russell Kay. **Page 30**

FUTURE WATCH
Smart Dust
Tiny wireless sensors that can detect everything from light to vibrations could change manufacturing, medicine and even the military. **Page 32**



SECURITY MANAGER'S JOURNAL
Insecure Servers Suffer Image Problem
A good security policy and solid technology fail to protect servers when administrators take shortcuts around carefully designed procedures for updating them. **Page 34**

Know Thy Customer

The key to successful self-service applications is understanding exactly what users need and building in flexibility for change.
By Robert L. Scheier

SELF-SERVICE

WHEN WEB-BASED self-service is good, it's really good. Customer satisfaction soars and call center costs plummet as customers answer their own questions, enter their own credit card numbers and change their own passwords without expensive live help.

But when Web-based self-service is bad, it's really bad. Frustrated customers click to a competitor's site or dial up your call center — meaning you've paid for both a self-service Web site and for a call center, and the customer is still unhappy.

Greeting self-service users with a confusing menu of options or asking them questions they can't answer is a sure way to force them to call a help center. For example, when AT&T Wireless Services Inc. began rolling out its new high-bandwidth wireless networks, its self-service Web site required customers to say whether their phones used the older Time Division Multiple Access (TDMA) network or the newer, third-generation network. Most people didn't know which network they used, only which calling plan they had signed up for, says Scott Cantrell, e-business IT program manager at AT&T Wireless. So AT&T redesigned the site so the customer just enters his user ID and password, "and the application automatically sends you to the right [Web] site," Cantrell says.

According to Gartner Inc., more than a third of all customers or users who initiate queries over the Web eventually end up calling to get their questions answered. And although health insurers have busily rolled out self-service applications to help policyholders with claims questions, the "great, great majority" of transactions still go through a call center, says John Distefano, national leader of IT solutions in Cap Gemini Ernst & Young's payor practice.

Whether a self-service application is aimed at external customers or internal users such as employees, the keys to success remain the same: understanding where self-service can save the most money, building flexibility into application interfaces and business rules so the site can be changed as needed, and setting aside money and time for maintaining the site.

Knowing which problems generate calls to expensive staffers is the first step to finding out where the greatest potential savings lie and which costly integration work is worth doing, according to

Continued on page 28

Team wants an intranet.
Document needs approval. Now.
Boss in China. File in Chicago.
Needs video conferencing

examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your employees. With the Send for Review feature, Office XP Professional lets users easily assign roles to everyone involved in the document review cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back into the original document. And finally, several new features make deployment easier than ever. For more ideas about managed desktops, visit microsoft.com/desktop

Continued from page 25

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Companies can learn a lot about customer needs by analyzing calls coming into their call centers, says Temkin, such as how many times customers call to dispute a single phone call on their bills vs. how many times they call because they don't understand their bills. Most call center software can gather and present such information. Temkin recommends creating very precise categories to "tag" different calls to provide a detailed view.

The more complex the transaction is, the more expensive the integration. To let customers challenge charges online, says Temkin, a wireless provider must supply links to its billing system, a phone number look-up system to determine the actual recipient of a disputed call, and a rules-based system to evaluate the customer's claim. Since you may lose any savings if the Web customer winds up calling in, says, "you might as well not bother going down the integration path if you're not going to integrate all the pieces required to make that a self-service environment."

Before moving to the Oracle suite of business applications in 2001, McData Corp. estimated that it would take six weeks to load, clean and test the data from its legacy applications, says Debra Morton, director of business systems at the Broomfield, Colo.-based storage vendor. "It ended up taking more like three months and four times the amount budgeted, because we had so many sources of information," she says.

Rather than buying or building a separate self-service application, McData relied on Oracle Corp.'s business application suite. Using the self-service capabilities within an existing product suite reduces the need for integrating applications, which has doubled or tripled the cost of some application efforts Morton has seen.

McData is implementing self-service capabilities so its suppliers can get up-to-the-minute forecasts of its manufacturing plans. The company is also automating customer support for its software products.

Companies that build their own interfaces among applications often find that they're not secure or don't scale well, say analysts. "Many of our new customers over the last year or so are replacing homegrown systems that couldn't scale," says Ted Morgan, vice president of marketing at Edocs Inc. in Natick, Mass.

When AT&T Wireless built a self-service site for its TDMA-based wireless technology, it used the Dynamo Web application suite from Art Technology Group Inc. in Cambridge, Mass., as well as Edocs' eaDirect to give customers access to billing information, says Cantrell. The company had to develop its own interfaces to the eight to 10 back-end systems that feed information to the Web application.

In building self-service capabilities for its latest high-speed wireless services, AT&T Wireless will use Siebel Systems Inc. customer relationship management (CRM) software, which wasn't in production when the company built earlier self-service sites.

Embedding Business Rules

Developers must also find a way to embed business rules into their Web self-service environments. Often, as many as half of those rules have never been written down, says Edocs product manager David Chang. To find those missing rules, Edocs gathers experts from throughout a company to walk through processes such as changing an order.

Hard-coding business rules by writing them into the Web application may be easiest in the short run, but it makes the rules harder to change, says Andrew Kass, vice president of application development at Oracle. Instead, analysts and self-service vendors recommend encapsulating business logic in reusable application components so rules can be changed without every application that uses them having to be rewritten.

To ensure that customer data is current across multiple channels (such as the self-service application and the call center), many customers are turning to operational data stores, says Cap Gemini Ernst & Young's Distefano. The information in them might be 15 minutes to an hour old, he says, which is recent enough to ensure consistency. Another approach taken by vendors like Edocs is using data cataloging to help the self-service application find data that's still in transactional systems.

Continually updating the knowledge base of correct answers to customer questions can be one of the largest hidden expenses of self-service applications. Temkin recommends monitoring call center personnel and providing incentives to encourage them to make their updates clear and understandable.

There is no single tool that can provide end-to-end Web self-service for every company that needs it, according to analysts. Syracuse University, for example, turned to Business Layers Inc., a provider of provisioning software in Rochelle Park, N.J., to provide a directory and a single source of authentication that would let students sign on once to gain access to any online resources. But the Web portal itself, and the links to the school's PeopleSoft applications, were developed by a consortium of vendors and customers.

Whichever tools you use, "take a more holistic view of the world" when designing your self-service site, says Cantrell. "It's easy to say we're focusing on having the customer change a [specific] feature" over the Web, he says, but it's more important to build in flexibility so customers can help themselves to any other service AT&T offers in the future. ■

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Justifying the Cost

WHEN DONE RIGHT, self-service Web applications can reduce call center staffing; save on the cost of printing, mailing and handling bills; earn a company volume discounts; and improve customer satisfaction.

Without disclosing specifics, AT&T Wireless spokesman Ritch Blasi says that the company is saving "several million dollars per year" in reduced calls to its call centers and that it has reduced the number of customers who switch to different carriers.

Network storage vendor McData has seen a 170% return on its $5.6 million investment in Oracle's business applications, which include employee self-service, says Debra Morton, director of business systems. She estimates that McData is saving $1 million to $5 million per year because improved purchasing tracking qualifies McData for greater volume discounts and eliminates duplicate purchasing.

But remember to factor in the cost of publicizing your site when calculating ROI, say veterans. "The reason folks like American Express and AT&T Wireless have millions of people at their site is because they actively promote it," says Ted Morgan, vice president of marketing at Edocs.

– Robert L. Scheier

Some Self-service Offerings

VENDOR	PRODUCT	DESCRIPTION
Business Layers Inc.	eProvision	A single source for identifying users and providing them with digital and physical resources such as e-mail accounts and PCs. A standalone self-service password reset application is also available.
Edocs Inc.	eaCore self-service platform	Uses cataloging and middleware technologies to gather data from legacy systems and update the knowledge base.
Kanisa Inc.	Kanisa 4.0	Provides self-service applications for Web and internal users.
Oracle Corp.	Self-service modules within Oracle's business applications	Include self-service capabilities for human services, expense reporting and procurement.
PeopleSoft Inc.	Various modules within its CRM suite	PeopleSoft Multichannel Interactions delivers e-mail response management and chat; PeopleSoft Order Capture Self-Service lets customers place and check the status of orders over the Web.
Primus Knowledge Solutions Inc.	Self-Service Console and eSupport for Web self-service; Quick Resolve for customer service agents	Based on the Answer Engine search tool and eServer knowledge base.
ServiceWare Technologies Inc.	eService Suite	Includes eService Site for Web-based customer self-service; eService Professional for customer service, sales and field service; and eService Architect for building and maintaining knowledge bases.
Siebel Systems Inc.	Siebel eService	A Web service portal.

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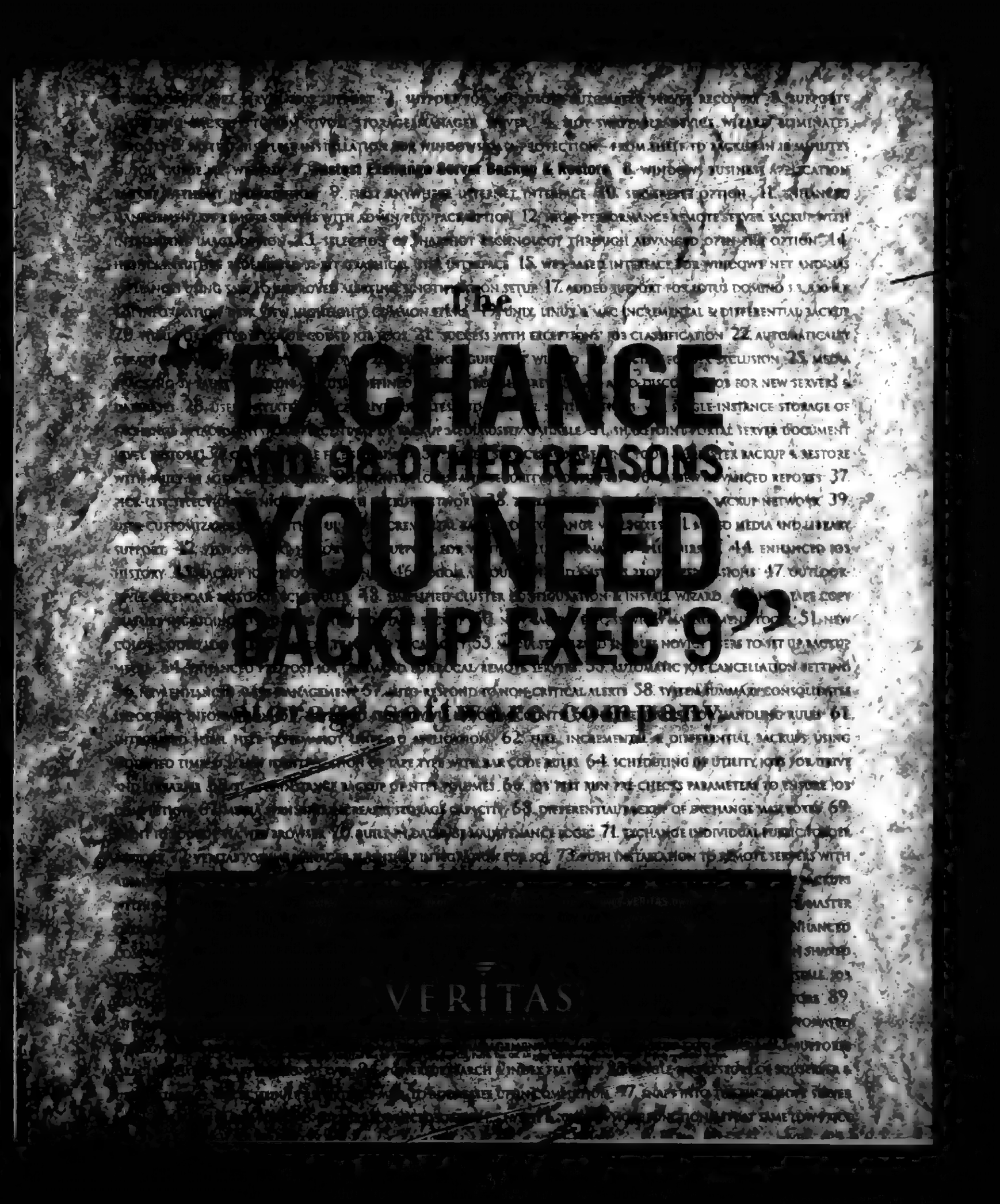
[illegible]	[illegible]	Include self-service capabilities for human services, expense reporting and procurement.
[illegible]	[illegible]	PeopleSoft Multichannel Interactions delivers e-mail response management and chat; PeopleSoft Order Capture Self-Service lets customers place and check the status of orders over the Web.
[illegible]	[illegible]	Based on the Answer Engine search tool and eServer knowledge base.
[illegible]	[illegible]	Includes eService Site for Web-based customer self-service; eService Professional for customer service, sales and field service; and eService Architect for building and maintaining knowledge bases.
[illegible]	[illegible]	A Web service portal.

The "EXCHANGE AND 98 OTHER REASONS YOU NEED BACKUP EXEC 9" COMPANY



Microsoft's Suite Dreams

Office 2003 has enough new features and improvements to tempt users, despite the cost of an upgrade. By Russell Kay

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This time around, with Office 2003 (apparently, that "XP" nomenclature caused more problems than it solved), Microsoft is concentrating on expanding the envelope with new tools aimed at better collaboration among people.

I've been working with beta copies of the new software, and IT departments should seriously consider this upgrade. Even if you decide not to upgrade the suite, remember that the component applications of Office are available as stand-alone products. There may be good reason to upgrade individual applications — Outlook in particular — and perhaps add new ones.

Ongoing Evolution

Created by Microsoft in 1989, the office suite concept has proved to be a clever marketing device. By packaging a few basic applications in a single box, Microsoft sold a lot of software because it offered a convenient way for users and businesses to get most of what they needed for word processing, spreadsheets, presentation graphics and simple databases.

Over many generations of development, these applications improved individually, worked better together and got bigger — lots bigger. Microsoft has steadily added applications — Visio, Publisher, MapPoint, Project and FrontPage — to the original "core" set, with the developing goal of making Office a platform for workgroup collaboration and communication. (There's a timeline detailing the evolution of the Office suite at QuickLink a2990 on *Computerworld.com*.)

HANDS-ON REVIEWS

With Office 2003, Microsoft has taken the biggest leap yet. It has made XML a standard file format for most applications and has launched two applications — InfoPath (formerly known as XDocs and NetDocs) and OneNote (nee Scribbler) — that offer new capabilities in the areas of forms, intelligent documents, note-taking and research.

Enterprise IT will want to investigate the new information rights management (IRM) controls debuting with Office 2003. This file-level security capability, which can be used only with Windows Server 2003, makes it easier for document owners to restrict access and change rights to specific content inside Office documents and e-mails.

For example, users can put expiration dates on messages and documents, and after those dates have passed, others wouldn't be able to read the documents without special permissions. Users can also make documents read-only, nonforwardable and nonprintable. After expiration, the documents still reside on the server or remote user's PC, but in encrypted form. A free IRM viewer will be available to users of older Office versions who need to work with IRM-protected documents.

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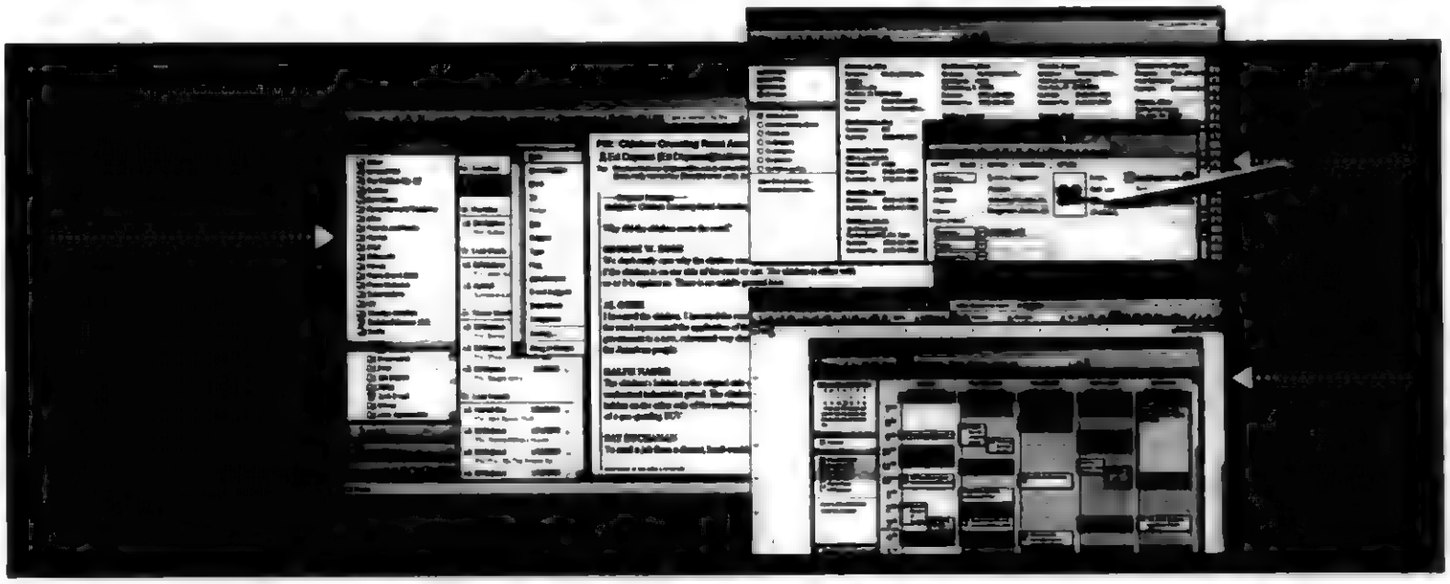
Outlook is the big exception. It has been significantly overhauled and is now the productive and useful e-mail client and personal information manager it always should have been.

A Brighter Outlook

The new version of Outlook is a drastically improved e-mail client. Microsoft has tweaked the user interface to put more information on-screen, make mail easier to read and let you organize your mail much more simply and quickly than before. If yours is an Exchange shop, your users will benefit greatly from using the new Outlook client; so even if you plan to stick with an older version of Office, you should consider buying Outlook 2003 separately. A Microsoft project manager says the interface for Outlook Web Access will be similarly changed to add the new capabilities.

On this new user interface (see left screenshot in diagram), the simplest change was putting the preview/reading pane on the right instead of at the bottom. This eliminates white space in



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OFFICE EXPANSIONS

To learn about InfoPath, an XML-based information-gathering tool that's new in Office 2003, visit:

QuickLink 37079
www.computerworld.com

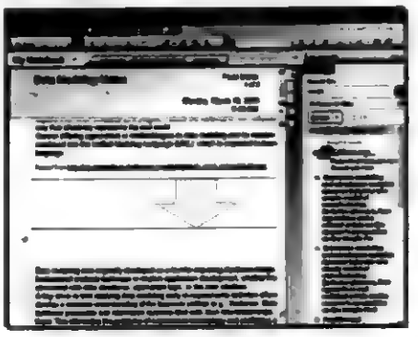
OneNote: A Harmonious Tool

THE MOST INTERESTING NEW MEMBER of the Office family is OneNote, an application designed for taking notes and doing research, as well as organizing, accessing, reusing and sharing free-form information from a variety of sources and in diverse formats. Unlike, say, Word, where the expected goal is a finished document, OneNote is intended as a preliminary tool for taking rough notes and assembling content from a variety of sources and in a variety of formats, including sound, graphics and Web-based information.

OneNote presents you with a blank page. You can click anywhere on the page and start typing; if you're using a Tablet PC, you can write anywhere on the screen using "digital ink." You can create new folders, accessed via tabs at the top of the screen, and new pages within folders, accessed with tabs on the right of the screen.

When you enter copy onto a OneNote page, it recognizes bullets and numbered lists. It understands outlines and offers several outline modes. You can highlight all or part of a Web page, a PowerPoint slide or an Excel spreadsheet and just drag it into OneNote, including any graphics. Finally, OneNote automatically saves everything all the time.

If your computer has a microphone, you can record sound at the same time you're taking notes – you can take a OneNote-equipped laptop to a meeting and take notes while recording the whole meeting. Afterward, you can review your notes and e-mail follow-ups. During this review, you can click on any part of your notes and have the audio replay what was recorded at the time you made that note.



The synchronized recording is optimized for speech, using very high compression that needs about 6MB of storage for an hour of recording.

At the time of this writing, Microsoft had not yet decided whether OneNote would be an integral part of any of the standard Office packages or whether the application would have to be purchased separately.

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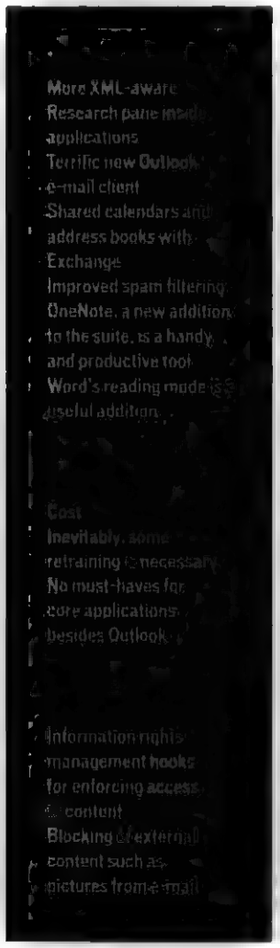

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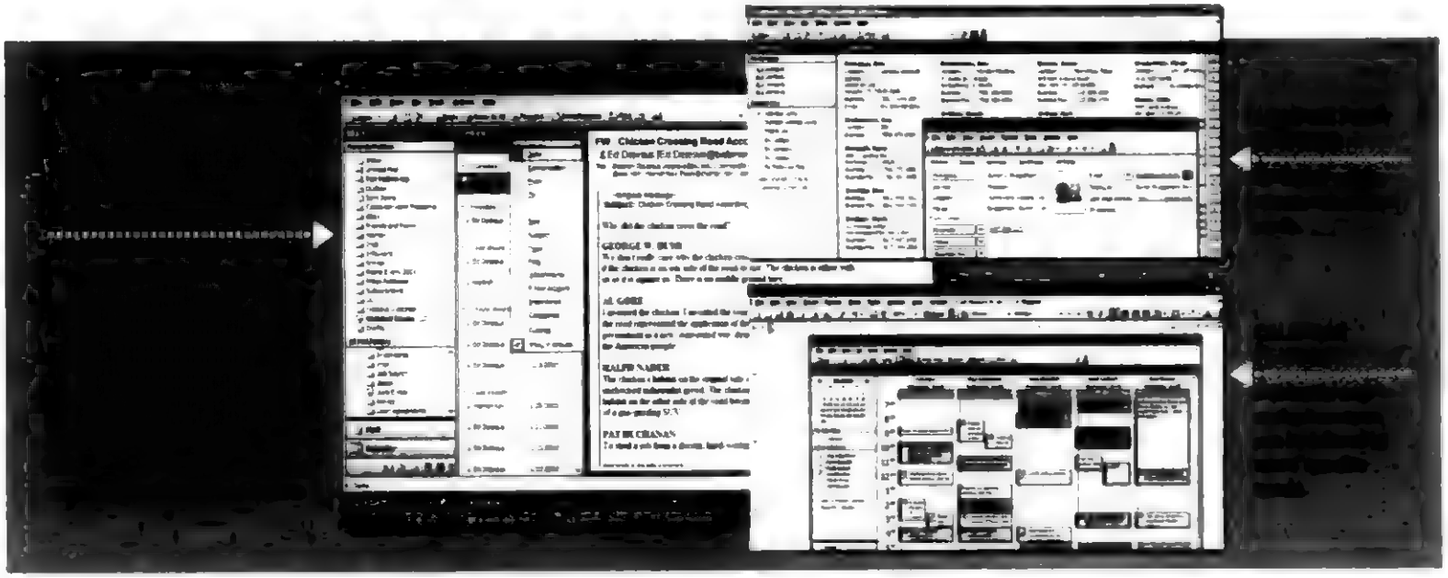

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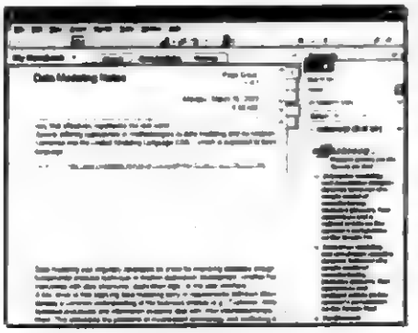
OneNote: A Harmonious Tool

THE MOST INTERESTING NEW MEMBER of the Office family is OneNote, an application designed for taking notes and doing research, as well as organizing, accessing, reusing and sharing free-form information from a variety of sources and in diverse formats. Unlike, say, Word, where the expected goal is a finished document, OneNote is intended as a preliminary tool for taking rough notes and assembling content from a variety of sources and in a variety of formats, including sound, graphics and Web-based information.

OneNote presents you with a blank page. You can click anywhere on the page and start typing; if you're using a Tablet PC, you can write anywhere on the screen using "digital ink." You can create new folders, accessed via tabs at the top of the screen, and new pages within folders, accessed with tabs on the right of the screen.

When you enter copy onto a OneNote page, it recognizes bullets and numbered lists. It understands outlines and offers several outline modes. You can highlight all or part of a Web page, a PowerPoint slide or an Excel spreadsheet and just drag it into OneNote, including any graphics. Finally, OneNote automatically saves everything all the time.



If your computer has a microphone, you can record sound at the same time you're taking notes – you can take a OneNote-equipped laptop to a meeting and take notes while recording the whole meeting. Afterward, you can review your notes and e-mail follow-ups. During this review, you can click on any part of your notes and have the audio replay what was recorded at the time you made that note.

The synchronized recording is optimized for speech, using very high compression that needs about 6MB of storage for an hour of recording.

At the time of this writing, Microsoft had not yet decided whether OneNote would be an integral part of any of the standard Office packages or whether the application would have to be purchased separately.

– *Russell Kay*

SmartDust

Mighty motes for medicine, manufacturing, the military and more.

By Thomas Hoffman

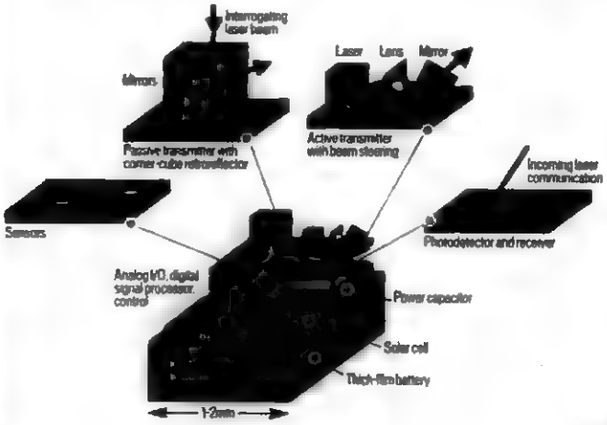
PICTURE being able to scatter hundreds of tiny sensors around a building to monitor temperature or humidity. Or deploying, like pixie dust, a network of minuscule, remote sensor chips to track enemy movements in a military operation.

"Smart dust" devices are tiny wireless microelectromechanical sensors (MEMS) that can detect everything from light to vibrations. Thanks to recent breakthroughs in silicon and fabrication techniques, these "motes" could eventually be the size of a grain of sand, though each would contain sensors, computing circuits, bidirectional wireless communications technology and a power supply. Motes would gather scads of data, run computations and communicate that information using two-way band radio between motes at distances approaching 1,000 feet.

Potential commercial applications are varied, ranging from catching manufacturing defects by sensing out-of-range vibrations in industrial equipment to tracking patient movements in a hospital room.

Multifunctional Mote

The goal of the smart-dust project at UC Berkeley is to build self-contained, millimeter-scale devices that include sensors, computational ability, bidirectional wireless communications technology and a power supply, while being inexpensive enough to be deployed by the hundreds.



Design Impasse

Still, for all the promise, there are a number of technical obstacles to widespread commercial adoption. For instance, researchers are wrestling with design challenges in fusing MEMS and electronics onto a single chip, says Gary Fedder, associate professor of electrical and computer engineering and robotics at Carnegie Mellon University in Pittsburgh.

FUTURE WATCH

Fedder, a co-founder of Carnegie Mellon's MEMS Laboratory, has been trying to tackle these development issues through new fabrication and design techniques, but he acknowledges that the lab has quite a bit of work ahead of it.

"The paradigm has been to have a single engineer be the champion of these systems and fuse it all together to make a [single] chip. That requires a superhuman effort," says Fedder. The lab has been developing design tool technology to aid the engineers who may ultimately design these kinds of systems, he says.

What makes all this effort worthwhile is a growing feeling among researchers that these technologies may eventually have a huge impact on society. That also helps explain why the Defense Advanced Research Projects Agency began funding aspects of this work at the University of California, Berkeley, in 1998.

The goal for researchers is to get these chips down to 1mm on a side. Current motes are about 5mm, says Kristofer Pister, professor of electrical engineering at UC Berkeley, who's been working with smart dust since 1997.

Pister is on sabbatical from the university until early 2004 at Dust Inc., a Berkeley-based developer of peer-to-peer wireless sensor networks. Dust's charter is to give developers hardware and software interfaces "that are stable, reliable and low cost," he says.

The cost of motes has been dropping steadily. Prices range from $50 to $100 each today, and Pister anticipates that they will fall to $1 within five years.

He sees a plethora of potential commercial applications for smart dust, including serving as traffic sensors in congested urban areas and monitoring the power consumption of household appliances to determine whether they're operating at peak efficiency.

Pister and others are quick to point out that the size of these micromachines presents thorny power supply challenges. Ideally, researchers and commercial contractors want to be able to deploy wireless motes that aren't tethered to power sources, and many of the systems being tested or in use today rely on miniature battery power.

"You've got this limited pile of energy in your battery, and you need to distribute that out and make it last," says Mike Horton, CEO of Crossbow Technology Inc., a San Jose-based maker of MEMS technologies whose customers include a cosmetics company that uses wireless sensors to gauge humidity levels in its warehouses for moisture-sensitive products. "You can plug it into the wall, but that kind of defeats the purpose of these autonomous sensors."

Breakthroughs Expected

Researchers are attacking the problem in part by focusing on so-called low-power ad hoc routing protocols, which figure out how to get a message from one mote to another using the least amount of energy. Research on this kind of power has been emerging over the past two years at UC Berkeley, MIT and the University of California, Los Angeles.

"We haven't found a one-size-fits-all approach yet," Horton says. Still, he believes two near-term technical breakthroughs for these wireless sensors in the areas of power and size are poised to occur. The first involves paring the several semiconductors needed today to operate these motes down to a single semiconductor, a development Horton foresees occurring about two years from now.

On the power side, Horton points to research by UC Berkeley's Shad Roundy on fuel cells that can "scavenge" energy to make smart-dust devices run longer. This includes drawing off the ambient vibration energy generated by an industrial machine or gathering energy from low levels of light. These scavenger energy technologies might be five years off, Horton says.

While researchers and commercial developers are agog over the potential applications for smart dust, they're also careful to point out the design and power issues that still need to be resolved. Says Fedder, "There are a lot of people champing at the bit to commercialize this technology, but the technology still has to mature, and widespread use is still several years off."

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Insecure Servers Suffer Image Problem

A routine security assessment shows that secure baseline images must be up to date or server administrators will ignore them. By Mathias Thurman

THIS WEEK, I conducted a quick, routine vulnerability assessment of a sample of our production environment. I wasn't pleased with the results.

Ongoing vulnerability assessments are critical in determining my company's security posture at any given time.

My methodology is fairly straightforward. I use a combination of three scanning tools: Internet Scanner from Internet Security Systems Inc. in Atlanta, Retina Network Scanner from eEye Digital Security in Aliso Viejo, Calif., and Nessus, a free network scanner available at *www.nessus.org*. With these powerful tools, I can get a comprehensive view of our IT infrastructure's vulnerabilities. I'm not suggesting that this method discovers 100% of all possible problems, but it gets close. And our other activities, such as application-level assessments, architecture reviews and code reviews, get us even closer.

SECURITY MANAGER'S JOURNAL

All three tools are simple to use and can scan from a preconfigured list of IP addresses. For my assessment, I selected a sample from each functional area. For example, I picked Web servers, database servers, application servers, e-mail servers, Domain Name System servers, Lightweight Directory Access Protocol servers, domain controllers and a few firewalls, routers and network switches. I used the Windows Notepad applet to create a host file and entered about 40 IP addresses into the list.

We have more than 300 servers in our production environment, but I scanned only 40 of them. I don't have time to assess and review every server, and I shouldn't have to do so, since all servers for a given function are identically configured. Or so I thought.

To achieve consistency, server administrators are supposed to use a standard jump-start image and then run postinstall scripts that install additional software and make security modifications, depending on the server's function. Our administrators are supposed to maintain and use these images whenever they build a new system, so an assessment of one type of resource should yield the same result for every server.

My assessment included five Oracle database servers, three of which had serious security holes. For example, one server was running a vulnerable version of the Secure Shell (SSH) program. Our current baseline includes the most current version of SSH, so unless someone had downgraded the current version, that Oracle server hadn't been built using the standard baseline image. To my surprise, many other servers weren't built with the jump-start image either. Instead, administrators had built them using a full install of the Solaris 2.8 operating system. That includes more than 600 programs, of which we use only a small number.

> **The problem went beyond just one program. . . . The jump-start process was clearly broken.**

Alarmed, I called a meeting of the Unix administration and security groups. It turned out that the Unix group had created a new jump-start image based on the full complement of the operating system because it was having problems with an application that needed some shared libraries that weren't part of the original, secure image.

Furthermore, the developers of the application in question weren't sure which libraries were needed for proper operation, so the Unix team had decided it would be easier to create a new image that included the full Solaris install.

But the problem went beyond just one program: The Unix group's manager cited examples of other applications that didn't work because the needed libraries weren't available. The jump-start process was clearly broken.

The Fix

After some debate, we agreed on a procedure. First, we reviewed our baseline image. To come up with a new one, we printed out a list of all the application packages deployed during a full Solaris 2.8 installation. We then crossed out all the programs we knew weren't needed, such as support for unused hardware types and software used to play music or render graphics. Our seasoned Solaris administrators easily went through this list in less than an hour.

We then installed our Web and database server software to determine which packages and libraries they needed. Most of the servers in our production environment fall into three areas: Web, application and database. The Web and database environments are fairly static. We know what they need to function properly, but with the application servers, we never know what will be needed for them to function properly. This is what was causing our problems.

Fortunately, Solaris includes utilities that can trace each application's system calls and determine which software and libraries it needs. Usually, we start with the baseline image and run these utilities in a lab environment, but the Unix group hadn't done this because of a lack of time and resources. My security team asked a Unix administrator to write a script we could use to run these utilities for each application and to create a report of all the needed Solaris packages and libraries.

Now we have a static Web and database tier and an application tier that starts with a better baseline jump-start build. We can then add or remove any components based on each application's needs.

We hope we can live with this methodology until the security group can find the time to do some research on commercially available tools that might assist us in this area. ◗

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum:

Quickfield link: q1590

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SECURITY LOG

Security Bookshelf

Hacker's Challenge 2: Test Your Network Security & Forensic Skills, by Mike Schiffman, Bill Pennington, David Pollino and Adam J. O'Donnell; McGraw-Hill Osborne Media, 2002

HACKER'S CHALLENGE 2

I was impressed by the content and challenges presented in Hacker's Challenge 2. The authors create hacking scenarios that are typical of those that an engineer, analyst or systems administrator might encounter. They offer a good explanation of each incident and then pose questions, with the answers and additional resources in the back of the book.

My only complaint is that the book should include an explanation of the log files presented, because some were presented with fields that many readers might not have used.

– Matthew Thurman

InCharge Adds Security Module

System Management Arts Inc. has released InCharge for Security Infrastructure Management, a module in its InCharge service management software suite that monitors and analyzes the security status of network security devices.

The White Plains, N.Y.-based vendor says the product ships March 31. Pricing starts at $40,000.

MetaFrame Secures Access

Citrix Systems Inc. announced a new product that it hopes will help solve the role-in-life authorization. The Fort Lauderdale, Fla.-based vendor announced the Citrix Metaframe Secure Access Manager, which offers IT managers easy Web-based access to application, data and content. The product also employs two-factor authentication and SSL encryption.

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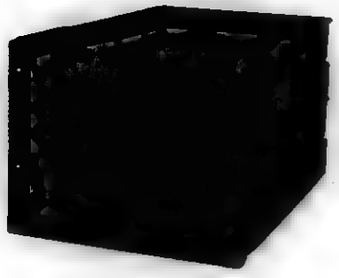

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BRIEFS

Workscape Boosts HR Applications

Workscape Inc. earlier this month announced that it has upgraded its suite of human resources applications. Workscape Enterprise 4.2 includes new configuration tools and enhanced support for planning and executing complex, performance-based compensation programs. The suite also features enhanced employee self-service applications and added decision-support capabilities, the Framingham, Mass.-based company said. Workscape Enterprise 4.2 will be available next month in both license-based and hosted options. Licensed software pricing for the full Workscape Enterprise 4.2 suite, including all self-service applications, ranges from $350,000 to $450,000 for a 10,000-employee organization. For more information, visit www.workscape.com.

Sarvega Ships New Tools for Switches

Sarvega Inc. in Burr Ridge, Ill., announced it's shipping XESOS Studio, software management tools and an interface for operating its Sarvega XPE 2000 line of switches. The software supports deployments of XML acceleration, security and routing settings and is designed to reduce administration costs. It ships at no extra cost with XPE 2000 switches.

Pen&Internet Upgrades riteMail

Pen&Internet LLC last week released riteMail 2.0 for Windows and Pocket PC systems. The software allows mobile users to transfer handwritten notes from handheld devices to desktop PCs for e-mailing, editing and printing, said the Sunnyvale, Calif.-based company. RiteMail also recognizes common freehand shapes and handwritten text, enabling that type of content to be copied into other applications. RiteMail costs $21.95 for Pocket PC and $24.95 for Windows.

TOMMY PETERSON

Eyes on the Self-service Prize

IT OCCURS TO ME, at the risk of seeming immodest, that I may be the ideal customer for developers of self-service applications to keep in mind. And, as Robert L. Scheier's story ("Know Thy Customers," page 25) points out, if you're going to lure people away from person-to-person interactions to less-expensive automated Web transactions, you need to know what those people are looking for.

The product of a long line of Luddites and impatient by nature, I was slow to come to online shopping or even to free transactions over the Web. I still would rather browse my local brick-and-mortar bookstore than Amazon.com. I'm always ready to abandon almost any Internet transaction that requires me to answer more than three questions before I can get on with the business at hand. Despite the less-than-subtle efforts of the financial services firm that manages my 401(k) to force all our communications onto the Web, I have ferreted out its customer service phone number (no easy task) and use it at the first twinge of Internet frustration. Given the choice of going to the office of the nice woman in human resources to get benefits forms vs. filling them out online, I'll take the personal visit every time.

I have even been known to lash out at that most basic, ubiquitous and relatively low-tech symbol of self-service, the automated teller machine. The security camera at my local branch has caught me cursing almost every time I try to negotiate any transaction more complex than withdrawing a quick 50 bucks.

There are lots of people out there like me. That's why companies looking to implement self-service applications should pay attention to our needs.

Our resistance to self-service has nothing to do with technophobia — we can fall foolishly in love with slick technology as quickly as the next person. But we're less vulnerable to such infatuations when our time and money are at stake. At those times, we're looking for convenience, control and the kind of flexibility of response that has proved hard to automate.

But let's take a closer look at ATMs, whose acceptance is often cited as a pertinent precedent by many self-service technology vendors. Three of the last four vendors I've spoken to acknowledged that their applications sometimes meet "cultural resistance" but pointed to ATMs as the model for the public simply "getting used to" the idea of technology replacing human interaction.

In reality, the simple range of banking functions available through your ATM is perfectly suited for automation. The bank has a database of the information it needs (account balances), and the combination of programmed card and four-digit personal identification number provides easy and effective identity authentication and access control. ATMs appeared in 1969 as cash dispensers, and though some big banks such as Citigroup and Bank of America are moving to Web ATMs with a dazzling array of potential services, the function they're most often used for hasn't changed much.

ATMs were designed to fill a simple need — round-the-clock access to cash — and they deliver (well, most of the time). The machines allow banks to keep customers happy without increasing their hours of business or staff.

But rather than allow the successful saga of the ATM to generate illusory hopes, developers of self-service technologies would do better to take away a couple of humbling lessons. After all, although about 63% of bank customers say they use ATMs, according to the American Bankers Association, less than 25% do banking online from their homes or offices.

The first of those lessons is that you've always got to figure out exactly what's in it for the user of a self-service application. The answer is usually convenience. Do the perceived user benefits outweigh any time, effort and frustration incurred while using the application? Failure to pay attention to this calculation will send users directly to the nearest potentially helpful human, the phone or somebody else's Web site, depending on the situation.

The other lesson is to simplify, simplify, simplify. Make self-service functions as straightforward as you can while still achieving your goals (saving money usually being chief among those). During development, take the time to make the application easy to negotiate: Reduce the number of fields the user needs to fill out, and minimize the amount of information he needs to provide. If a piece of information isn't central to the business function of the application, don't ask for it.

Repeat after me: Card and PIN go in, cash comes out. It's an unattainable ideal for many self-service applications, but it will help keep developers focused.

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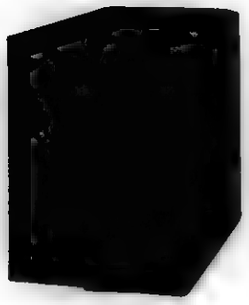

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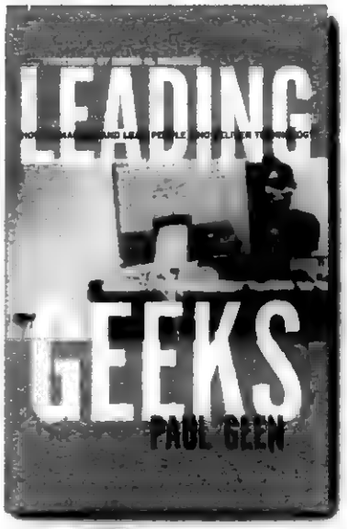

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Who is Likely to Become a Leader —and why

By Warren Bennis & Robert Thomas
$26.95 ◆ 256 pages ◆ http://www.geeksandgeezers.com

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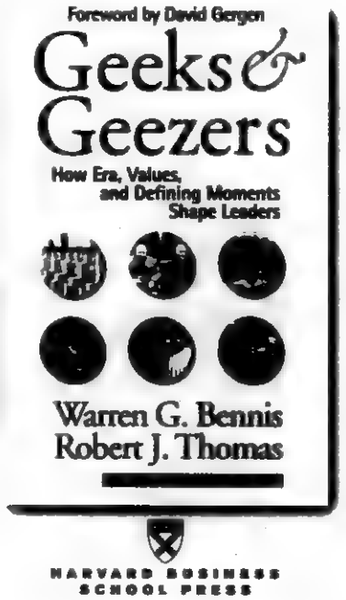
Today's young leaders grew up in a very different world from that of their grandparents. In a groundbreaking study of these two disparate groups—affectionately labeled "geeks" and "geezers"—the authors set out to find out how era and values shape those who lead. What they discovered was the powerful process through which leaders of any era emerge.



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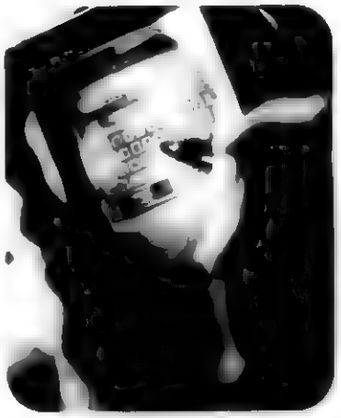

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Assistant Secretary for Information & Communications
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Nancy J. Victory has the unusual distinction of playing two roles at once in the Bush Administration. As Assistant Secretary of Commerce for Communications and Information, she reports directly to Commerce Secretary Don Evans, and oversees the agency within the Commerce Department that manages the federal government's use of spectrum. At the same time, she serves as Administrator of the National Telecommunications and Information Administration (NTIA) and reports directly to the President on communications policy matters. In each role, Assistant Secretary Victory has advocated competition, encouraged innovation, and promoted public safety and security.

Tony Scott
CTO
General Motors

Anthony (Tony) F. Scott is the Chief Technology Officer for GM's Information Systems and Services (IS&S) organization. Scott is responsible for defining the information technology computing and telecommunications architecture and standards across all of GM's business globally. He provides leadership in the areas of IT architecture and standards, and emerging technology. He joined GM from Bristol-Myers Squibb where he was Vice President, Information Management, responsible for the management of the global computing infrastructure.

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CONFERENCE AGENDA *subject to change*

r details, updates, and to register visit www.mwwusa.com/cwt

TUESDAY, MAY 6

1:00pm Pre-Conference Golf Outing

2:00pm Concurrent Workshops and Sessions:
- Technology Workshops
  Presented by Proxim, Motorola and AVAYA and other Workshops to be announced
- Industry Pipeline Sessions
- Technology Productivity Training
  Presented by Handheld Media Group

7:00pm Pre-Conference Networking Reception

WEDNESDAY, MAY 7

7:00am Buffet Breakfast

8:00am Welcome and Opening Remarks
Ron Milton, Executive Vice President, Computerworld

8:15am Opening Keynote Presentation
Nancy Victory, Assistant Secretary for Information & Communications, U.S. Department of Commerce, Administrator of the National Information & Communications Administration

9:00am Wireless Enterprise Panel
Panel Moderator: Bob Brewin, Mobile & Wireless Reporter, Computerworld
Panel Members: Tom Dillon, Manager, Mobile & Wireless, Hilton Hotels; Joe Przepiora, CITS Manager, Cargill; Allan Thompson, President & CEO, Rappore Technologies (others to be announced)

9:45am User Case Study: Wireless Security - Risk Management
Ken Newman, Director of Information Security & Risk Management, Deutsche Bank

10:15am Break

10:30am Industry Insights
Presented by IBM

11:00am Analyst Update: Mobile Goes Mainstream - What IT Needs To Know

11:30am Sponsor Introduced End-User Case Studies (concurrent sessions)

Noon Networking/Birds of a Feather Luncheon

1:30pm Industry Innovations Panel
Moderator: Gerry Purdy, Ph.D., Principal Analyst, MobileTrax

2:15pm End-User Case Study: Effective Use of Wireless Networks
Mike Taylor, CIO, Todd Pacific Shipyards

2:45pm Industry Insights: The Future of Voice Data Converged Wireless Networks
Presented by Proxim, Motorola and AVAYA

3:15pm Break

3:30pm Industry Insights
Presented by Symbian

4:00pm User Case Study: The CIO's Perspective of Integrating Mobile & Wireless Technology into Pacific University's Objectives - Lessons, Benefits and Red Flags
Lee Colan, CIO, Pacific University

4:30pm Industry Insights
Presented by Toshiba

5:00pm Closing Remarks

5:30pm Solutions Showcase & Expo with Buffet Dinner

THURSDAY, MAY 8

7:00am Buffet Breakfast

8:00am Opening Remarks

8:15am Opening Keynote Presentation: The Wireless Future In The Automotive World
Tony Scott, CTO, General Motors

9:00am End-User Case Study
Steve Poppe, CIO, Roto-Rooter, and Todd Cruthirement, Senior Vice President, GearWorks

9:30am CTO Insights Panel

10:15am Break

10:30am Industry Insights
Presented by Hewlett-Packard

11:00am End-User Case Study: UPS Unplugged
Dave Saltzman, Program Manager, United Parcel Service

11:30am Sponsor Introduced End-User Case Studies (concurrent sessions)

Noon Solutions Showcase & Expo with Buffet Lunch

1:30pm Industry Insights
Jacob Christfort, CTO, Oracle

2:00pm End-User Case Study
Ken Venner, CIO, Broadcom

2:30pm Industry Insights
Presented by IBM

3:00pm Break

3:15pm Technology "Spotlight" - Innovation On Stage
Featuring demonstrations by EFI/PrintME, Credant, Synchrologic, NetMotion and others to be announced

4:15pm End-User Case Studies (concurrent sessions)

Leveraging Advanced Technologies to Support Mobile Workers
Jim Leake, Director of Business Strategy and Planning, Getronics

Wireless Locating Systems – The Technology for Large ROI
Tim Van de Merwe, Internal Logistics Manager, Associated Food Stores

4:45pm End-User Case Studies (concurrent sessions)

Access to Corporate Data in Wireless Environments
Anthony King, Director of Software and Engineering Systems, Ventana Medical Systems

"Pumping" The Most Out of Your Database with Wireless
Eddie Hung, Manager, Advance Research and Technologies, City of Richmond, BC, Canada

7:00pm Gala Evening
"Best Practices in Mobile & Wireless" Awards Ceremony

FRIDAY, MAY 9

8:00am Buffet Breakfast

8:30am Concurrent Workshops and Sessions:
- Technology Workshops
  Presented by IBM and other Workshops to be announced
- Industry Pipeline Sessions

Noon Conference Concludes

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Would you like to receive information about playing in the golf outing on Tuesday, May 6? ❑ Yes ❑ No

Please indicate your preferred conference shirt size: ❑ S ❑ M ❑ L ❑ XL ❑ XXL ❑ XXXL

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- ❑ Food Industry
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- ❑ Computers, Communications or Peripheral Equipment or Software Manufacturing
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- ❑ Other

Your Primary Job Title / Function? (Check Only One)
- ❑ CIO, CTO
- ❑ Vice President of IT
- ❑ Director, Manager, Supervisor of IT
- ❑ Other IS / IT Manager
- ❑ Chairman, CEO, President, COO
- ❑ CEO, Controller, Treasurer
- ❑ GM, VP, Director
- ❑ Other Corporate / Business Manager
- ❑ Corporate / Business Staff
- ❑ Consultant

Your Personal IT/IS Spending Authority?
- ❑ $5 million+
- ❑ $1 million - $4.9 million
- ❑ $500,000 - $999,999
- ❑ $100,000 - $499,999
- ❑ Under $100,000
- ❑ None

Number of Employees (ALL Locations)?
- ❑ 5,000+
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Under 500

What is your Company IT/IS Budget?
- ❑ Over $1 billion
- ❑ $100 million - $999.9 million
- ❑ $10 million - $99.9 million
- ❑ $1 million - 9.9 million
- ❑ Less than $1 million
- ❑ None

What is Your Organization's Primary Vendor for Servers?
- ❑ Dell
- ❑ Hewlett-Packard / Compaq
- ❑ Hitachi
- ❑ IBM
- ❑ Sun
- ❑ Other

Your Organization's Enterprise Standard for Mobile Device Management Software?
- ❑ Aether Systems
- ❑ Altiris
- ❑ Computer Associates
- ❑ Extended Systems
- ❑ Hewlett-Packard / Compaq
- ❑ IBM Tivoli
- ❑ Landesk Software
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- ❑ Marimba
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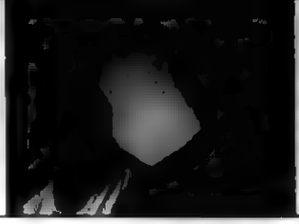
So You Want to Be a CTO

Just what a CTO does on a day-to-day basis depends on who hires you, whom you report to and whether you have budget authority. Lending Tree CTO Rick Stiegler (far right) is in the minority in that he reports to his company's CIO, Steve Campbell. **Page 42**



PEER TO PEERS

Ten Ways To Increase Your IT Value

Lesson No. 1: Execution is everything. Don't get embroiled in endless analysis, and take risks, writes Matthew Krieger, associate director of global network services at Reader's Digest. **Page 52**

QUOTE OF THE WEEK

"When people rip out everything and put in an all-new [supply-chain] system, it's the equivalent of a heart, lung and liver transplant all at once. It's so risky that you should never do it unless the patient is going to die anyway."

– Mike Hugos, CIO, Network Services Co.

POLLY BECKER

MANAGING THE OTHER 20%

Ingersoll-Rand looks to reap big savings by scrutinizing its smallest suppliers. By Steve Ulfelder

CASE STUDY

INGERSOLL-RAND CO., a manufacturer of industrial equipment, is always seeking to reduce its supply chain costs. And like most big companies, the $8 billion company tends to focus its efforts on its 20 largest suppliers — which, in line with a widely accepted rule of thumb, account for about 80% of procurement expenditures.

But two years ago, driven by the economic slump that persists today, Woodcliff Lake, N.J.-based Ingersoll-Rand began paying more attention to its smaller suppliers in an intensified effort to drive down costs. The manufacturing company learned there were significant savings to be had in this area simply because it hadn't been scrutinized before. For example, Ingersoll-Rand found that while major suppliers were bending over backward to reduce prices, some smaller ones had actually passed along increases of up to 10% annually — during years when inflation was practically nonexistent.

Smaller suppliers were also more likely to have poor on-time records, which added costs by forcing Ingersoll-Rand to pay premium freight charges for last-minute shipping. Mom-and-pop trading partners often played it fast and loose in ways that would never be tolerated among larger suppliers. The company questioned peers, including competitors, and discovered that it wasn't alone; other manufacturers were also leaving savings on the table where their smaller trading partners were concerned.

Its new determination to cut supply chain costs prompted Ingersoll-Rand to forge an alliance with SupplyWorks Inc., a Bedford, Mass.-based vendor of supplier-relationship management software, and with the Worldwide Logistics Solutions business unit of freight company Roberson Transportation. The three formed a procurement outsourcing business based in Torrington, Conn., called The 21st Supplier, which aims to cut companies' costs of doing business with thousands of small yet indispensable suppliers.

Champaign, Ill.-based Roberson's logistics division had a long-standing relationship with Ingersoll-Rand. That partnership persuaded The 21st Supplier that

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MANAGING THE OTHER 20%

Continued from page 39

Roberson's technology and capabilities would mesh well with the SupplyWorks software.

Companies that sign on as customers swap their smaller suppliers — which may number in the hundreds — for just one: The 21st Supplier. Leveraging Ingersoll-Rand's procurement experience, personnel and massive supply chain network, the outsourcer moves in, takes over the management of clients' relationships with small suppliers and agrees to deliver cost reductions. Operating in full start-up mode, The 21st Supplier has nine full-timers and plans to add staffers as needed. The company views as potential clients all manufacturers that have annual sales over $500 million and assemble discrete components — such as automakers and electronics companies.

The 21st Supplier's first customer was Hussmann Corp., a $600 million Ingersoll-Rand unit in Bridgeton, Mo., that manufactures commercial refrigeration systems. According to Bill Lindquist, business unit leader at The 21st Supplier, Hussmann has seen cost reductions of 5% to 15% in several areas: Freight charges are down; inventories have been cut through tighter cycle times; suppliers have been consolidated (and supplier performance is better thanks to improved measurement and incentives); and shortages and line stoppages have been reduced. "And we haven't even rolled up our sleeves yet," he says.

Tony Merlo, Hussmann's director of strategic sourcing, says that previously, no one in the company had a program to address that lower 20% of the spending, which goes to about 60% of Hussmann's suppliers. "It makes sense to take and manage that group, and it's working," he says.

A diversified manufacturing conglomerate, Ingersoll-Rand's business units make everything from Schlage and Kryptonite locks to Bobcat earthmovers and Thermo King climate-control systems. All told, its direct procurement spending tallies $4 billion a year in 400 commodity categories. ("Direct" refers to components that actually go into products, as opposed to indirect materials such as office supplies.)

Naturally, managing the supply chain is critical to such an enterprise. Ingersoll-Rand urges its business units to continually evaluate their suppliers, sorting them into a four-quadrant matrix like that favored by Gartner Inc. (see chart). The variables in the matrix are risk (to the manufacturer, should it decide to drop a given supplier) and spending.

Prior to the formation of The 21st Supplier, Ingersoll-Rand evaluated offerings from several supplier-relationship management vendors and determined that SupplyWorks' Max, a hosted application, could serve as business units' technology enabler. In addition, Ingersoll-Rand figured that its business units could gain economies of scale by standardizing on Roberson to manage freight requirements wherever possible.

SupplyWorks aims to help enterprises work with tens of thousands of smaller trading partners on matters both tactical and strategic. In the former category, the software performs tasks such as issuing alerts when the purchasing company is close to pricing trip points. "It will say, 'Hey, you're ordering 140 units here, and at 150, you get a price break,' " says SupplyWorks CEO Jeff Hertmann.

This type of information tends to be watched closely in the case of strategic suppliers but often slips through the cracks with smaller ones for two reasons. First, small suppliers are most likely to be managed manually with hard-copy forms. Second, businesses understandably assign their top account representatives to major suppliers; the mom-and-pop outfits are often handled by new — or simply less experienced — reps, who don't catch everything they should catch.

By encouraging business units to scrutinize their smaller suppliers the same way they do their biggest vendors, Lindquist says, Ingersoll-Rand pared down the total number of suppliers and cut costs "significantly" in addition to reducing inventory.

But that doesn't mean the process was smooth as silk or that there's no more work to do. "Within Ingersoll-Rand, we need to make more progress," Lindquist says. The conglomerate has 12 major business units and many smaller ones, and "because they're all so independent, each unit isn't much different than a separate company." (The 21st Supplier has met with other Ingersoll-Rand business units about outsourcing, but Lindquist says there is no companywide mandate to sign on.)

For example, while Ingersoll-Rand has standardized on Oracle Corp.'s software for financials, each unit may have its own enterprise resource planning software. This makes sharing data across units difficult, which in turn means some units are unaware of potential gains to be had in the supply chain. The company has begun to address this issue by creating cross-unit "centers of excellence" for ferreting out exactly this type of data, but it's too early to tell what effect those centers will have.

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Guinea Pig

Several factors made Hussmann a sound testbed for The 21st Supplier's service. As Ingersoll-Rand's most recently purchased business unit, it didn't have Oracle Financials software in place. Moreover, its IT system was a mess, with no fewer than five major operating systems at its sole facility. Lindquist says the integration challenges led to changes in The 21st Supplier's business model.

For example, a full-time programmer was hired to work on integration, with Hussmann and The 21st Supplier splitting the unforeseen expense — which will now be budgeted in for every engagement. And the outsourcer found that the best way to address Hussmann's security and access concerns was to lease a server with a firewall, thus establishing a buffer zone that determined which data could be shared and which was off-limits. "That gives [Hussmann] a comfort level," Lindquist says. "We're going to do that from now on" with all customers, both inside and outside Ingersoll-Rand, he adds.

Merlo says Hussmann started small, testing the integration and shifting a small group of its low-risk/low-spend suppliers to The 21st Supplier's oversight. Results were positive. "Next week, I present to the next group," Merlo says, at which time most of Hussmann's suppliers outside the top 20 — about 70 vendors in all — will have been transferred over.

Although Hussmann's 5% to 15% savings are persuasive, outsourcing supplier relationship management may not be for everyone. Gerald McNerney, a senior analyst at Boston-based AMR Research Inc., says there's "clearly a lot of value" to be found in outsourcing procurement. However, he adds, any logistics outsourcing can be "disruptive," to say the least. The thought of a factory floor being brought to its knees — or a standstill — by an outsourcer's error is simply too risky for many manufacturers to consider. "Even though it can save them a few bucks, companies can be reluctant to enter these [outsourcing] relationships," McNerney says.

In light of The 21st Supplier's promises and Hussmann's early experience, though, enterprises may want to take a second look. ▶

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

Ingersoll-Rand Suppliers

	High Risk	Low Risk
High Spend	These are Ingersoll-Rand business units' strategic supply chain partners; the manufacturers work closely with them to drive out costs wherever possible.	These are providers of commodity items furnished by several suppliers. Ingersoll-Rand units cut costs by consolidating buys with other business units, buying from countries with low labor costs and conducting reverse auctions in which multiple suppliers are asked to name their best prices.
Low Spend	Collectively, these vendors represent only a small portion of overall spending on purchases, but they furnish strategic, one-of-a-kind components that Ingersoll-Rand business units must have for production.	A catchall category for all other suppliers. They represent a hodgepodge of mom-and-pop shops that, because business units spend little with them, have often flown under the cost-cutting radar.

MANAGING THE OTHER 20%

Continued from page 39

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Guinea Pig

Several factors made Hussmann a sound testbed for The 21st Supplier's service. As Ingersoll-Rand's most recently purchased business unit, it didn't have Oracle Financials software in place. Moreover, its IT system was a mess, with no fewer than five major operating systems at its sole facility. Lindquist says the integration challenges led to changes in The 21st Supplier's business model.

For example, a full-time programmer was hired to work on integration, with Hussmann and The 21st Supplier splitting the unforeseen expense — which will now be budgeted in for every engagement. And the outsourcer found that the best way to address Hussmann's security and access concerns was to lease a server with a firewall, thus establishing a buffer zone that determined which data could be shared and which was off-limits. "That gives [Hussmann] a comfort level," Lindquist says. "We're going to do that from now on" with all customers, both inside and outside Ingersoll-Rand, he adds.

Merlo says Hussmann started small, testing the integration and shifting a small group of its low-risk/low-spend suppliers to The 21st Supplier's oversight. Results were positive. "Next week, I present to the next group," Merlo says, at which time most of Hussmann's suppliers outside the top 20 — about 70 vendors in all — will have been transferred over.

Although Hussmann's 5% to 15% savings are persuasive, outsourcing supplier relationship management may not be for everyone. Gerald McNerney, a senior analyst at Boston-based AMR Research Inc., says there's "clearly a lot of value" to be found in outsourcing procurement. However, he adds, any logistics outsourcing can be "disruptive," to say the least. The thought of a factory floor being brought to its knees — or a standstill — by an outsourcer's error is simply too risky for many manufacturers to consider. "Even though it can save them a few bucks, companies can be reluctant to enter these [outsourcing] relationships," McNerney says.

In light of The 21st Supplier's promises and Hussmann's early experience, though, enterprises may want to take a second look.

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

Looking Deeper, Working Smarter

An intelligent infrastructure provides **end-to-end QoS** for superior performance and control.

Every business has its priorities. So why not share them with your network? When you run your applications over an intelligent network infrastructure, you can ensure every data packet is handled according to the priorities and policies you set, bringing your network operations into perfect sync with your business goals.

Cisco intelligent switches and routers come equipped with the most sophisticated quality-of-service features available, allowing you to deliver predictable, measurable, even guaranteed levels of performance across the LAN and WAN.

An intelligent infrastructure looks deeper into network traffic, identifying the users and applications behind the streams of data. As a result, it can classify and mark packets to make sure your most pressing needs are met first, without stranding anyone or anything else. IP voice and video applications, for example, can be given precedence over less time-sensitive applications, eliminating the delays and packet loss that would otherwise get in the way of clear, cost-effective communication.

An intelligent infrastructure also makes more efficient use of bandwidth, which becomes particularly important as applications and services are extended across the WAN, where bandwidth is a scarce and pricey commodity. Applying QoS can significantly improve the response times of your most demanding applications, without increasing your company's bandwidth costs.

Cisco's QoS features are based on advanced networking protocols, which are seamlessly integrated with each other and the hardware through Cisco IOS® Software, the operating system that unifies all Cisco switches and routers and provides most of the intelligence in the network.

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The end result is a network optimized to make your company as productive, efficient, and profitable as possible. And after all, isn't that the top priority?

Advanced QoS mechanisms offer unprecedented control

Cisco intelligent switches and routers provide the industry's most comprehensive quality-of-service features, enabling you to maintain predictable performance levels and support delay-sensitive IP voice and video communications across the LAN and WAN. Features include:

Classification: Allows the network to distinguish different types of traffic based on the applications involved, then sort them according to established priorities.

Marking: Flags data packets to ensure they are handled based on their relative importance to your business goals, so the most critical needs are met first.

Policing: Limits traffic flows to defined rates so large files won't swamp the network and degrade application performance levels.

Buffering: Holds low-priority packets while urgent traffic moves ahead, which conserves bandwidth by avoiding the need to retransmit data.

Scheduling: Controls the timely delivery of traffic and alleviates congestion so applications can maintain peak performance levels.

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CISCO SYSTEMS

SO YOU WANT TO BE A CTO

Just what a CTO does depends on who hires you, whom you report to and whether you have budget authority. By Kathleen Melymuka

IN JANUARY 2001, three stories in *Computerworld* mentioned a chief technology officer, or CTO. In January 2003, 26 stories did. The CTO is clearly becoming more common, but it's a difficult role to pin down. CTOs can be technology gurus, visionaries, infrastructure experts or policy enforcers, and contrary to popular belief, they don't usually work for the CIO. "If you talk to six people, you'll get six definitions of the CTO," says John J. Davis, president of John J. Davis & Associates Inc., an IT executive search firm in New York.

To get a feel for what CTOs are really about, it helps to look not only at their work, but also at the human and financial dynamics around them.

Although the role is becoming more common, CTOs are found in only 37% of companies, according to a 2002 survey of several hundred midsize to large companies by Cutter Consortium in Arlington, Mass. The CIO may be involved in recruiting and hiring the CTO, but most CTOs report to another senior executive, such as the CEO or the chief financial officer, and they fill a variety of roles.

In large companies, the CIO's increasing emphasis on business — often on a worldwide scale — may leave no one minding the IT store, Davis says. In those cases, the CTO is brought in to keep an eye on infrastructure and technology.

That's the situation at Foster City, Calif.-based Inovant Inc., where Scott Thompson is in the process of hiring a CTO. "When you're running a big global business, there are a lot of [infrastructure] decisions that have to be made on a daily basis," explains Thompson, who is executive vice president for technology solutions and de facto CIO at the wholly owned transaction-processing subsidiary of Visa International Inc.

"My job is about translating business plans into technology priorities and creating that constant linkage back to the business and the strategy of the business," he explains. "That translates into a series of initiatives and projects and a development agenda."

In contrast, the CTO, who will report to Thompson, will have "day-in and day-out responsibility for global enterprise architecture, making sure all our transactions in nearly 200 countries always work," he says.

In start-ups, the CTO often fills a catchall technology role. "The smaller the company, the less they can afford the luxury of a guy [who is] more into strategy than technology delivery," Davis says. "So they get someone with technology as the prime skill set."

Rick Stiegler has been CTO at Lending Tree Inc. in Charlotte, N.C., since the mortgage company's founding in 1997. In the early days, because the staff was small, his job ranged from software design and configuration management to business analysis and technical presentations for investors.

Now, with 250 employees and a technology department of more than 100, the company has hired CIO Steve Campbell, and Stiegler is moving away from business concerns. Stiegler provides architectural guidance, reviews the technical design for all projects and examines the technical implications of strategic initiatives.

Stiegler, who now reports to Campbell, works primarily on architecture. Campbell does "all the hard stuff," including handling vendors and purchasing technology, Stiegler says. "He manages air cover to the business," he says. "When I'm trying to figure out a bottleneck in the database, he's explaining to the business what's going on and when we'll get it going again."

> **"I've done enough of wearing all the hats. I want to go back to the cool stuff."**
>
> **RICK STIEGLER,** CTO, LENDING TREE INC.

Stiegler checks with Campbell on any proposed adjustments in architecture or technical philosophy. If they disagree, Stiegler says, "we arm-wrestle, and I usually lose." But it almost never comes to that. "When we disagree, it's usually because one of us has incorrect data," Stiegler says. "Once we both have the same facts, we arrive at the same conclusion."

Stiegler enjoys having a CIO to handle the business aspects of technology. "I've done enough of wearing all the hats," he says. "I want to go back to the cool stuff."

At some companies, the CTO is steeped in the cool stuff as the technology visionary. "Companies often bring CTOs in to develop a longer-term technology strategy, one the CIO just doesn't have time to develop," said Steve Andriole, a consultant at Cutter Consortium.

That's the case at Black & Veatch Corp., an engineering, construction and consulting company in Kansas City, Mo., and one of the 100 largest private corporations in the U.S. CTO John G. Voeller is a lone visionary whose job transcends traditional IT boundaries. "I don't just look at the technology of my enterprise," he says. "I look far beyond IT, at nanotechnologies, biotech and other domains." His

mission is to understand the goals of the business and of its clients, anticipate their needs and guide them toward technologies of value.

As Black & Veatch evolved from a partnership to a corporation in the 1990s, Voeller, who used to head IT, passed the reins to Bob Fine, a business-oriented CIO who had "fought the corporate wars." As CIO, Fine has improved vendor relationships, cut costs and streamlined IT activities. CTO Voeller concentrates on the technology vision. Both report to the chief administrative officer, but Fine has the power of the purse. All IT purchases are made through his office, and he manages vendors.

Andriole says that in companies where the CIO and CTO report to a senior executive, their different focuses frequently cause friction because they compete for funding. "The tension comes from having the CTO always pushing the envelope, while the CIO is worrying about making the train run on time," he says.

Usually, the CTO and the CIO share the technology budget, Andriole says, and tension can arise if the CTO seeks to divert money from "putting out brush fires" to building new architectures. "They [CTOs] hate to spend money on things like life support for old systems, so they'll recommend diverting funds from those server upgrades to build the architecture to exploit Web services," he says.

But Voeller says that's not the case at Black & Veatch. "We work as a very good team because we respect each other's ideas," he says. "Our executives are receptive; they believe in and revere imagination."

The key to a good CTO/CIO relationship, Voeller says, is "clear delineation of roles and responsibilities and a reward system based on doing these well." A sure road to ruin, he adds, would be "a CIO with a technology bent who secretly wants to do the CTO job — or vice versa."

The fact that Voeller doesn't report to the CIO isn't unusual. The Cutter survey found that 74% of CTOs don't.

At Allstate Insurance Co. in Northbrook, Ill., CTO Cathy Brune reports to the chairman, and she is the undisputed technology leader. "I was made a senior VP and CTO because we wanted people to understand that I am in charge of technology, and I will make calls and break the ties," she says. Her role is to manage overall architecture, infrastructure and security, a task made trickier by the fact that Allstate's two main divisions have their own IT groups, CIOs and technology budgets.

As Allstate's first CTO, Brune needs to reconcile the IT wish lists of the two business units with the technical standards she's hammering into place. "I cut the baby in half between the two businesses if necessary," she says. In other words, if one business wants one sort of infrastructure/architecture and the other wants another, she decides which will be the corporate standard. "The business unit presidents listen to me," Brune says.

Before she became CTO, there was one CIO who owned the IT budget, and the business unit presidents had to come to him for technology funding. Now the two businesses have their own IT budgets, and they can choose the applications they need to drive their strategies — as long as those follow the CTO's technology standards. Infrastructure, governance, security and companywide architecture belong to Brune.

Because Brune reports directly to Allstate's chairman, she could wield a big stick. But instead, she is persuading the CIOs and their business unit presidents to do things her way. She acknowledges, though, that this entails a lot of "mud wrestling."

"This job is a lot more relationship-driven than I would have imagined," Brune says. "But by doing this early, we get buy-in from everyone around our tech strategy."

The inevitable friction between CTOs and CIOs is a good thing, Andriole says, because it makes companies consider technology trade-offs. "It forces you to think about the implications of putting out those brush fires for what you have to be doing in two to three years," he explains. "It sets up a great dialogue in the corporation." ◗

HOW THEY GOT THERE

JOHN G. VOELLER: As a mechanical engineer at Black & Veatch, he took a short assignment to solve a problem in MIS and never left. He became partner in charge of technology in the early '80s and CTO in the early '90s.

DEBRA DOMEYER: Worked on computer systems and encrypted satellite technology at the White House and on Capitol Hill. Managed the White House Office of Automation, installing the first PCs in the West Wing in 1984. Worked in IT at financial services companies. Served as CIO at Times Mirror Corp. and Pacific Gas & Electric Co.

RICK STIEBLER: Served as vice president of advanced technology at Greenwich Capital Markets Inc. and was a vice president of IT at Morgan Stanley.

CATHY BRUNE: Started as a data center tapes mounter at Allstate. Moved to business positions in claims, marketing and pricing. Served as regional vice president of sales, director of the call center and vice president for infrastructure.

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.

WEARING BOTH HATS

Read about the hybrid role of CTOs who work at Web-based companies:

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SUPPLY CHAIN ADVICE:

Tap Computers for The 'Dog Work'

Streamlining a supply chain isn't easy, but the simpler the technology involved, the better. The reason: "Most of us are regular folks. If you have to be a genius to figure something out, we're doomed." So says **Mike Hugos,** *CIO of Network Services Co., a $6.8 billion distribution cooperative company in Chicago suburb Mount Prospect. In his new book,* Essentials of Supply Chain Management *(John Wiley & Sons Inc., 2003), Hugos lays out how to decide what kind of supply chain technology your company needs and how much to spend to get it. Hugos recently spoke with* Computerworld's *Julia King.*

As a CIO, how did you get involved in the supply chain process? We're a co-op. There are 75 owner companies, each with an individual ERP [enterprise resource planning] system. When I came on in the fall of '99, we were updating our strategic plan. The owner companies made it very clear to me to not even suggest that we all standardize on SAP or Oracle or some other software.

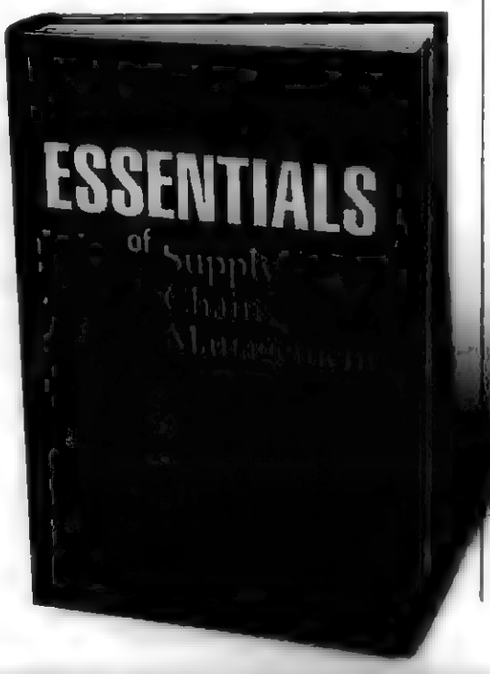
Meanwhile, some of our big customers — which include Baskin-Robbins, all of the Starbucks stores — wanted to centralize their procurement operations. They didn't want to phone and fax orders. They were creating electronic order management systems that we needed to plug into and then route orders to our members to fill. Our customers wanted statement billing. They wanted a seamless coordinated supply chain. They said to me, "You figure it out."

Where do you start such an obviously huge project? The first thing I like to do is on a big sheet of white paper draw out the sequence of activities as you know your supply chain. Where you don't know things, put in a question mark. If you're a manufacturer, look back to raw material providers. Then, look forward to your customer. I learned a long time ago in sales to look at what your customer's customer is doing. Lay that out as part of the major flow of activities. I've found again and again that if everyone has a common visual framework to look at, and then you start plugging details into slots on that framework, a picture will emerge.

And then what? Steady as she goes. Solve a piece at a time. It's a lesson that didn't play well in the '90s. When people rip out everything and put in an all-new [supply chain] system, it's the equivalent of a heart, lung and liver transplant all at once. It's so risky that you should never do it unless the patient is going to die anyway. Instead, you ought to take a look at the supply chain diagram — a simple circle-and-arrow, basic reference diagram — and ask, "Where are the bottlenecks right now?" Maybe the bottleneck is procurement or inventory control or forecasting. Identify the worst bottlenecks, then come up with point-specific [IT] solutions to those bottlenecks. Fifty-million-dollar SAP solutions played well in the '90s, but I don't think they were ever good practices.

How come? We spent the last 10 years with massive all-in-one systems. I think the answers are there for everyone to see. They don't work very often, and the world changes so quickly that you'll come up with a new solution to an old business model. And if the people who have to use a new system either don't buy into it or feel it's simply a prelude to being laid off or the equivalent of speeding up the assembly line, they'll take a passive-aggressive attitude and do everything from spill coffee on the keyboard to feed the system goofy data. As soon as that happens, you can typically blame the technologists who are so absorbed in technology and the least politically aware that they make very easy scapegoats.

So, are you saying to solve the bottlenecks one by one, with different software, and worry later about integrating those software applications? There's something called the miracle of the ASCII file. I tell members I will never stand up in front of a technology organization and brag about sending encrypted ASCII files over the Internet, but it works. Every system has batch-import capability, and that's where I believe in about 2001 a new acronym appeared called EAI [enterprise application integration]. EAI is really about passing ASCII files across separate applications. It's not that we didn't know how to do that in the late '80s; it's that it wasn't cool. I come down in favor of the practical approach.



How does it work? For companies with EDI [electronic data interchange], we reformat ASCII files to an EDI 850 or other file for EDI. We've all agreed on a certain ASCII file format. If they have to reformat to that, it's a trivial thing to do. People will call me primitive, but the use of ASCII flat files sent over the Internet is an amazing thing. When people wax enthusiastic about Web services or the Internet version of object-oriented XML, it's basically an ASCII flat file with angle brackets that tells you what that means. In a high-change, tight economy, I think you're always better off to go with point solutions and a guaranteed 12-month payoff.

Can you give me an example from your own experience? We have a wholly owned redistributor that stocks slower-moving items, but items that are necessary for national account contracts. That organization works on very thin margins. We've been very reluctant to add head count. But our business is growing steadily, so they're swamped. Members order from the warehouse, then the warehouse turns around and places the order with a supplier. We're now working on an initiative where everyone agrees on standard format for an invoice. Instead of a member calling us or faxing an order, they can export it in a standard ASCII flat file, encrypt and transport the ASCII file over the Internet.

Our order entry [system] simply imports that file and all order entry work, and data entry work is automated. Automate the "dog work" and let the people handle the exceptions. Why spend money on computers and artificial intelligence when I have real intelligence yearning to break free of the dog work that plagues them everyday.

People get into these exquisitely complex systems. Meanwhile, we're having this recovery that is not creating jobs. I believe [that] if computers monitor the daily in-and-out work and you can design a system where people are served by computers, you'll get something effective. But when you try to have computers do everything, it won't work. Computers are great at dog work, but I don't need computers to make decisions for me. ●

BOOK EXCERPT ONLINE

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NavSea's ROI Ship Comes In

E-procurement system cuts buying time by over 85%. By Matt Hamblen

THE DOT-COM BUBBLE WAS already bursting when the Naval Sea Systems Command (NavSea) launched its SeaPort e-procurement system in April 2001. Since then, it's earned a high enough return on investment and regular positive feedback to be considered a success by more than 300 procurement managers, says Claire Grady, SeaPort program manager.

Key to the project's success was that NavSea was able to work with a single e-commerce procurement software vendor, Commerce One Inc., and follow specific guidelines agreed upon by higher-ups at the naval command.

The installation required a little more customization than was anticipated, but the system works reliably, Grady says. Yet she's somewhat skeptical about expanding the SeaPort system beyond its current use of buying professional services to include purchasing specialized goods for building ships and weapon systems for the U.S. Navy and Marines, which provide the lion's share of NavSea's current annual budget of $19 billion.

The project grew out of pressure from the secretary of Defense to cut costs in 1998, a vastly different era for defense spending than today. NavSea was told to cut about 10% of its professional services procurement spending over five years, from 2001 to 2005. Professional services include program management, logistics support, engineering and financial management.

"SeaPort is on track to meet its savings [goal]," Grady says. The time to complete an acquisition, from start to finish, has dropped drastically — from 270 days to between 30 and 42 days, or by over 85% — mainly because paperwork has been eliminated. NavSea has also been able to save with volume discounts by working with regular bidders, which the system ranks based upon quality of service and past performance, not just price, according to Grady and Kathleen Monahan, who recently retired as director of the surface systems division at NavSea.

NavSea picked Commerce One in Pleasanton, Calif., over nine other vendors partly because its off-the-shelf software required little customization. In two years of operation, one of the few difficulties that NavSea has faced is customizing Commerce One's software to track small, disadvantaged businesses that the government wants to support, Grady says.

Upfront software license and installation costs were $500,000. Annual support costs are $160,000, and annual Web hosting costs are $240,000. NavSea has a five-year contract for hosting and support. Based on current and projected savings, the ROI goal that NavSea set with Commerce One has been met "very easily," says Grady.

Monahan and Grady say that 85% of purchasing managers consistently rate SeaPort an improvement over the old paper-based system.

"Commerce One bent over backward to make the portal screens the managers use very user-friendly," Monahan says.

Grady attributes the project's success to top management accepting the objectives early on, as well as to all of the main players getting involved in the ways that NavSea needed to improve procurement. This included rating bidders by their performance. "It was a holistic look," she says.

The 10% savings, while a mandate in the case of NavSea, is realistic for any organization to achieve from e-procurement implementations, according to analyst Albert Pang at Framingham, Mass.-based research firm IDC. "Ten percent is consistent with what other companies have achieved when they start deploying e-procurement apps," Pang notes. "When you talk about an organization that processes tens of thousands of purchase orders a year or higher, certainly 10% would help tremendously."

Streamlining Necessary

Pang said he has followed the SeaPort implementation and spoke to Navy officials several years ago about the need to consolidate the procurement processes the Navy had set up with thousands of suppliers. One administrative change to SeaPort allows for 21 primary supplier teams to bid on work, and each team works with multiple contractors and a recognized team leader.

"When I talked to the Navy in the late '90s, they had no idea at the top manager level who was buying the stuff, how much they were paying, how many suppliers there were," Pang recalls. "The U.S. Navy was dealing with so many operations around the country and world, and some people were able to buy stuff on their own. Maverick spending was rampant in many parts of government."

Pang acknowledges that the e-procurement software can organize only the processes that administrators put in place. "If people doing procurement aren't adhering to business rules, the idea will fall apart," he adds.

So, whether NavSea will be able to drastically control costs to make taxpayers happy is an open question. In fact, procurement of professional services amounts to only $500 million annually, a fraction of NavSea's current budget. And Grady doesn't think buying parts or materials for ships online makes much sense because "a lot of what we buy is unique, and there aren't a lot of efficiencies in buying a unique item online." Still, NavSea will look to continuously improve current processes to try to derive greater benefit from its e-procurement system, she says.

HOW IT WORKS

SeaPort

The e-procurement system at NavSea replaced a paper-based system that didn't easily enable an evaluation of a contractor's performance. Here's a look at the process now.

1 Program manager logs into SeaPort and defines requirements for the purchase of engineering, logistics, financial or program management services.

2 Once the formal purchase requisition is approved, a contracting officer creates an electronic bidding event and invites a group of contractor teams to submit bids.

3 When bids are received and the bidding event closes, NavSea evaluators use their browsers on SeaPort to evaluate proposals on multiple criteria, including the bidder's past performance and the price it's offering, as well as its technical capabilities. Evaluators are seeking a best-value bid.

4 After evaluations are final, NavSea issues the purchase order electronically to the winning contractor or contractor group.

MORE ON NAVSEA

NavSea officials hoped SeaPort would help streamline the procurement process when it went live in 2001.

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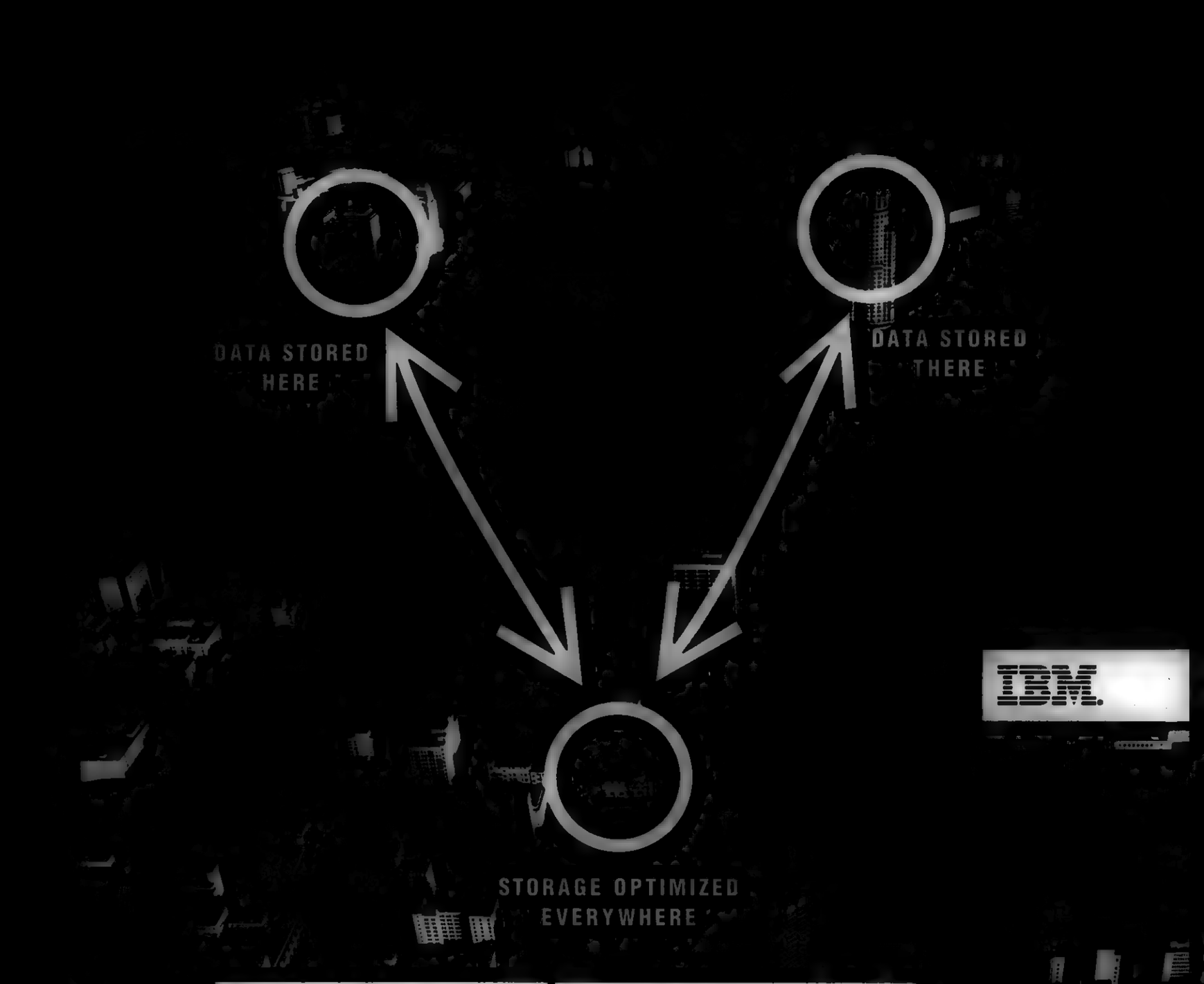

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IT Customers Rule Innovation

Users must demand technologies to improve business. By Mark Hall

BOOK REVIEW

Computerworld columnist David Moschella's new book, *Customer-Driven IT: How Users Are Shaping Technology Industry Growth*, should send chills down the spines of executives inside the boardrooms of major IT vendors. He brilliantly argues that since the beginning of the computer industry, IT suppliers have been the main drivers behind technology innovation and, therefore, its growth and success. But that game, or "wave," as he calls it, is over. Customers are now the big players in the innovation game, and the likes of Bill Gates, Scott McNealy and Carly Fiorina are mere onlookers.

Moschella rightly labels this a "huge cultural and business change" that's fraught with danger. That's because users are too comfortable letting IT suppliers point them in the right direction with cooler, faster and more efficient technology to improve existing systems. But IT customers no longer need to improve IT for its own sake. Now the reason they need technology is to make their businesses better. And if IT users fumble the opportunity to exploit IT for that purpose, Moschella writes, "IT business will almost certainly stagnate."

And fumble they might. The author points out that users can botch opportunities to exploit technology by refusing to see its value to business. He cites the music industry's opposition to peer-to-peer systems such as Napster as the kind of backward customer thinking that can stifle IT innovation.

He also slams some customers' narrow focus on sifting every IT opportunity through the return on investment sieve. He writes that "customers have to forget formal ROI numbers and simply 'Rely On Instinct.' "

Customer-driven innovation is also at risk because IT vendors need to get with the new program and shift their focus to developing products that let users innovate. One other pitfall facing this new wave of technology innovation is that the historical supplier-driven waves are boosted by entrepreneurs motivated by wealth and status. But among users in markets such as health care and insurance, that motivation is sorely lacking and "will likely remain a serious IT industry market [illegible]," Moschella writes.

But not all is gloom and doom. Throughout the book, Moschella cites numerous examples that IT users can study to see how other customer innovation of IT has worked. And he also shows where it's likely to play out in the future. For example, in one two-column chart, he identifies 40 areas where customer business innovations are likely to inspire vendor product development and not the other way around.

As is the case with most IT business books, readers will need to slog through this author's review of computer history. For those few unfamiliar with this terrain, Moschella's analysis of the prior waves of computing (such as mainframes and PCs) is concise and readable. But although it does help set up his thesis, it's not essential to getting to the vital part of this important book, which posits that IT's future is no longer centered amid engineers in Armonk or Redmond or even Silicon Valley. It rests with IT leaders in every IT data center in the world.

Beware the Herd Effects

[illegible]

–Excerpt from *Customer-Driven IT: How Users Are Shaping Technology Industry Growth*, by David Moschella (Harvard Business School Press, 2003)

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Beware the Herd Effects

Given the prevalence of engineers and programmers, one would think that the IT industry would be among the most rational of businesses. But to me it's pretty clear that the single most important factor in the IT industry's health is the overall customer mood, often referred to as "business confidence." Indeed, sometimes I think that much of the history of computing can be summed up as follows: Computers are so confusing and complicated that customers operate in a constant (if not always conscious) state of wariness and even fear. In this climate, it's only natural that IT buyers often seek safety in numbers. The result is powerful "herd effects," which manifest themselves in two main ways: unusually high supplier concentration and recurring boom and bust cycles.

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BRIEFS

TRW Establishes Offshore IT Center

Satyam Computer Services Ltd., one of India's largest IT outsourcing companies, announced that it has set up a dedicated offshore solutions center for TRW Automotive Inc., a Livonia, Mich.-based automotive parts manufacturer. Located in Chennai, India, the new center will provide TRW with a broad range of IT and business services, including process consulting, business process re-engineering and application management.

Training Portal Set To Save Ford $17M

Ford Motor Co. today is launching the Ford Learning Network, a massive Web-based portal that integrates all training management, online testing and learning resources in a single place for use by the automaker's 300,000 employees worldwide. The network's library includes more than 400,000 titles, including 1,500 online courses, 1,900 e-books, an array of Ford internal online Web sites and hundreds of journals and periodicals. Today's launch is the culmination of a three-year project that will result in savings of $17 million, according to Ford.

Perot Gets Medical IT Outsourcing Deal

Plano, Texas-based Perot Systems Corp. will provide all IT management services, including application, program and project management, as well as systems implementation and infrastructure services, to Tufts-New England Medical Center Inc. under an agreement announced last week.

The deal calls for Perot to help the medical center split from its former corporate partner, Lifespan, a Rhode Island-based health system. Lifespan previously provided all IT services to the Boston-based medical center.

MATTHEW KRIEGER ■ PEER TO PEERS

Ten Ways to Increase Your IT Value

INFORMATION TECHNOLOGY departments are under more pressure than ever to prove their value in today's climate of continued economic constraints and depressed IT spending. In these times, we must be diligent about not losing sight of the fundamentals. Based on my nine years of experience in IT, here are 10 ways to increase your value and that of IT at your company:

1. Execution is everything; just get it done. True, it's a cliché, but more than ever, the business is in need of an IT department that can deliver. Don't get embroiled in endless analysis; take reasonable risks and just do it. You'll show the business that your department is competitive and action-oriented.

2. Deliver solutions, not ideologies. Drop the religious debates over Unix vs. Linux vs. Windows. Forget about historical allegiances to specific platforms, and resist the habit of calling yourselves the "Windows group" or the "Unix team." Just deliver the most appropriate solutions that are consistent with your enterprise's overall IT architecture at the most competitive cost.

3. Deliver a consistent message. Tactics change, but your strategy and vision should be good for the long haul. If you've got a solid message that's consistent with the overall corporate strategy and vision, repeat it enough and people will follow. But also remain agile and prepared to change, because at some point the technology and business will change.

4. Personally engage the business. Everyone knows that successful IT departments are closely aligned with the business, but for IT employees who work behind the scenes on networking and infrastructure issues, it may be difficult to see how your work contributes to the overall business.

Find your own hook into the business. Pick a project or a department, build the relationships, and show how you and your department can contribute to their goals.

5. Learn the "stack." In our IT department, we use the term *stack* to describe all the components of a particular system, from the physical infrastructure to the business application and content, and everything in between. The best IT people understand the application stack from bottom to top. Understanding applications and technologies this way makes you more valuable, engages you with the business and gives you a competitive advantage over those who understand just their piece.

For example, there's traditionally a gap between the developers who write an application and the network infrastructure people who provide the transport. Those who can bridge the gap by understanding how the application and the network interact offer extra value.

6. Consider less-conventional technology alternatives. Competitive IT departments recognize the value in low-cost, functional solutions. For example, a year and a half ago it was almost inconceivable to consider running a business with a productivity suite other than Microsoft Office. Today there are several lower cost or free alternatives, such as open source or inexpensive commercial suites, that are rapidly becoming functional replacements. The same is true for other product segments as well, so consider these before your next major upgrade.

7. It's a buyer's market, so take advantage of it. Vendors are more willing to negotiate than ever. Simply needing to survive, they're hot to compete. Take advantage by playing the field for commodity buys and driving down prices.

8. Think enterprisewide. Target your IT initiatives across the entire enterprise when possible. Cost pressures make it a necessity, because management will resist site-specific implementations.

9. Respect technology and the business it enables. It has become popular in the past several years to proclaim, "It's not the technology that's important; it's the business." While generally true, this phrase is overused. Let's face it — good technology can help to drive down the costs of doing business and enable new business, and that's a good thing. Maintain a healthy balance in your business/technology focus.

10. Develop a working knowledge of Linux. Windows isn't the only game in town anymore. Linux is becoming increasingly common, so it's important to understand the economic and technical issues around it. You'll be better prepared to answer your customers' questions as a result. ●

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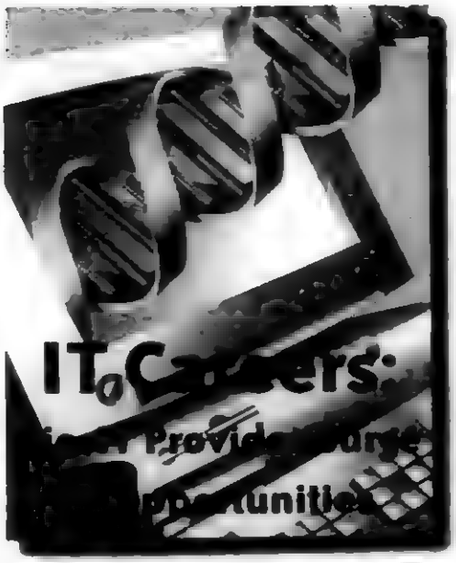

One way to trace career opportunity is to trace dollars allocated for research and new product development. The search in 2003 through 2006 points to bio- and chem-informatics. With funding from the National Science Foundation, the Department of Homeland Security and the Department of Defense, both areas are looking at annual growth of up to 18% per year, according to IDC research. Theo Chisholm, spokeswoman for IBM Health Sciences, said once mapping of the human genome opened the gate, the need for systems to mine and process data exploded. IBM estimates the market to exceed $30 billion per year in the U.S. by 2006.

Take note: the growth isn't just a U.S. phenomenon. Bio-IT spending, according to IDC, will more than double in the next three years in Australia and New Zealand, where more than 300 biotech firms are employing over 6,500 people.

The mission for informatics is two-fold. First, there is intense pressure to identify new targets in pharmaceuticals and health treatment quickly and at a lower cost. Just as important is eliminating targets that won't prove out as quickly as possible. In the defense and security category, there's pressure on everything from sourcing a new smallpox vaccine to addressing probable bio-toxins that could be used as weapons. On the chem-informatics front, chemistry and IT are married up in developing new detection systems for use in public buildings and areas, as well as in military action.

What's rare in the industry are people qualified for the work, knowledgeable in the sciences – biology and chemistry – as well as in applied mathematics and information technology. Companies are looking for people who have built, used and applied IT tools to data, from DNA to outcomes of clinical testing. The Whitehead Institute Center for Genome Research estimates that about half as many people are prepared for the field as are needed long-term.

For IT professionals interested in the bio-IT field, there are some stepping stones to landing the jobs. The key languages used are C++, Java, Fortran and Perl. Many times, the toughest experience to get is in the biological sciences – where IT is applied for the purpose of biological findings, not just for development of new applications. Dual degrees, for that reason, are important. Numerous master's degree programs have opened in bioinformatics, and the Center for Bioinformatics and Computational Biology offers a mentoring program. On-line courses also can supplement experience. Certifications include the Certified Bioinformatics Specialist and the Certified Bioinformatics Master.

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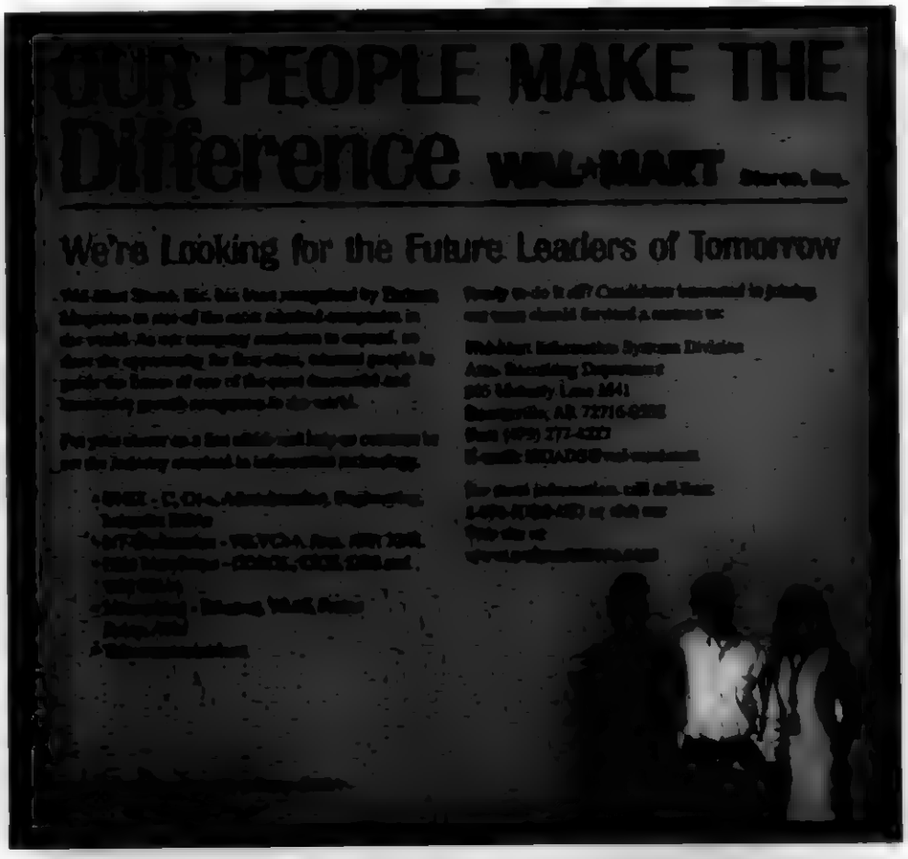

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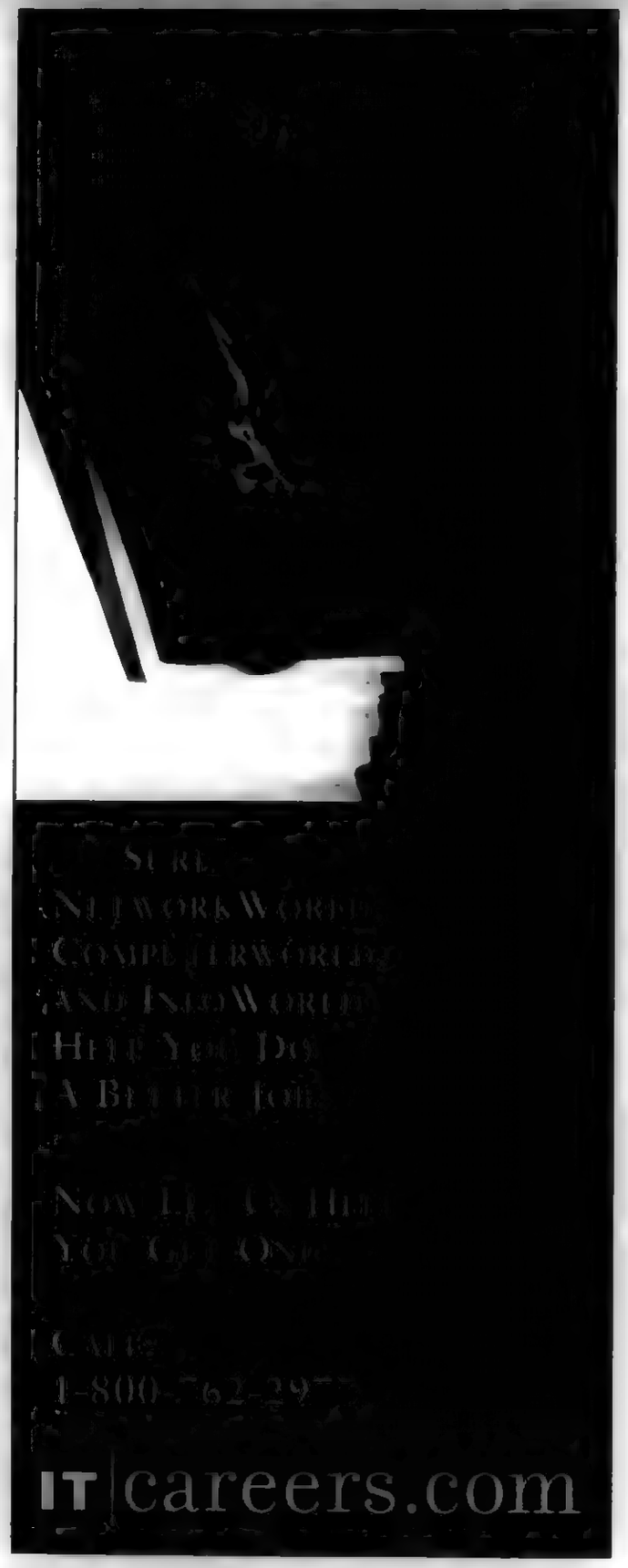
Software Developer for text analysis and development of programs in many languages esp. Korean + development of categorization extraction and email alerts software. Reqs: Masters + 0 experience or Bachelors + 2 years experience. Fluency in Korean. Send resume to: Teragram, 236 Huntington Ave. #302, Boston, MA 02115, Attn: Yves Schabes. NO CALLS.

Web Developer: Design, Develop, test, maintain and provide web based automated competency based workforce assessment system for HRMO. Req. Bachelor's Degree or equivalent in CS plus 11 months experience in job offered or in programming. proficient in Dreamweaver MX, Authorware, Fireworks MX, Flash MX, JavaScript, Illustrator, ASP, CSS, and Dhtml. 40hr/wk, 9-5. Contact Business Computer Applications, Inc. at 2180 Satellite Blvd., Suite 325, Duluth, GA 30097.

Sr. Engineers Needed. Seeking cand. poss. MS or equiv. &/or rel. work exp. 1 yr. of the req. rel. exp. must incl. working w/ microprocessor/microcontroller based software/hardware, VC++ and COM/DCOM. Mail res. & ref. to BTMD, Inc., 3 Leonard Rd., Mendon MA 01756, ATTN: HR



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Sr. Programmer/Analyst to perform full life cycle development of client/server applications, gather project information, design, create databases, code & test applications, provide production support, run reports, trouble shoot, mentor & assist Jr. Programmer/Analysts. Work with ASP, ASP.Net, VB, Cold Fusion, SQL Server 2000, Oracle, XML, J2EE and Crystal Reports. Required B.S.C.S and 2 years related experience. M-F/40hrs/wk. Freq. reloc. within U.S. may be necessary. Send resume to J. Brigham, HR Ref. AJ2, TEK Systems, Inc., 7301 Parkway Drive, Hanover, MD 21076. EOE.

IT SPECIALIST to install, configure, and support network systems; develop, maintain and administer automated computer systems including PowerFields, EDCONN, NSLDS, ELM, and mainframe; coordinate the automation, updating, and maintenance of current and future technological processes; responsible for the coordination and production of regular financial reports in an accurate and timely manner. Require: Bachelor's degree in Computer Science/Information Systems. Competitive salary and benefits. Mail resume to: Director, Human Resources, Alabama A&M University, P.O Box 305, Normal, AL 35762.

Instructor (Computers). Teach courses including demonstrations on LAN/WAN & vendor spec. courses in Cisco & Microsoft. Manage Cisco lab including 12 routers, 6 switches, access server and 12 workstations & provide counseling. Req: BS in Comp. Sci., Comp. Eng., or Elect. Eng. + Certificate in Cisco & Microsoft. 40 hrs/wk. Job/Interview Site: Woodland Hills, CA. Send resume to Oxford Institute of Technology. resume@oitcareer.com.

Software Engineer - Rocklin, CA. Require experience in design and development of applications using Oracle, Java, XML, Oracle Financials, Windows NT and UNIX. Relocation within USA Possible. Attractive compensation package. Send resume to Steve Gabelich, Calwest Consulting, LLC., 1620, Iroquois Rd., Rocklin, CA 95765.

Seeking qualified applicants for the following positions in Memphis, TN: International Systems Advisor. Define, plan, organize and provide project leadership for the development and implementation of worldwide regulatory clearance systems. Requirements: Bachelor's degree* in computer science, math, engineering, business or related field plus 7 years of experience in defining system requirements and/or project leadership in the development of user systems. Experience with customs clearance systems, data extraction using SQL and RDBMS also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Greg Dixon, Federal Express Corporation, 3650 Hacks Cross Road, Memphis, TN 38125. EOE M/F/D/V.

Network Components LLC has several openings for Web Services engineers. Must have knowledge of back office systems such as ADP/SIS, Beta, Phase 3 and be able to develop applications and administer WAS, WLS, UDB and Oracle on Linux and Solaris. Must have knowledge of MQMs with JMS implementation. Should be comfortable with Ant and CVS for code repository and release management, and with Visual Age IDE and WAS Studio for development. Requires: B.S with one year experience in enterprise wide systems development using J2EE platform and Brokerage Business Objects. Send resumes to: HR, Network Components. 200 West 72nd Street, Suite 24, New York, NY 10023 or by fax 212.362.3822

Software Engineers & Programmers (Atlanta, GA & Jacksonville, FL): Analyze, design and develop real time apps. to monitor Cable Network outages in GIS and COM+ technologies including MapInfo, MapXtreme, GTViewer, MS Dev. Tools, web technologies, SQL Server and related RDBMS in Win 2000/Citrix. To apply or for complete job description, respond to Think Resources, Inc., Attn: GIS Recruiting, 260 Technology Parkway, Norcross, GA 30092. EOE.

Director of S/ware Applics & Prgmg-LA. Manage & coord comp. prgmg & s/ware applic activities. Bach in comp. sci., CIS or relid comp. fld +4 yr exp in job offrd or as s/ware dvlpmt mgr. Must be proficient in Code Warrior on MacOS, MS Visual C++, x86 Assembly, Power PC Assembly, Nintendo GameCube OS & Python, & familiar w/3-D graphics & human interface dsgn. Send resume & ltr to Denise Dunlap, Vivendi Universal Games, 6080 Center Dr., Los Angeles, CA 90045.

Seeking qualified applicants for the following positions in Colorado Springs, CO: Programmer Analyst. Define, initiate, develop and deploy company website. Requirements: Bachelor's degree* in computer science, MIS or related field plus 5 years of progressive experience in software development. Experience with SQL Server, Webtrends Log Analyzer and O'Reilly Website Professional also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Scott Davis, FedEx Freight Systems, 350 Spectrum Loop, Colorado Springs, CO 80921. EOE M/F/D/V.

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PROGRAM ANALYST: Gather info. on data processing reqs, prep. spec. for installation of web compliant applications. Obtain info on limitations and capabilities of their existing sys. & res. req. for the project. Help Sr. Program to determine hardware configuration. Monitor application are in conformity w/ sys. arch. Req: BS in Comp. Science, Comp. Eng., or Elect. Eng. - 40hrs/wk. Job/Interview site: Manhattan Beach, CA. Send resume to Rich Homes, Inc., 2905 A Sepulveda #151, Manhattan Beach, CA, 90266.

Systems Analyst to Write Stored Procedures (using MS Visual Studio.net), Views, User Defined Functions & Select Statements using SQL Server 2000. Test & execute Stored Procedures using SQL Query Analyzer. Use Enterprise Mgr & MS Mgmt Console to create, save, & open MMC consoles to manage hardware, software, & network components of Windows system. Save all Procedures, Views, Function Scripts using Visual Source Safe. Utilize Test Director for testing. Design Rpts using Seagate Crystal Rpts 8.5 & Cognos. Provide tech support. BS in Comp Sci. + 3 yrs. Exp. in job duties. Apply: Acres Gaming, Inc., 7115 Amigo, Suite 150, Las Vegas, NV 89119 with proof of perm. work authorization.

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- Lotus Notes Developer
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Requirements: Bachelor's degree in a quantitative discipline such as Statistics, Economics, or a related field and two years experience with data management, or in an analytical and/or quantitative role. Experience with SAS or FOCUS strongly preferred. A master's degree in Statistics, Economics, Operations Research, or related discipline can be substituted for experience requirement.

Please forward your resume and a cover letter referencing code number NA033080 to: S. D. Alexander, MBNA America Bank, N.A., 1100 North King Street, Wilmington, DE 19884-0242. We're proud to be an Equal Opportunity/Voluntary Affirmative Action Employer.

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Atlanta, Georgia 303046

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Sr System Specialist (Boston, MA) - Lead design, development, maintenance, & documentation of Web portal for Small Business Services line of business. Responsibilities incl: lead analyses, sys design, & sys architecture; program in Java, JavaScript, C/C++, & Oracle; identify areas of risk & present mitigation plans; demonstrate expert understanding of sys design & development, technology support, & data processing standards; assess impact of technology support organizations on system's technical direction; provide consultative services for technical business opportunities; train business units on new or changed products, processes, & services; assist jr staff in performance of these duties. Min. req'ts: Master's degree in Computer Science, Engineering, or related field, no exp req'd, will also accept Bachelor's degree plus 5 yrs progressive exp in the field. Must have unrestricted authorization to work in U.S. M-F, 9:00AM - 5:00PM, 40+ hrs/wk. Salary range: $95,800 - $119,500/yr. An EOE. Send 2 copies of resume to Case No. 200115876, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

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Associate Staff Software Engineer - Req. Master's degree in Computer Eng., Computer Science, or Electrical Eng. & 2 years' exp. in the job offered or 2 years' exp. in systems integration & coding of DOCSIS (Data Over Cable Service Interface Specification) 1.0 & 1.1 applications on a real-time embedded system for digital set-top boxes. All stated exp. must incl. integration of up-converters, RF combiners, & vector signal analyzers, & coding of baseline privacy, keying encryption protocols. Lead conceptualization, definition, and design of new services and clients on network & application processors for digital video systems. Coordinate teams engaged in design and implementation of DOCSIS 1.0 and 1.1 cable modem applications on a real-time embedded system on Digital Video Recorder set-top boxes, accounting for operational parameters resulting from systems integration & coding limitations. 40 hrs./wk. 8:00 a.m.-5:00 p.m. Apply with resume to: Scientific-Atlanta, Inc., c/o Ellen Queen, 5030 Sugarloaf Parkway, Lawrenceville, GA 30044. Please reference job #5321

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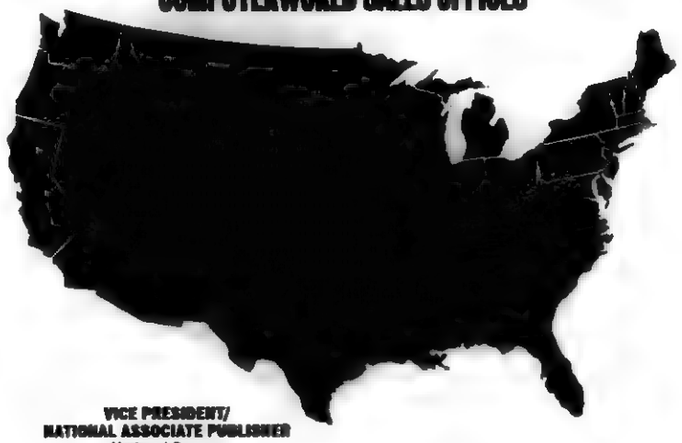

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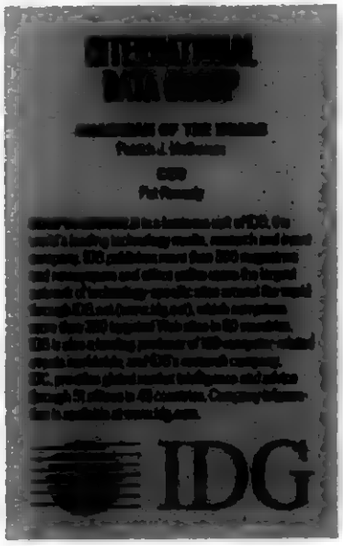

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Microsoft App Users Like Portal Plans but Want More

Initial ties between CRM software and back-office applications due in April

BY MARC L. SONGINI
KISSIMMEE, FLA.

AT MICROSOFT Corp.'s Convergence 2003 conference here last week, a half-dozen users expressed interest in a portal-style user interface that the software vendor is developing for its business applications. But some attendees said they're still looking for more functionality from Microsoft.

For example, Bill Siemering, CIO at HealthForce Partners Inc. in Seattle, said the health care provider began beta-testing the Microsoft Business Portal earlier this month. HealthForce, which runs Microsoft's Great Plains financial and accounting applications, plans to use the portal as a central spot for delivering company news and letting end users access data related to their jobs or to specific business projects, Siemering said.

One big plus of the portal software is that it's tightly integrated with the Great Plains products, Siemering said. But he added that he also wants to see Microsoft provide out-of-the-box connections between the portal and other applications, such as the customer relationship management (CRM) software it shipped in January.

Developing Ties

As expected, Microsoft used the conference to announce the portal and to preview another upcoming software offering that's designed to boost the ability of its applications users to collaborate with their customers and suppliers [QuickLink 37030].

Mark Jensen, a group product manager at Microsoft's business solutions unit, said IT managers will be able to collapse multiple application screens into a single Web browser interface and then custom-configure the portal for different workers. End users will get direct access to applications through a single sign-on tool, Jensen said.

The first portal release, due next month, will include full integration with Microsoft's Great Plains and Solomon applications. Ties between Great Plains and the new CRM software are being beta-tested and should be available right off the bat, Jensen said. Integration of Microsoft CRM and Solomon should follow later this year, he added.

Gibson Musical Instruments, a maker of guitars and other stringed instruments in Nashville, is a Great Plains user and has been beta-testing Microsoft Business Portal with about a dozen users for five weeks.

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As part of the Microsoft Business Network collaboration initiative, Microsoft plans to release software in June that will let companies use XML to exchange documents in electronic data interchange formats. The company said it will add Web services broker technology to the collaboration offering, but it didn't disclose a specific schedule.

Continued from page 1

Longhorn

Valentine said he doesn't think operating system waves can be absorbed by customers any faster than in two- to three-year cycles. That means the successor to Longhorn, code-named Blackcomb, is now loosely pegged for 2007 or 2008, he confirmed.

Those dates extend the most recent timelines that Microsoft has supplied. Until last week, company officials had been saying that Longhorn wouldn't ship before mid-2004 and that Blackcomb wouldn't ship before late 2005 or early 2006 [QuickLink 34454].

Also contrary to prior information supplied by Microsoft, Blackcomb may have both client and server releases, according to Valentine. Microsoft had indicated that Blackcomb would be for servers only, but last week Valentine said that every Windows wave has to include a desktop operating system because "we always want to demonstrate the infrastructure with improvements in our own end-user device stuff."

Valentine said a new server kernel will probably be required for the Blackcomb release, so he expects that there will be both client and server operating system releases. But he was quick to add that no commitments have been made yet and that it's too early to tell if there will be a Windows Server 2006.

To support client capabilities in Longhorn, Valentine said, minor or simple infrastructure services might be delivered as part of an optional service pack. But he said the Windows team wants to restrict service packs primarily to bug fixes.

Valentine said more extensive changes will likely be delivered separately. He pointed to the real-time communications capabilities being enabled in the next version of Office as one example. He said that will spur the need for a real-time communications infrastructure involving the server operating system.

SOURCE: BRIAN VALENTINE, MICROSOFT CORP.

Kernel Consistency

Any additions or changes to the Windows server operating system that coincide with the Longhorn release will be done on top of the kernel for Windows Server 2003, which is due to ship next month, according to Valentine. He said he views the server kernel as more than a memory manager and I/O subsystem; it also encompasses core services such as Active Directory and public-key infrastructure technology.

"Those things aren't going to dramatically change for the Longhorn wave," he said. "There will be some new management infrastructure that comes out in there, but that'll be overlaid on top of the server kernel."

Because the kernel won't change, customers who migrate to Windows Server 2003 won't lose their investment in that operating system should Microsoft decide to release the Longhorn server operating system, Valentine said.

In November, when Microsoft announced that Longhorn would be a client-only release, an official cited the delayed shipping date for .Net Server 2003 as the impetus for that change in plans. Bob O'Brien, a group product manager in Microsoft's Windows server division, called it a "common-sense decision" based on customer feedback that Longhorn would emerge too soon after Windows .Net Server 2003.

Valentine last week called the November announcement "a bit premature," based on engineering planning.

Dwight Davis, an analyst at Summit Strategies Inc. in Boston, speculated that the changes disclosed last week could relate to new management initiatives that Microsoft also announced (see story, page 12).

"It's going to be a big initiative, sucking lots of Microsoft R&D dollars, and the operating system groups have to be aligned with that," he said.

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BY MARC L. SONGINI
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NEW PRODUCTS

Microsoft Business Portal: Provides Web browser access to business applications and data. **Release date:** Next month, with ties to Microsoft's Great Plains and Solomon applications

Microsoft Business Network: Software and Web services designed to streamline collaborative applications between companies. **Release date:** June

Great Plains 7.5: Combines previously separate applications for managing areas such as finance and supply chain operations. **Release date:** Late next month

Solomon 5.5: Upgraded set of applications for midsize companies, with data integration and ease-of-use enhancements. **Release date:** By midyear

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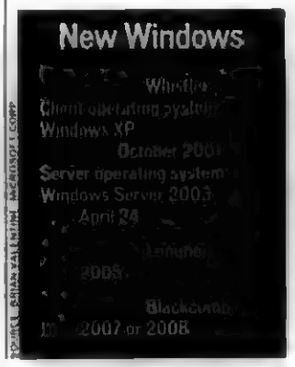
Those dates extend the most recent timelines that Microsoft has supplied. Until last week, company officials had been saying that Longhorn wouldn't ship before mid-2004 and that Blackcomb wouldn't ship before late 2005 or early 2006 [QuickLink 34454].

Also contrary to prior information supplied by Microsoft, Blackcomb may have both client and server releases, according to Valentine. Microsoft had indicated that Blackcomb would be for servers only, but last week Valentine said that every Windows wave has to include a desktop operating system because "we always want to demonstrate the infrastructure with improvements in our own end-user device stuff."

Valentine said a new server kernel will probably be required for the Blackcomb release, so he expects that there will be both client and server operating system releases. But he was quick to add that no commitments have been made yet and that it's too early to tell if there will be a Windows Server 2005.

To support client capabilities in Longhorn, Valentine said, minor or simple infrastructure services might be delivered as part of an optional service pack. But he said the Windows team wants to restrict service packs primarily to bug fixes.

Valentine said more extensive changes will likely be delivered separately. He pointed to the real-time communications capabilities being enabled in the next version of Office as one example. He said that will spur the need for a real-time communications infrastructure involving the server operating system.



Kernel Consistency

Any additions or changes to the Windows server operating system that coincide with the Longhorn release will be done on top of the kernel for Windows Server 2003, which is due to ship next month, according to Valentine. He said he views the server kernel as more than a memory manager and I/O subsystem; it also encompasses core services such as Active Directory and public-key infrastructure technology.

"Those things aren't going to dramatically change for the Longhorn wave," he said. "There will be some new management infrastructure that comes out in there, but that'll be overlaid on top of the server kernel."

Because the kernel won't change, customers who migrate to Windows Server 2003 won't lose their investment in that operating system should Microsoft decide to release the Longhorn server operating system, Valentine said.

In November, when Microsoft announced that Longhorn would be a client-only release, an official cited the delayed shipping date for .Net Server 2003 as the impetus for that change in plans. Bob O'Brien, a group product manager in Microsoft's Windows server division, called it a "common-sense decision" based on customer feedback that Longhorn would emerge too soon after Windows .Net Server 2003.

Valentine last week called the November announcement "a bit premature," based on engineering planning.

Dwight Davis, an analyst at Summit Strategies Inc. in Boston, speculated that the changes disclosed last week could relate to new management initiatives that Microsoft also announced (see story, page 12).

"It's going to be a big initiative, sucking lots of Microsoft R&D dollars, and the operating system groups have to be aligned with that," he said. ▶

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FRANK HAYES ■ FRANKLY SPEAKING

Avoid Burnout

HOW BAD IS THE IT BURNOUT PROBLEM? Pretty bad. Next week, Meta Group will issue a report that says 71% of IT managers surveyed believe employee burnout is a serious issue in their organizations. Burnout means reduced productivity, higher turnover and generally lousy performance — which is exactly what corporate IT shops can't afford as budgets keep getting tighter and demands from the business side keep getting louder.

Of course, that survey doesn't actually mean that only 71% of IT shops have a serious burnout problem among their employees.

It means the other 29% haven't figured it out yet.

The statistics are part of Meta's annual "IT Staffing and Compensation Guide," which also says the way most IT departments are dealing with the problem is by offering skills-development programs. A minority are beefing up their retention programs, raising salaries, offering cash incentives and, in a few cases, even moving employees to completely new locales to try to improve morale.

Those are all good ideas. Some cost more than others, and now is a bad time to look for money to spend. Still, if you're a CIO, you should throw your support behind solving the burnout problem.

But if you're an IT manager or team leader, don't jump into this one with both feet just yet.

Before you look for money for training or raises or bonuses, first understand the problem you're trying to solve.

Burnout means people have stopped caring. That's the symptom.

But before you can make your people care again, you've got to know what they care about — what drives them.

Raises and bonuses will work for employees who are driven by the money. (That doesn't mean they're greedy, just that they keep score with those dollars, and more money makes the game more interesting.)

And training will work for employees who are driven by a desire to learn new things. That category includes a lot of IT people.

But not all of them.

Some employees are driven by challenges. They want to try things they're not sure they can do.

Some are driven by accomplishment. They get their satisfaction from finishing the job.

Some live for variety — they want to keep trying new things. Some are happiest with stability that lets them keep getting better at what they do. Some want to do small things well. Some want to work on big projects that will change the world.

Some are driven by the desire for praise. Some are driven by loyalty. Some are driven by commitment to the team.

In each case, if they're not doing what they care about, they'll get burned out. And if you throw bonuses or training at people who are driven by challenge or variety or accomplishment or praise or team commitment, you're wasting time and money. That's not what they care about, so it won't help their burnout. One size won't fit all. It never does.

You know what drives many of your people. If you don't know, ask their former managers and team leaders. Or ask the employees themselves. Just don't assume the things that motivate you also motivate them. And don't decide they *should* be motivated by those same things.

Figure out what each of your people needs, starting with the ones showing the clearest signs of burnout. Then start looking for ways to tweak their jobs so they're getting more of what they really care about.

Yeah, that's a lot of fine-tuning. And it's a lot more touchy-feely than many IT people — in the trenches *and* in management — are really comfortable with.

But if you want to turn your burnouts around, give them what they need.

Then they can give you the performance you need. ◗

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

Security First

After government auditors demand beefed-up security, this financial institution installs a push-button electronic lock on its data center doors. "The next evening, when our courier came for the nightly pickup, the driver walked in as usual," says pilot fish on duty. "Did someone leave the door open?" fish asks. "No, it was closed and locked," says driver. "But when I see one of these locks newly installed, I just try the factory default combination. It generally works."

But It Sure Looks Great

Just after video terminals replace keypunch machines at this college, one administrator insists he needs a terminal in his office. IT pilot fish knows it's the administrator's secretary who does all the inquiries for him, but the administrator gets his terminal anyway. "About two years later, the call comes that the terminal is smoking and needs to be replaced," says fish, who checks it out. "It has burned out from being in the sleep state. He's never been logged onto the system!"

Forward Into the Past

Customer tells this sales pilot fish that he can't use the vendor's Web site to order products. "Your help desk told us it's because we're running Mac OS X and the browser is incompatible with your site," customer says. Frustrated fish calls Web manager and is told the customer has the story right. "But there's a work-around that has been tested and does work," Web manager says. "Downgrade all the customer's Macintosh systems to Mac OS 8.5 and they'll work fine!"

Hose It Down

IT pilot fish and his boss are working late when they notice the lights on the dial-in server are blinking. Out of curiosity, they run a trace on the firewall and identify the traffic as coming from pornographic Web sites. "Only one person was logged in: the CEO," says fish. Sometime later, CEO brings in his laptop and asks that fish "clean it up" so he can give it to his daughter. "Guess what we found in the browser cache?" says fish. "Images from those same sites."

Lights Out

As the IT guy for this large church, pilot fish supports several traveling pastors — including one who keeps calling about a low-battery warning on his laptop. Is the charger plugged in? fish asks the pastor during yet another call. "Yes, it is," pastor says. "And I really dislike you thinking I don't know how to operate my laptop!" Fish tries again: Is the outlet you plugged it into on a wall with a switch by the door? he asks politely. The response: *Click.*

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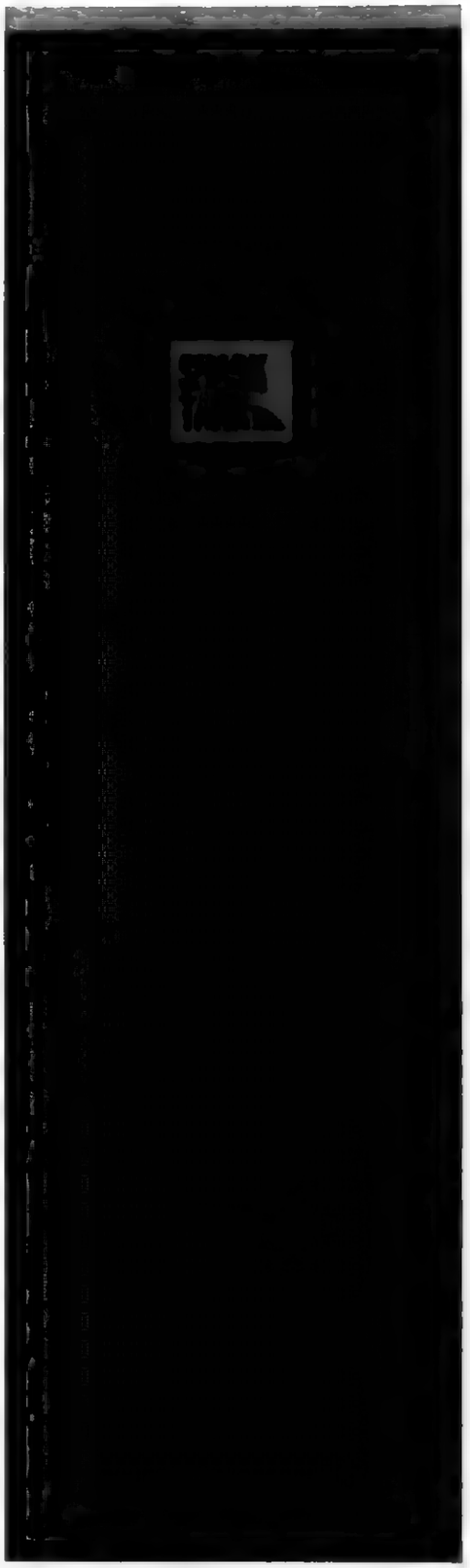

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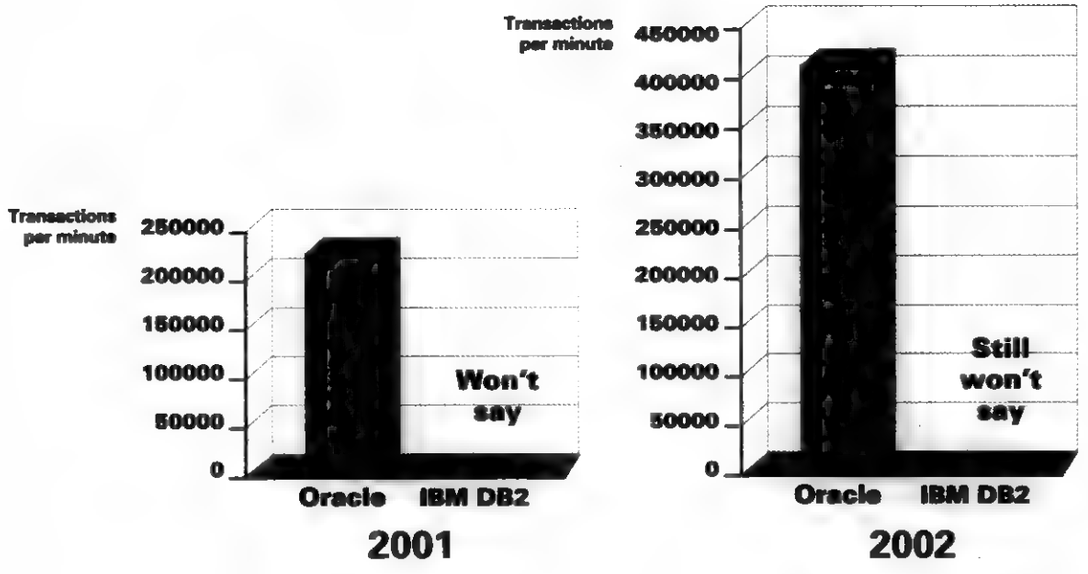

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PHIL HOLLINGSEA

Running mission-critical applications on an untried operating system is a bigger gamble than most companies are willing to take. Early adopters of Microsoft's Datacenter Server say the high-end Windows operating system delivers on reliability but could benefit from less vendor finger-pointing and more flexible hardware offerings. Page 27

LIVING WITH DATACENTER SERVER

IT at Heart of 'Shock and Awe'

With U.S. invasion, era of 'network-centric warfare' has dawned

BY DAN VERTON
WASHINGTON

Military officials and experts are characterizing Operation Iraqi Freedom as the most IT-intensive military campaign in history. The campaign, officials said, puts to the test a "network-centric warfare" strategy that has been under development since the first Persian Gulf War 12 years ago.

"There are more computers on the battlefield than ever before," said Col. Mark Bowman, operations officer for the U.S. Army's 11th Signal Brigade. In fact, there are so many computers involved in managing the modern battlefield that digital data networks have become more important to senior commanders than traditional voice networks, he said.

The deployable headquarters facility of the U.S. Central Command in Doha, Qatar, was designed by Lexington, Mass.-based Raytheon Co. prior to the terrorist attacks of Sept. 11, 2001. However, as military

IT in Iraq, page 7

NEWSPAPER

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Technology Aims To Sync Users' Communications

Siemens and Verizon moving to consolidate end-user access to voice and messaging systems

BY MATT HAMBLEN

Siemens AG today will announce IP-based networking software designed to synchronize voice communications, messaging and real-time collaboration tools on a mix of devices, including PCs, cell phones and pagers.

New York-based Verizon Communications last week confirmed that it plans to roll out similar functionality later this year as a service for both corporate and residential customers. Analysts said other telecommunications carriers are also planning such moves.

CONVERGENCE

Mark Straton, senior vice president of global marketing at Siemens Information and Communication Networks Inc. in Boca Raton, Fla., said the Siemens unit's OpenScape Version 1.0 software will provide users with consolidated access to all corporate communications resources. That includes phone calls, voice mail, e-mail, instant messaging and tools for Web, voice and videoconferencing, he said.

Users will be able to configure OpenScape with personalized rules to govern how incoming phone calls and e-mail messages should be forwarded to them, Straton said. Like IM systems, OpenScape supports presence awareness so users can see when other workers are logged onto networks.

Douglass Crawford, director of network services at Kaiser Permanente Health Plan Inc.

Convergence, page 16

Mainframe Brain Drain Looms

Retirements to sap expertise; data center group offers training

BY PATRICK THIBODEAU
LAS VEGAS

A mainframe skills shortage is emerging as subtly as gray hair. It's bumping up training costs and raising concerns among data center managers who wonder how they will replace retiring green-screen wizards with workers weaned on Windows and open systems.

Addressing a problem it says has the potential to become acute over the next five to seven years, a data center professional association last week announced a program to help companies attract and train IT professionals to prevent a future shortage of mainframe workers.

At its semiannual conference here, AFCOM outlined a Data Center Knowledge Initiative that includes offering online courses in data center

Mainframers, page 61

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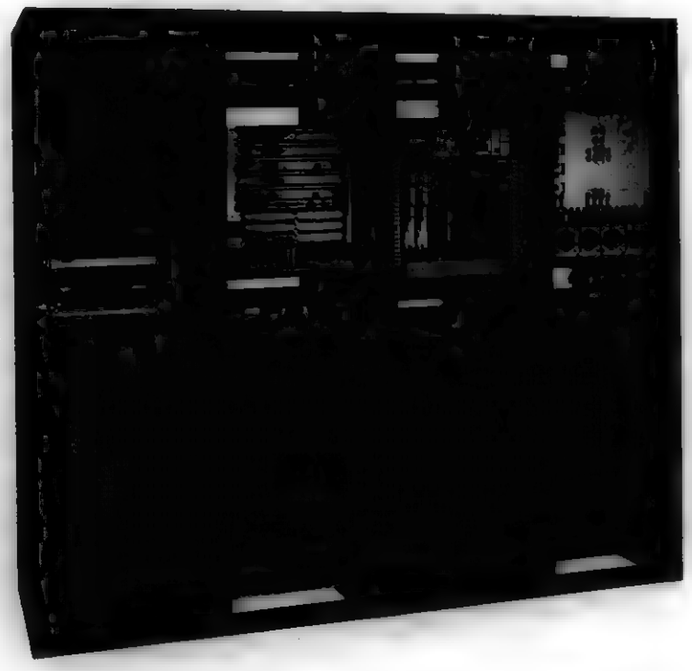

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Cold Calls Feeling the Heat

In the Management section: Compliance with do-not-call laws is becoming a matter of business survival for companies that reap big revenues through phone-based solicitations. IT managers can play a significant role in helping to automate the process. **Page 45**

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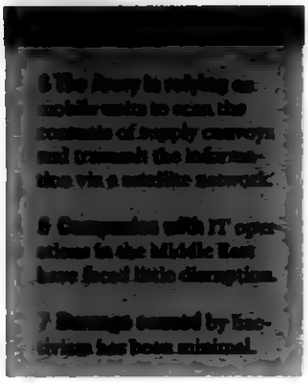

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Take Cover With the Blue Chips

STORAGE: As economic conditions get tougher, the tough guys are seeking cover within the shadow of blue-chip vendors, says Jon William Toigo in this column for *Storage Networking World Online*. QuickLink: 37230

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Army Uses Mobile Technology, Satellite Link to Track Supplies

Data scanned from supply convoys updates asset-tracking system in U.S.

BY MARC L. SONGINI

AS PART of the war with Iraq, the U.S. Army has deployed 64 mobile units equipped with portable systems that are being used to scan information about combat and supply vehicles and send the data via a secure satellite link to the Army's central asset-tracking system.

The deployment of the units in Kuwait and unspecified other locations marks the first time the Army has connected mobile users to the asset-tracking system, said Gary Winkler, project manager of the Army's Transportation Systems Joint Program Management Office.

The application, called the Transportation Coordinator's Automated Information for Movements System II (TC-AIMS II), is built around a Sybase Inc. database that runs on a Windows server. The technology was first used in 1998 and is located at a facility near Fort Belvoir, Va.

Winkler said the mobile units sent to the Gulf region each have a 65-lb. case containing a ruggedized laptop PC, wireless bar code and radio frequency identification readers, a printer and other peripheral devices.

The equipment can be stationed at roadsides or intersections and used to scan vehicles in army columns and supply convoys as they approach, he said.

Wireless Transmission

The data is sent to the TC-AIMS II system via the U.S. Department of Defense's secure wireless network, which is provided by Iridium Satellite LLC in Arlington, Va. When TC-AIMS II gets a feed from the Iridium network, it automatically creates new entries and updates information in the Sybase database, Winkler explained.

From there, the data is presented to military officials in the field and at the Pentagon via map-style graphical user interfaces. "It gives commanders real-time information about where people and equipment are," Winkler said. "And they know when they get to the final destination." Up to 15,000 end users access the system at any given time, he added.

By comparison, earlier applications used to track materials "did not provide 'in-the-box' visibility," Winkler said. "They simply documented that a container was shipped and arrived. Consequently, all that was known was that there was a box container in a [military] theater, but no one knew exactly what was in the box."

TC-AIMS II was developed in the aftermath of the first Gulf War in a joint services project led by the Army. The Navy deployed the system in December and used it to prepare manifests of cargo and military personnel on ships that were sent to the Persian Gulf, Winkler said.

CORBIS SYGMA

Soldiers at Fort Benning, Ga., load a truck with supplies bound for Kuwait. Colonel Morgan (fore ground) hoists a box used to transport items like computers and communications equipment.

Global View

The Army is also working to integrate TC-AIMS II with two other logistics and transportation systems in an effort to provide a consolidated view of the location of military personnel and materials in the air and on sea or land, he said.

One of those applications, called the Automated Air Load Planning System (AALPS), calculates the amount of cargo space available on aircraft. An integrated version of TC-AIMS II and AALPS is now in testing, according to Winkler.

The integration project is also due to include the Integrated Computerized Deployment Execution System, which manages the loading of ships. Winkler said IT managers plan to seek approval from the Pentagon to put the combined system into production in December.

U.S. IT Workers in Middle East Stay Put

BY TODD R. WEISS

As the war in Iraq intensifies, multinational companies are keeping a close watch on their IT operations in the Middle East and are preparing to react quickly if conditions deteriorate. But none of the companies that spoke with *Computerworld* last week have recalled any U.S. IT workers from the region.

For example, American Express Co. has about 200 IT workers in the Middle East, including an undisclosed number of Americans, said company spokesman Tony Mitchell. While no employees have yet been pulled out, Amex has been re-evaluating and strengthening its security procedures in the area as a precaution, Mitchell said.

Companies are generally tight-lipped about their contingency plans in the area for security reasons. Outsourcing vendors Affiliated Computer Services Inc. and Computer Sciences Corp., automaker Ford Motor Co. and energy company British Petroleum PLC all refused to comment for this story. Other companies spoke only in general terms.

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>
> JOE STUNKARD, SPOKESMAN, IBM

Stephanie Hampton, a spokeswoman for Washington-based Marriott International Inc., said the company has six hotels in the Middle East, each with its own IT systems managers.

"It's business as usual at this point," Hampton said. The company has contingency plans in place for workers, but no details are being released, Hampton said.

Diesel engine manufacturer Cummins Inc. in Columbus, Ind., doesn't have a large IT presence in the region, said spokesman Jason Rawlings. But the company will make relocation available to any expatriate workers who feel uncomfortable where they are, he said. Most of Cummins' IT employees in that part of the world are in India and aren't directly affected by the war, he said.

Maintaining Systems

Sun Microsystems Inc. has a "very small number" of U.S. IT workers in the Middle East and has plans in place to maintain its IT systems in the event of an evacuation, said Sun spokeswoman Diane Carlini.

Joe Stunkard, a spokesman for IBM, said few IBM employees are in the countries surrounding Iraq and that most of the company's work in the region is carried out by business partners. "We're assessing the potential impact on our employees, customers, facilities and partners, and will take appropriate actions to protect and maintain our business operations," he said. "At this present time, we're not aware of any business disruptions related to Iraq."

John Shaw, a spokesman for air conditioning and heating supplier Carrier Corp. in Farmington, Conn., said there are no U.S. IT workers in the company's offices in Saudi Arabia, Bahrain, Lebanon, Egypt or the United Arab Emirates. And so far, he said, conditions haven't deteriorated for the company as a result of the war.

"There doesn't seem to be any backlash against American companies that I'm aware of," Shaw said. "Business is business, and politics is what it is."

Reporter Thomas Hoffman contributed to this story.

Little War-Related Hactivism Reported

BY JAIKUMAR VIJAYAN

The vast majority of war-related cyberattacks last week appear to have been little more than low-level Web site defacements that had little or no impact on U.S. businesses.

But the sustained denial-of-service attacks that crippled the English-language Web site of Arab satellite TV network Al-Jazeera served as a sobering reminder of just what can happen if a company does become a hactivist target.

One week into the war with Iraq, most of the predicted cyberfallout appears to have been limited to the Web equivalent of graffiti, said security experts. "At least 99% of the attacks are pure defacement of Web sites" with pro- and anti-war messages, said Michael Albrecht, a manager at F-Secure Corp. in Helsinki, Finland.

The company estimated that as many as 10,000 Web sites worldwide may have been defaced since the war began. Although U.S. government and military sites appear to be targets of choice, vandals are attacking any vulnerable service they can find, Albrecht said. In most instances, the attacks appeared to be coming from individuals rather than from organized groups or government entities, he added.

No Surprises

The level of hacking activity has been no different from usual, said Marty Lidner, an incident-handling team leader at the CERT Coordination Center at Carnegie Mellon University in Pittsburgh. "In the big scheme of things, the level of activity reported to us hasn't really changed," Lidner said.

"There has been no significant increase in Web defacement activity between prewar chatter and actual war," said Russ Cooper, an analyst at TruSecure Corp. in Herndon, Va. "A defacement may say 'No war,' but it would have said 'No cheese' or something else if there had been no war."

The minimal impact on business systems so far isn't surprising, said Dave Krauthamer, director of information systems at Advanced Fibre Communications Inc. in Petaluma, Calif. "I think you need to be extremely skilled to hack into corporate systems," he said. "I don't think current events make the risk of cyberterrorism any greater."

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Moreover, most companies have revamped their management of security threats since Sept. 11, 2001, said Bruce Blitch, CIO at Tessenderlo Kerley Inc., a multinational chemical company with U.S. headquarters in Phoenix. For instance, Tessenderlo has further isolated critical plant-control systems and tightened security policies relating to its IT infrastructure.

"If what happened nearly two years ago didn't make a company pay attention to security, then it's unlikely that war with Iraq would change that," Blitch said.

Even so, the attacks on Al-Jazeera show what can happen if attackers get it right. The attacks began March 25 after the network posted photos of U.S prisoners of war. The Web site was almost totally inaccessible most of last week.

The site appears to have been hit with twin denial-of-service attacks, said Eric Seigel, a consultant at Internet performance monitoring company Keynote Systems Inc. in San Mateo, Calif. One was directed at the company's Web servers, the other at a core Domain Name System server that provides browsers with the address of Al-Jazeera's Web site, Seigel said.

Continued from page 1

IT in Iraq

tensions with Iraq began to rise, CENTCOM commander in chief Gen. Tommy Franks put the project into high gear.

Although Raytheon has been asked by the military not to divulge the specific IT systems in use, *Computerworld* has confirmed that the mobile headquarters facility includes a high-speed fiber-optic network backbone that can deliver video over IP to the desktop, as well as direct links to the hundreds of intelligence and surveillance systems and deployed forces in and around the Persian Gulf.

Video on the Battlefield

Col. Dan Gerstein, commander of the Army's 93rd Signal Brigade in Fort Gordon, Ga., said the integration of real-time video into the military's command and control operations marks a significant departure from the first Persian Gulf War. Although there was limited use of videoconferencing during Operation Desert Storm, ground forces today

U.S. General Confirms ... Attack Was ... deployed by Raytheon, at Camp Al Sayliyah near Doha, Qatar

are making use of battlefield videoconferencing systems as they advance on Baghdad, said Gerstein.

What's enabling that is the U.S. Department of Defense's Global Broadcast Service (GBS), which provides massive amounts of bandwidth to allow tactical commanders to receive imagery and other data from CENTCOM headquarters or unmanned aerial vehicles, said Gerstein.

The $500 million GBS is based on commercial direct broadcast satellite technology and provides high-speed data connections of more than 24M bit/sec. to tactical computers equipped with antennas as small as 22 in. in diameter.

The use of Global Positioning System (GPS) technologies is also being touted as a major improvement since Operation Desert Storm. Gerstein said some units are deploying GPS for "real-time situational awareness," allowing for the direct exchange of information among soldiers on the front lines, rather than requiring information to be routed through headquarters.

"The Gulf War was an analog conflict," said Gerstein. "Today, there are digital formations at much lower levels of command."

One such command is the Army's 4th Infantry Division, which has yet to arrive in Iraq. Based at Fort Hood, Texas, the 4th Infantry Division is the Army's first fully IT-equipped division. It will arrive in Iraq armed with software called Force XXI Battle Command Brigade and Below, which is designed to provide soldiers with vital battlefield information, especially the location of friendly and enemy forces.

Meanwhile, the U.S. Navy's missile-guided cruiser USS *Shiloh* is for the first time using a system called Area Air Defense Commander (AADC). Designed by General Dynamics Corp. in Falls Church, Va., and powered by a suite of supercomputers and high-performance servers from Silicon Graphics Inc. in Mountain View, Calif., AADC tracks hundreds of planes and missiles simultaneously. The system then displays the data on a 30-by-30-ft. "reality" screen that enables rapid transfer of digital information to end users.

"The average commander has 30 to 50 gigabytes of data to interpret at any given time," said John Burwell, SGI's senior director of government industry. By using a screen with a wide field of vision, the system enables users to interpret a lot of data in real time, he said.

John Hillen, senior vice president of Fairfax, Va.-based American Management Systems Inc. and a veteran of the first Persian Gulf War, said the pace and scale of the current conflict is nearly seven times that of Operation Desert Storm, though approximately one-third the number of troops are participating.

"This is where transformation has paid off," said Hillen. "The real IT story of this war is that it is the birth of network-centric warfare and the ability to make decisions rapidly. We're changing air sorties in flight. That was unheard of 10 years ago."

GPS Jamming

Coalition forces destroyed Iraqi GPS jammers that were allegedly supplied by a Russian company that has done business with the U. S. Army.

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AT DEADLINE

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Lucent Settles 54 Shareholder Suits

Lucent Technologies Inc. said it has agreed to settle 54 shareholder lawsuits that were filed after the Murray Hill, N.J.-based company ran into financial problems in 2000. Lucent will pay $415 million in cash, stock and warrants to buy its shares as part of the deal, and it will also contribute up to $5 million to cover settlement-administration costs. The company's insurers will pay another $148 million in cash.

SAP Ships Apps For Midsize Users

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Appeals Court to Hear Trade Groups

A federal appeals court said it will hear arguments from two trade groups opposed to the antitrust settlement between the U.S. Department of Justice and Microsoft Corp. The groups, which are backed by some of Microsoft's top rivals, argue that the settlement deal isn't stringent enough.

MARK HALL • ON THE MARK

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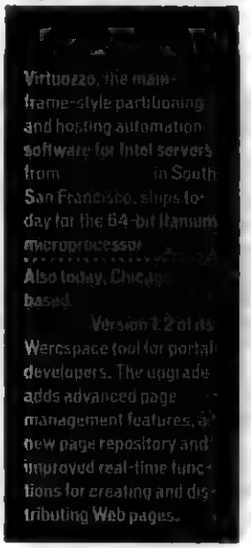
. . . security tool that automates fixes of vulnerabilities in network servers and PCs. Citadel Security Software Inc. will release Hercules 2.0 on April 15. The upgrade will defend Solaris and Linux in addition to Windows. Hercules works with vulnerability-assessment products from companies like Internet Security Systems Inc. and Harris Corp. that identify security gaps on your network. Hercules collects all the problems in a single screen and lets a sysadmin fix them with a single mouseclick. And in the new release, **you can set policies to remediate known problems immediately** without notifying an admin. According to Carl Banzhof, Dallas-based Citadel's CTO, Hercules maintains the latest software patches for known bugs, slams shut open back doors in servers, secures insecure user accounts and properly configures misconfigured systems, among other automated fixes. He also points out that Windows servers have the most vulnerabilities, **even when weighted for their market share,** because so many sysadmins simply use out-of-the-box configurations, which historically have been "wide-open doors to networks." It's not as if those configuration lapses have been a big, dark secret, Banzhof admits. Lazy sysadmins, perhaps? Well, the CTO demurs, "they're an overworked bunch." ■ Another vendor CTO has taken a slight swipe at users. Eric Newcomer at Waltham, Mass.-based Iona Technologies Inc. says vendor competition may derail the Web services standards efforts (see "Standards Stupidity," page 24). He argues, "Vendors naturally move toward creating competitive advantage," which imperils the standards process. But he thinks **it's possible users can save the day,** though he's skeptical you will step up to the task. "Users are going to have to take control in their procurement process," he says. "It's the only way standards will happen in Web services." So, will users reject Microsoft or IBM products when they veer away from industry standards? "It remains to be seen." **You can almost see him crossing his fingers.** ■ If you think of your IT operations as a service business inside the company, the arrival today of Changepoint 8.0 should grab your attention. The software, which can integrate with Microsoft Project, does more than project management, according to Chuck Tatham, marketing VP at Changepoint Corp. in Richmond Hill, Ontario. It handles all aspects of workflow process and oversees **everyday interrupt-driven tasks that plague IT departments** and are overlooked by project management systems. The upgrade is now 100% Web-based and adds Oracle9i to Windows SQL Server as its database, along with support for Microsoft Outlook, among other improvements. Pricing averages about $1,000 per user. ■ Paul Giardina, marketing veep at Cartesis SA in Paris, says today's release of its financial management application, Magnitude **Version 6.2, greatly improves the software's scalability** by adding multiserver capabilities and load balancing as well as support for DB2 and Oracle to its existing support for SQL Server. It will also add Crystal Analysis software as an option to the product. Finally, he says, the software now includes advanced budgeting tools that target competitors like SRC Software Inc. Before the year is out, Giardina says to expect Magnitude to include improved workflow operations and support for both the U.S. and European versions of Extensible Business Reporting Language. ■ Portland, Ore.-based SRC must have been spying on its French competitor because it, too, announces a new product today. The new software, Advisor Series F1, lets bank employees at all levels perform financial modeling functions. Peri Pierone, SRC's VP of financial institutions, says that unlike other vendors' offerings, SRC "emphasizes ease of use without sacrificing sophistication." For example, he claims that with minimal training, branch managers will be able to create models on the effect of maturing money-market certificates of deposit and shifting interest rates. The application is **.Net-based and works with either SQL Server or Oracle databases.** It can run as a Web-only application or by using Microsoft Terminal Server or Citrix MetaFrame. And, for those of you who care, it's not from France. ◗



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Rivals are responding to Dell's move. Analysts expect Hewlett-Packard Co. this week to introduce a line of printers for small businesses and home users. HP officials didn't return calls seeking comment.

And just one day after Dell's launch, IBM announced a "plug-and-print" wireless LAN adapter to make it easier for companies to hook end users to the printers IBM resells.

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Dell's models range in price from $139 to $839. They include software that monitors ink consumption and prompts users to order replacement cartridges from Dell. Greg Davis, sales director for Dell's imaging group, said users may buy cartridges from other suppliers. But Dell's cartridges are unique sizes and shapes, so aftermarket vendors won't be able to offer alternatives until they figure out how to reverse-engineer Dell's cartridges.

Dell's printers "will be accepted as good-enough technology" by Dell customers, said Peter Kastner, an analyst at Aberdeen Group Inc. But analyst Peter Grant at Dataquest Inc. said it will be years before Dell has any significant impact on HP's installed base. ◗

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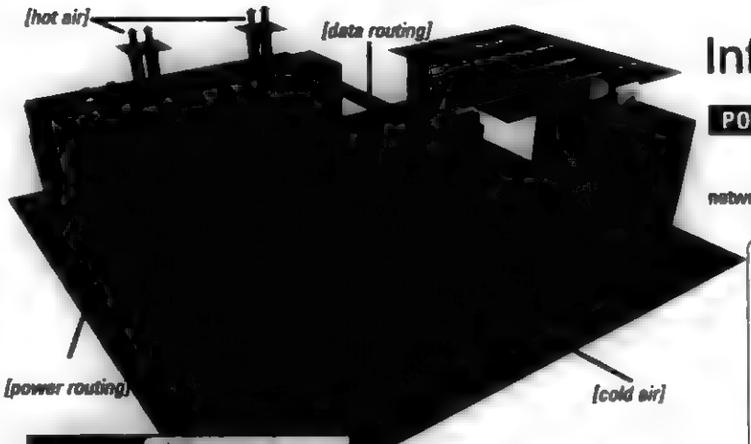

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Support Services Division
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Users Find Microsoft's Server OS Plans Unclear

Say feature packs OK provided there's no price increase

BY CAROL SLIWA

OPERATING SYSTEMS

MICROSOFT CORP.'S lack of clarity about plans for its future server operating system releases doesn't appear to be disturbing too many corporate users, who rarely rush to upgrade to the latest release anyway.

But they're certain to start clamoring if they find that any of the plans under consideration lead to cost increases. Several IT managers said last week that optional add-ons or feature packs might be helpful, but they don't want to pay for them unless they use them.

"The important thing is no new licenses," said Alejandro Bombaci, CIO at Empresas Polar, a consumer goods manufacturer and distributor in Caracas, Venezuela.

The prospect of separate downloads, overlays or option packs for the Windows release code-named Longhorn came to light two weeks ago when Brian Valentine, senior vice president of Microsoft's Windows division, spoke with *Computerworld*. Valentine said new server functionality will be needed to accompany the Longhorn client operating system release, which he said is due in 2005 [QuickLink 37215].

Noting that plans are "fluid," Valentine also said there might be a Longhorn server operating system release, even though Microsoft in November had taken great care to inform the media that Longhorn would be a client-only release. Valentine told *Computerworld* that the November pronouncement was "a bit premature."

Jay Jamison, director of product planning in the Windows server group, confirmed last week that Microsoft is considering a full range of options, including a new server operating system, a supplemental add-on similar to the option pack that shipped after Windows NT 4.0 or an "out-of-band feature release" to the server operating system.

Jamison said Microsoft could make available a feature in the same manner that it will release the group policy management console after the April 24 launch of Windows Server 2003, which was released to manufacturing last Friday. Several other components for the new server operating system will also be delivered in piecemeal fashion following the product launch (see box).

But Valentine said it's too early to tell how the server enhancements expected along with Longhorn will be packaged and priced.

"If they're going to bundle software that I won't use and then increase the price of the base operating system, then I've got a problem," said Neville Teagarden, CIO at Navigant International Inc. in Englewood, Colo. "If it becomes too complicated to determine the actual server pricing, software configuration and license compliance because everything is a la carte, then that's also a problem."

Teagarden said he prefers a full server operating system release because he wants solid integration testing done by Microsoft "rather than having to figure out which combinations of software work or don't work on our own."

Other users, however, said optional feature packs or add-ons might be useful. Bill Finefield, CIO at Navy Exchange Service Command in Virginia Beach, Va., said it would be helpful to be able to choose what his company could use "vs. what just takes up space," as long as the add-ons or feature packs are easy to install and deploy.

Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said one potential downside is the increased complexity of maintenance for both Microsoft and his company. "They would have more variability in the configuration of their installed base, and that would make their patches and fixes harder to maintain," he said.

Uncertainty Remains

Any worries are premature, with so much uncertainty surrounding Microsoft's Longhorn server plans. Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc., said that because Longhorn has slipped from 2004 to 2005, he thinks there will have to be a Longhorn server operating system. Enderle predicted that the Longhorn server version will emerge in 2006.

Gartner Inc. in Stamford, Conn., however, predicts that there will be server function packs, rather than a full Longhorn server operating system release.

"Our belief is that's too big — too much too quickly," said Gartner analyst Tom Bittman, noting that Windows Server 2003 is just coming out. "People are not going to want to absorb a full release." ▶

Windows Server 2003 Add-ons

Features debuting after the April 24 launch include:

- Group Policy Management Console DUE MID-Q4
- "Greenwich" instant-messaging technology DUE MID-2003
- Windows Rights Management Services DUE END OF YEAR
- Windows SharePoint Services DUE LATE Q4

Proposed Air Passenger Screening System Alarms Privacy Advocates

Puts civil rights at serious risk, groups say

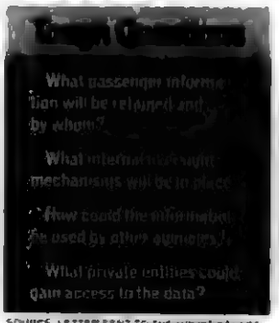
BY JAIKUMAR VIJAYAN

A coalition of privacy and civil rights organizations is asking Congress to stop the deployment of the Transportation Security Administration's (TSA) recently announced airline passenger profiling system.

In a letter addressed to the chairman of the House Select Committee on Homeland Security last week, coalition members urged Congress to carefully assess the program's effectiveness and its privacy implications before allowing the TSA to move forward. Coalition members include the Electronic Privacy Information Center (EPIC) and American Civil Liberties Union.

The TSA is believed to have started testing a second-generation airline passenger profiling system known as the Computer Assisted Passenger Pre-Screening System II (CAPPS-II) in early March.

TSA has asked Delta Air Lines Inc. to provide assistance during early infrastructure test-



SOURCE: LETTER SENT TO THE HOUSE SELECT COMMITTEE ON HOMELAND SECURITY BY COALITION OF PRIVACY AND CIVIL RIGHTS GROUPS

ing by providing it with passenger data relating to name, address, telephone number and date of birth of passengers.

The system is being developed in collaboration with Lockheed Martin Management and Data Systems. It can confirm a passenger's identity and any potential security threat the passenger might pose in less than five seconds, according to a description of the system on the TSA's Web site.

Under the plan, the TSA will require every U.S. commercial air carrier to supply it with passenger information collected during the reservation and ticketing process. This information will then be combined with credit and other personal data contained in government and commercial databases to arrive at a risk score for every passenger.

The proposed plan is evoking a maelstrom of protest from privacy and civil rights groups that are questioning the efficacy of such a profiling system and charge that it's a violation of privacy.

"There are serious civil liberties issues with any data mining program whose result will be used to determine whether Americans are eligible to fly or not," said Lee Tien, a senior staff attorney at the Electronic Frontier Foundation, a privacy rights organization in San Francisco.

There are also serious questions about whether such profiling is effective, said Chris Hoofnagle, a deputy consul at the EPIC in Washington. "One should ask why we should build this incredible system of identification, authentication and profiling when we could take the money and focus on less-invasive and proven technologies" such as bomb-detection equipment, he said. ▶

Users Find Microsoft's Server OS Plans Unclear

Say feature packs OK provided there's no price increase

BY CAROL SLIWA

OPERATING SYSTEMS

MICROSOFT CORP.'S lack of clarity about plans for its future server operating system releases doesn't appear to be disturbing too many corporate users, who rarely rush to upgrade to the latest release anyway.

But they're certain to start clamoring if they find that any of the plans under consideration lead to cost increases. Several IT managers said last week that optional add-ons or feature packs might be helpful, but they don't want to pay for them unless they use them.

"The important thing is no new licenses," said Alejandro Bombaci, CIO at Empresas Polar, a consumer goods manufacturer and distributor in Caracas, Venezuela.

The prospect of separate downloads, overlays or option packs for the Windows release code-named Longhorn came to light two weeks ago when Brian Valentine, senior vice president of Microsoft's Windows division, spoke with *Computerworld*. Valentine said new server functionality will be needed to accompany the Longhorn client operating system release, which he said is due in 2005 [QuickLink 37215].

Noting that plans are "fluid," Valentine also said there might be a Longhorn server operating system release, even though Microsoft in November had taken great care to inform the media that Longhorn would be a client-only release. Valentine told *Computerworld* that the November pronouncement was "a bit premature."

Jay Jamison, director of product planning in the Windows server group, confirmed last week that Microsoft is considering a full range of options, including a new server operating system, a supplemental add-on similar to the option pack that shipped after Windows NT 4.0 or an "out-of-band feature release" to the server operating system.

Jamison said Microsoft could make available a feature in the same manner that it will release the group policy management console after the April 24 launch of Windows Server 2003, which was released to manufacturing last Friday. Several other components for the new server operating system will also be delivered in piecemeal fashion following the product launch (see box).

But Valentine said it's too early to tell how the server enhancements expected along with Longhorn will be packaged and priced.

"If they're going to bundle software that I won't use and then increase the price of the base operating system, then I've got a problem," said Neville Teagarden, CIO at Navigant International Inc. in Englewood, Colo. "If it becomes too complicated to determine the actual server pricing, software configuration and license compliance because everything is a la carte, then that's also a problem."

Teagarden said he prefers a full server operating system release because he wants solid integration testing done by Microsoft "rather than having to figure out which combinations of software work or don't work on our own."

Other users, however, said optional feature packs or add-ons might be useful. Bill Finefield, CIO at Navy Exchange Service Command in Virginia Beach, Va., said it would be helpful to be able to choose what his company could use "vs. what just takes up space," as long as the add-ons or feature packs are easy to install and deploy.

Jim Prevo, CIO at Green Mountain Coffee Roasters Inc. in Waterbury, Vt., said one potential downside is the increased complexity of maintenance for both Microsoft and his company. "They would have more variability in the configuration of their installed base, and that would make their patches and fixes harder to maintain," he said.

Uncertainty Remains

Any worries are premature, with so much uncertainty surrounding Microsoft's Longhorn server plans. Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc., said that because Longhorn has slipped from 2004 to 2005, he thinks there will have to be a Longhorn server operating system. Enderle predicted that the Longhorn server version will emerge in 2006.

Gartner Inc. in Stamford, Conn., however, predicts that there will be server function packs, rather than a full Longhorn server operating system release.

"Our belief is that's too big — too much too quickly," said Gartner analyst Tom Bittman, noting that Windows Server 2003 is just coming out. "People are not going to want to absorb a full release."

Proposed Air Passenger Screening System Alarms Privacy Advocates

Puts civil rights at serious risk, groups say

BY JAIKUMAR VIJAYAN

A coalition of privacy and civil rights organizations is asking Congress to stop the deployment of the Transportation Security Administration's (TSA) recently announced airline passenger profiling system.

In a letter addressed to the chairman of the House Select Committee on Homeland Security last week, coalition members urged Congress to carefully assess the program's effectiveness and its privacy implications before allowing the TSA to move forward. Coalition members include the Electronic Privacy Information Center (EPIC) and American Civil Liberties Union.

The TSA is believed to have started testing a second-generation airline passenger profiling system known as the Computer Assisted Passenger Pre-Screening System II (CAPPS-II) in early March.

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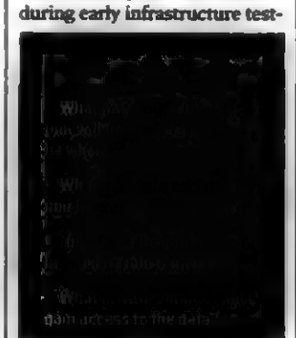

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If you're busy monitoring your servers, who's watching your business?

The new HP ProLiant DL740 8-way with hot-plug RAID memory.

- Ultradense 4u modular chassis with up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
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- Groundbreaking F8 chipset
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- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.

The new HP ProLiant DL760 G2 8-way with hot-plug RAID memory.

- Up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64GB addressable memory
- Groundbreaking F8 chipset
- 10-64 bit/100 MHz PCI-X, 1-64 bit 33 MHz slots
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What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that predict, self-diagnose and fix many fault conditions. And now with hot-plug RAID memory exclusively from HP, you can add or replace DIMMs without turning your systems off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

At the end of the day, you'll have more control over your infrastructure, help avoid unplanned downtime and reduce overall maintenance costs. Not to mention freeing yourself up for more important things.

To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YP4L.

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BRIEFS

Space Agency Names New CIO

NASA named Patricia Dunnington as its new CIO, effective immediately. Dunnington, who has been the agency's deputy CIO since August, takes over management responsibility from acting CIO Paul A. Strassmann. Strassmann, a former *Computerworld* columnist, ran NASA's IT department since July. A NASA spokesman said Strassmann plans to retire to private life.

Microsoft Warns of Flaw in Windows

Microsoft Corp. warned that a security flaw in a network component of Windows XP, 2000 and NT 4.0 could expose systems to denial-of-service attacks. The problem lies in Microsoft's implementation of a remote procedure call protocol that lets applications on different computers communicate with one another. The company has posted a patch on its Web site.

Huawei Admits It Used Cisco Code

A week after rejecting Cisco Systems Inc.'s allegations in January of patent infringement and technology copying, networking vendor Huawei Technologies Co. acknowledged in a court filing that one of its employees obtained some Cisco source code in 1998. Shenzhen, China-based Huawei said it's pulling from the U.S. market products built with the source code.

Short Takes

Citing information uncovered by federal investigations about its accounting practices, NETWORK ASSOCIATES INC. in Santa Clara, Calif., said it will restate its financial results for 1998 through 2000. . . . Ottawa-based software vendor COREL CORP. said it's talking to two venture capital firms about a possible takeover.

Pennsylvania Delays Portion of SAP Project

State pushes payroll module back by nine months; other apps work continues

BY MARC L. SONGINI

STATE OFFICIALS in Pennsylvania have put the brakes on a major piece of a $160 million rollout of SAP AG's enterprise resource planning (ERP) applications because of software customization, system integration testing and end-user training requirements.

Pennsylvania Secretary of Administration Bob Barnett last week said the state government has temporarily halted the installation of the human resources modules that are part of a planned statewide SAP R/3 implementation. The go-live date on those applications was pushed from next month to January.

The delay underscores the findings of a report that's being released today by Nucleus Research Inc. in Wellesley, Mass. In the report, which was based on interviews with 21 of SAP's customers, Nucleus said returns on investment can be hard to achieve on R/3 rollouts — especially when users customize the applications.

According to Nucleus, 12 of the 21 users said they hadn't achieved an ROI after working with R/3 for an average of nearly three years. In particular, said Nucleus analyst Rebecca Wetteman, companies that customized R/3 slowed down their deployments and increased their costs.

But SAP users aren't alone in facing such challenges, said Wetteman. Nucleus recently released similar reports about users of Siebel Systems Inc.'s customer relationship management software and i2 Technologies Inc.'s supply chain applications.

In Pennsylvania, work has bogged down on SAP's payroll application. Barnett said the software itself isn't the problem. But, he added, it required tweaking to handle thousands of work schedules and hundreds of pay grades for the state's 80,000 employees.

The ERP system is also requiring more extensive training for end users than expected, Barnett said. In addition, more testing is needed to ensure that the payroll software can interoperate with a separate accounting system used by the state treasurer's office.

Despite the payroll setback, Barnett said Pennsylvania "is going on a faster timetable than others doing a major project like this." The project also involves the ongoing installation of financial, procurement and other applications to replace a variety of homegrown and third-party products.

William Wohl, a spokesman for SAP America Inc. in Newtown Square, Pa., said the software vendor was encouraged by Pennsylvania's decision to slow down the payroll installation. "They are setting an example to other state governments to learn to take their time and do it right," he said.

In response to the Nucleus report, Wohl acknowledged that R/3 projects can be complex — not because of the software itself but because ERP rollouts usually require "a whole new way of thinking" about business processes.

Oracle Modifies Pricing, Bundling of Applications

Vendor drops $250K spending requirement

BY MARC L. SONGINI

Looking to boost sales of its enterprise applications, Oracle Corp. last week announced new software licensing terms that it said will make it easier for users to qualify for the flat-fee pricing the company put in place 14 months ago.

But Oracle is also removing some products from the software bundle covered by the flat-fee approach, which lets users license a set of the company's E-Business Suite applications for a single price. The modules being excised, which are primarily user self-service tools in areas such as human resources, will now have to be bought separately, Oracle said.

On the plus side, Oracle is eliminating a requirement that customers spend at least $250,000 to qualify for the all-encompassing pricing. It's also reducing from 20% to 10% the minimum number of employees for which a company needs to buy licenses.

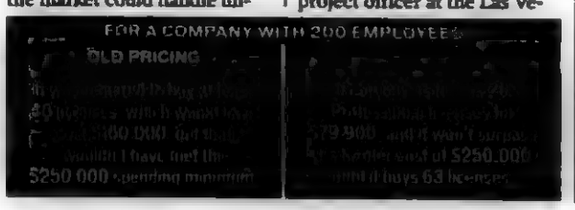
"We've streamlined [the pricing] and made it more flexible, not only for smaller customers, but [also for] larger customers," said Jacqueline Woods, vice president of global practices at Oracle.

Company officials decided that the previous user-licensing minimum "was more than the market could handle under the current economic conditions," Woods said.

The changes could help some companies reduce their licensing costs, Woods said (see chart). But users will still be able to buy any of Oracle's applications on an individual basis if that's less expensive than the flat fees are, she said.

In addition to the pricing changes, the company renamed the software E-Business Suite 2003.

At the independent Oracle Applications Users Group (OAUG) in Atlanta, the jury is still out on the new pricing scheme. "We have to keep in mind the global aspect of this and wait for input from members," said Pat Dues, an OAUG board member who works as a project officer at the Las Vegas city manager's office.



Frank Milano, CIO at Terracon Inc., an engineering consulting firm in Lenexa, Kan., said he may consider using the new licensing approach if he expands his installation of Oracle's enterprise resource planning applications.

"As a CIO, I always think that their pricing is too high," Milano said. But the licensing changes make it look like Oracle is "starting to become market-driven," he added.

Like SAP AG, Oracle has had a mishmash of pricing structures because it offers such a wide range of applications, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. The flat-fee pricing scheme was designed to address that, but Greenbaum said the $250,000 minimum buy-in figure was a deterrent to smaller companies.

James Niccolai of the IDG News Service contributed to this report.

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Gartner: Business Units to Get More Control of IT Spending

Some IT execs say it's already happening and view it as a positive development

BY THOMAS HOFFMAN
SAN DIEGO

GARTNER INC. analysts last week predicted that business units will gain control over a majority of discretionary spending on technology this year. If that happens, it could force IT departments to meet project milestones set by business managers before they get funding to pay for additional work.

Some attendees at Gartner's Symposium/ITxpo 2003 conference here said they don't expect that scenario to play out in their organizations, at least in the short term. But other IT executives said they have already seen the trend emerge — and it has been to their advantage thus far.

"I'm already seeing some of that occur in our organization, and it's helpful," said Craig Betts, director of enterprise resource planning and distribution technology at Sierra Pacific Resources in Reno, Nev. Although Sierra Pacific has shifted control of IT spending only to a few business units, Betts said the change has helped his company's IT department by giving business managers responsibility for planning and overseeing IT project requirements.

"When we own everything, I have to handle the budget, and if the business units aren't aligned with IT, they hand everything over to us," Betts said. Without direct input from business leaders on their IT needs, keeping requirements-planning efforts on track is "a shot in the dark," he added.

An IT spending shift also has started at Industrie Canada, the Canadian department of commerce. That's according to Sean Barr, industry sector officer for the agency's Spectrum, Information Technologies and Telecommunications Gateway division, which is the Canadian equivalent of the U.S. Federal Communications Commission.

"It's been good for me and our business unit when it has occurred, because there's more of a direct path for funding," Barr said. "But I can see how this could be a problem for other CIOs."

Carl Schulz, an IT consultant at Delta Corporate Services Inc. in Parsippany, N.J., said a growing number of companies are giving business units control of discretionary IT spending — the money above and beyond what's needed to run day-to-day IT operations. Schulz said he has also seen business units "place their own people in an IT organization to oversee spending and manage projects."

But other IT managers at the conference said project purse strings either remain in their grips or have even been returned to them.

"We started taking back control of some IT spending that was taking place in business units, where [rogue] 'IT entities' had cropped up," said an IT manager who works for a branch of the U.S. military and requested anonymity. "In some instances, business units will receive funding for IT projects and direct that to us."

Some companies have taken approaches that combine IT and business-unit control over spending. Four years ago, The Northwestern Mutual Life Insurance Co. began moving to a funding model in which business-unit leaders sit on a corporate planning board that decides on all discretionary IT spending before funding is allocated to the IT department. That setup "has worked out very well for us," said John Hillmer, director of technology services at the Milwaukee-based insurer.

Other Gartner Predictions

- Underfunding necessary IT upgrades today will lead to higher costs once the economy improves and demand for IT products increases.
- By 2006, 30% of data processing will be done through utility-based computing models that let companies pay for computing resources as needed.

REAL-TIME CHANGES

Conference attendees said delivering real-time data to business executives requires big changes outside of IT.

QuickLink 37350
www.computerworld.com

Correction

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Omgeo Readies Web Portal For Allocating Stock Trades

Tool potentially reduces manual communications

BY LUCAS MEARIAN
NEW YORK

Omgeo LLC this week plans to begin beta-testing a Web-based tool aimed at boosting straight-through processing of trades between brokerages and investment managers by eliminating the need for the firms to communicate via fax and telephone to allocate shares.

Boston-based Omgeo, which offers an automated trade-matching service, announced the allocation management engine last week and said it should be ready for commercial release by midyear. The tool is an end-user portal that's based on XML and Java 2 Enterprise Edition and will be run on Solaris servers with BEA Systems Inc.'s WebLogic application server software.

Omgeo officials said at a press conference here that independent investment management firms will be able to use the Allocation Manager portal free of charge. The company, which is jointly owned by The Depository Trust & Clearing Corp. in New York and Thomson Financial in Boston, plans to charge brokerages about $1 for each trade they process via Allocation Manager.

David Oxenstierna, an executive director at Morgan Stanley in New York, said that could add up to thousands of dollars a day. But he added that he's willing to pay the fee in order to streamline the processing of transactions with investment firms that currently lack automated trade-matching capabilities.

"To us, [using faxes and phones] is an inefficient way to process trades," Oxenstierna said. "It represents [added] operational costs and the risk of mishandling things."

Gordon Marchand, vice president and treasurer at Yeager, Wood & Marshall Inc., a New York-based investment firm that manages about $800 million in assets, said he piloted Allocation Manager and likes its ease of use. For example, the software lets users set up drop-down lists of investment clients that "can be customized and configured to our needs," Marchand said.

But Allocation Manager has some gaps that need to be filled, added Marchand, whose firm is among the thousands of small and midsize investment managers that continue to manually transmit trade-allocation data to brokerages.

Omgeo has to add the ability to print and save transaction data to meet the U.S. Securities and Exchange Commission's record-keeping rules, Marchand said. Allocation Manager also needs to be able to automatically notify investment managers when trades have been executed, he said. In addition, major brokerages "have to adopt this thing," he noted. "Otherwise, we're still going to be in a fax-and-phone environment."

Omgeo developed Allocation Manager with financial backing from four brokerages: Morgan Stanley, Credit Suisse First Boston Corp., J.P. Morgan Chase & Co., and UBS Warburg. Adam Bryan, Omgeo's president and CEO, last week said 21 other brokerages have signed up to use the portal.

Bryan added that he will continue to meet with investment managers to fine-tune the software before it's made available in May or June. Omgeo is exploring technologies that could be used to send trade-execution notices to pagers or via e-mail, he said.

FEATURES

- A Web-based system that investment managers can use to electronically submit trade-allocation data to brokerages.
- Access to Omgeo's trade-matching engine and its Alert system, a database containing industrywide trade settlement instructions.

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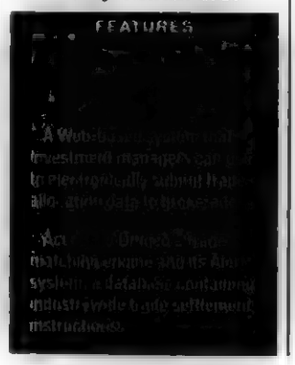

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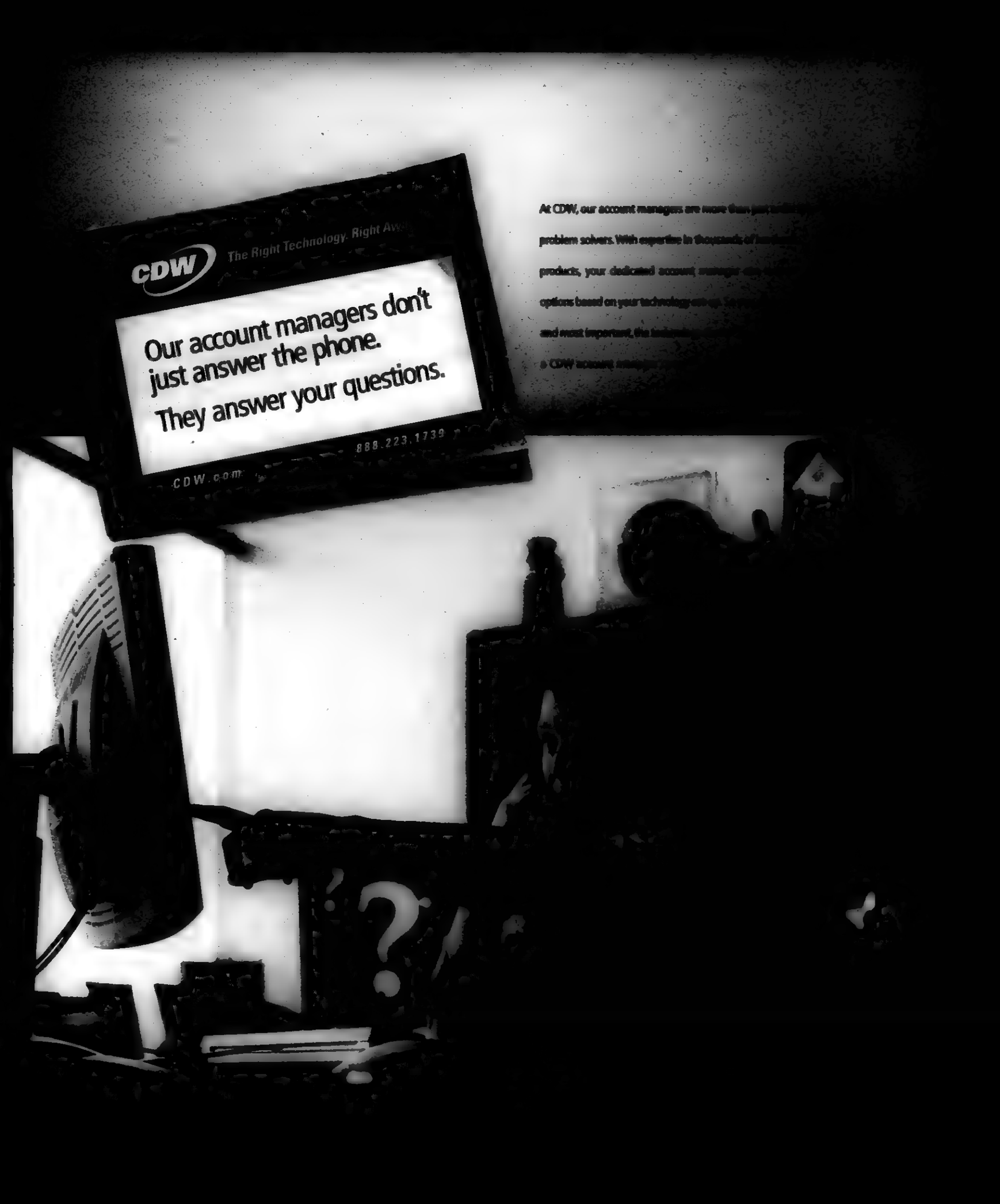
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and most important, the
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Continued from page 1

Convergence

in Oakland, Calif., said the health care provider plans to test OpenScape in a lab and then run a pilot project that's expected to last through year's end. If the software works as promised, OpenScape could improve productivity for many of Kaiser's 135,000 workers and reduce the number of devices that the company has to buy for them, Crawford said.

"Taking voice mail, e-mail and IM and putting them into a portal leverages all the disparate capabilities we have today and drives efficiencies," he said. "So my question is, Can Siemens really pull it off?"

Crawford said he needs to evaluate how Kaiser's business units would deploy and use the product and what it would cost to implement. For example, the software could require the addition of new Windows servers and some restructuring of the company's network architecture. Kaiser has also been approached by a Baby Bell offering OpenScape-like functionality as a monthly service, Crawford said, declining to identify the company.

Instead of running on conventional telecommunications switches, OpenScape will be server-based, Straton said. The software will initially work only with Microsoft Corp.'s forthcoming Windows Server 2003 operating system. But Straton said Siemens plans to add Unix and Linux support within the next two years.

OpenScape, which supports the emerging Session Initiation Protocol, is due for commercial release in September at a cost of $400 per user (see chart). But Siemens is taking a go-slow approach with the technology. Straton said the company initially plans to limit marketing to about 50 customers for up to nine months of beta testing and trials.

Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn., said one question that needs to be answered is how scalable OpenScape will be in its first release. He noted that Siemens is pushing the software for use only by branch offices, departments and workgroups at this point.

Straton said the technology is being pitched for small installations for now because it requires a cultural shift that could be hard for entire companies to make. The software will initially be able to handle up to 500 users per server and 5,000 in a linked setup, he said.

Verizon spokesman Bill Kula said his company is working with Microsoft and Sun Microsystems Inc. to develop some of the same capabilities that are in OpenScape, including connections between voice and text messaging using any device. The technology will be used as part of a service that's due to be announced this spring or summer, Kula said. He added that Verizon has trials under way with internal workers and some large U.S. businesses.

Analyst Kneko Burney at In-Stat/MDR in Scottsdale, Ariz., expects several telecommunications carriers to offer converged communications services this year. But she wouldn't name any of the carriers. ▶

OpenScape Stands Out, Analyst Says

Vendors such as Cisco Systems Inc., Nortel Networks Ltd. and Pleasanton, Calif.-based Polycom Inc. already sell products that support some levels of communications convergence, said Meta Group analyst Chris Kozup. But none of those offerings is as complete as OpenScape is, he added.

As an example of how OpenScape could be used, Siemens officials said a salesman could have voice mail messages from a hot business prospect routed directly to a device such as a pager, smart phone or laptop PC. Under that scenario, OpenScape could be set up to convert the voice mail messages to text that would be sent to the designated device as an instant message or e-mail. Other callers would be able to leave only regular voice mail messages.

Douglass Crawford, director of network services at Kaiser Permanente, said those kinds of capabilities could be a boon for end users. But he also sees a potential downside if message-delivery problems occur.

A voice mail problem can be traced to a single source now, but a similar snafu that affects OpenScape users might involve other communications systems that are connected to the software, Crawford said. "Complex systems have more things to break," he noted.

– Matt Hamblen

PRODUCT DETAILS

OpenScape Version 1.0

CAPABILITIES: Integrates and synchronizes messaging, calendaring and real-time collaboration tools with corporate applications

SUPPORTED END-USER DEVICES: Desktop and laptop PCs, handheld devices, cell phones and IP phones

RUNS ON: Microsoft's upcoming Windows Server 2003 and Greenwich real-time communications server software

LIST PRICE: $400 per end user; due for beta testing in May and general release in September

Vendors Offer Tools to Track License Compliance, Usage

IT managers could use software to root out unneeded apps

BY MATT HAMBLEN

Two software vendors last week separately announced products that IT managers can use to track software license compliance and to identify licenses that are no longer needed.

Novadigm Inc. in Mahwah, N.J., released a tool called Radia Usage Manager that tracks software use on servers, desktops and laptops. The software works with existing Novadigm products that manage the deployment of new applications, said George Kellar, Novadigm vice president of marketing.

Meanwhile, Softricity Inc. in Boston introduced SoftGrid Dual-Mode, a product primarily designed for use in deploying and managing Windows and Citrix MetaFrame applications. But the technology's ability to track license compliance is "icing on the cake," said a spokeswoman for Softricity.

Big Savings

Royal and SunAlliance USA plans to install Radia Usage Manager next year, when funding for the project is due, said Roger Thibodeau, IT executive at the property and casualty insurer in Raleigh, N.C. Thibodeau said he expects to save millions of dollars by using the Novadigm software to find unneeded licenses.

He based his estimate on a laborious manual survey of license usage among 7,000 end users. The survey, done in January and February, uncovered $500,000 that could be saved by not renewing licenses for 12 of the company's 131 commercially licensed applications, Thibodeau said. Many users had installed applications and never used them, he noted.

Radia Usage Manager will be used to examine the remaining 119 applications. The manual effort on the first 12 took a pair of IT workers two months to complete. By comparison, the software should take only about a day to count who uses all the other applications, Thibodeau said.

The Northwestern Medical Faculty Foundation in Chicago will begin rolling out SoftGrid Dual-Mode this week for 1,500 doctors and other users, said Julie Otten, the foundation's director of information systems. The organization is a nonprofit group of doctors and health care professionals who provide clinical care and are affiliated with Northwestern University Medical Center.

> "In the past, we'd buy 100 more licenses when we ran against the limit, but this way we can fine-tune what we need to buy."
>
> **JULIE OTTEN,** DIRECTOR OF INFORMATION SYSTEMS, NORTHWESTERN MEDICAL FACULTY FOUNDATION

The Softricity product streams applications to users from a server instead of installing them on end-user PCs. That should help in tracking the usage of applications, Otten said. "In the past, we'd buy 100 more licenses when we ran against the limit, but this way we can fine-tune what we need to buy," she said.

Fred Broussard, an analyst at IDC in Framingham, Mass., said capabilities similar to those developed by Novadigm and Softricity are also offered by Microsoft Corp., Computer Associates International Inc., IBM's Tivoli unit and Altiris Inc. in Lindon, Utah.

But Ronni Colville, an analyst at Gartner Inc. in Stamford, Conn., said Novadigm's technology for tracking software license inventories appears to be the most comprehensive now available. ▶

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Feds Test Network to Send Alerts to M.D.s

BY BOB BREWIN

The U.S. Department of Health and Human Services (HHS) has begun testing the use of a health care data-delivery network operated by ePocrates Inc. to transmit bioterrorism-related alerts to doctors equipped with Palm OS-based handheld devices.

HHS and San Mateo, Calif.-based ePocrates launched the three-month pilot this month. The agency is finalizing the data files it plans to distribute for the test, said Dr. John Whyte, the medical director of an HHS panel set up last year to explore new technologies. But HHS could immediately send data via ePocrates' network if bioterrorism attacks occurred, he added.

Bob Quinn, chief technology officer at ePocrates, said that about 10,000 emergency room physicians and infectious disease and primary care specialists will participate in the pilot. EPocrates plans to launch a version of its software for Pocket PC devices in April, but Quinn said the doctors involved in the test will use handhelds running Palm Inc.'s operating system.

HHS will transmit alerts to ePocrates as Word documents in e-mail attachments, Quinn said. The company will store the alerts in a central Oracle database and convert them into files that can be read by Palm devices when doctors synchronize their handhelds with the database.

Quinn said ePocrates, which runs a mix of Unix and Windows systems, can tailor information to subscribers based on parameters such as medical specialty and location. Eventually, he added, ePocrates wants to provide HHS with an extranet tool so the agency can transmit alerts directly.

Whyte, who works for the HHS Council on Private Sector Initiatives to Improve the Security, Safety and Quality of Health Care, wouldn't disclose the cost of the pilot program or say how quickly HHS plans to broaden distribution of the alerts if the test is successful.

About 250,000 doctors and 450,000 other medical workers have signed up to use the ePocrates network. The company stores information about prescription drugs in its database and sends out its own alerts with updated drug safety data and news.

The Atlanta-based Centers for Disease Control and Prevention (CDC), an arm of HHS, already operates a network that distributes information to public-health departments. Whyte said the deal with ePocrates will let HHS quickly send alerts about potentially threatening biological agents to doctors who aren't tied into the CDC's network.

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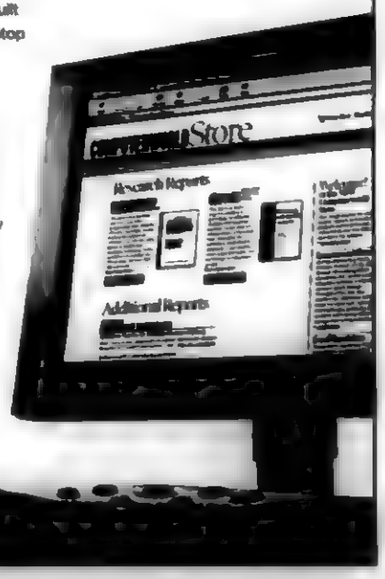

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Microsoft Exec Eyes Midsize Users for Apps

Burgum says vendor to focus on 'high-volume' business applications

BY MARC L. SONGINI

Douglas Burgum, *a senior vice president at Microsoft Corp. who heads the company's business solutions division, spoke about the unit's enterprise applications strategy during an interview at Microsoft's Convergence 2003 conference in Kissimmee, Fla., this month.*

Can you clarify where Microsoft sits in the corporate applications market? If you drew a bell curve for us, the center is in the midmarket. We're not focused on selling applications through a direct sales force to the world's largest corporations. Those applications are very expensive and require ongoing customization. We're in the business of high-volume, low-price software sold through partners.

Other parts of Microsoft do business with rival applications vendors such as SAP and PeopleSoft. Is that an issue for your unit? We want to work with those folks on our [underlying technology] platforms. We want them to adopt our tools that support XML connectivity and offer customers support for .Net. To the degree that SAP has announced aggressive plans in the midmarket [with its SAP Business One initiative], we will find SAP a partner, but also we'll be competing with them for customer accounts.

You recently shipped your first customer relationship management applications. Any misgivings about taking on Siebel Systems CEO Tom Siebel? We're not taking him on. He sells directly in deals that are worth multiple millions, with lots of rich customizations. That's not the market we're pursuing. We see Siebel as a strong partner doing nice work with our SQL Server database and Windows and .Net and our support tools.

Do you view any of the applications that Microsoft has bought over the past few years as redundant? No. The products won't fade away in any near- or midterm time frame. There are large customer bases for Solomon and Navision and Axapta and Great Plains. We've got a deep commitment [to them] and are planning for the next generation. We're not going to try to merge those lines together in the traditional sense, so much. [But] to some degree, the future generation will have a migration path to one single global code base.

Oracle Offers to Fund Linux Efforts

BY JAMES NICCOLAI

Oracle Corp. last week said it plans to pay out about $150 million per year in an effort to encourage software vendors to develop Linux applications for its Oracle9i databases.

"We've heard from our customers that the things inhibiting their movement to Linux are technical support, which we addressed last summer, and also the availability of applications," said Bob Shimp, vice president of Oracle9i database marketing. "So we're providing technical and financial incentives to [software vendors]."

Oracle will give qualifying software vendors $2 for every $1 that they invest in developing and marketing Linux software, Shimp said. The company will also share its customer list with vendors and let them market their Linux offerings through its Web site.

Oracle expects to continue spending $150 million annually on the program for "a number of years," Shimp said. In a related effort, company officials said Oracle's own developers are working on proposed additions to the Linux kernel aimed at making the operating system more suitable for use with Oracle9i in large corporate applications.

Ensuring the availability of a broad set of applications is a crucial part of Oracle's strategy to use Linux to compete against Microsoft Corp.'s SQL Server database, said Stephen O'Grady, an analyst at RedMonk in Hollis, N.H.

James Niccolai writes for the IDG News Service.

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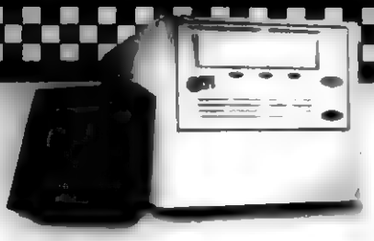

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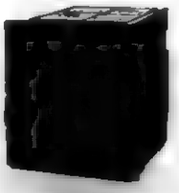

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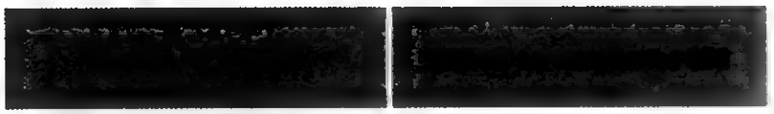

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MARYFRAN JOHNSON

Standards Stupidity

GIVEN THE CHOICE of watching paint dry or paying attention to the techno-political infighting that goes on within industry standards bodies, most of us would opt for the paint. But when there's big trouble brewing over Web services — between the Web's leading standards organization and the dominating duo of IBM and Microsoft — it's time to take notice.

Last week, Microsoft dropped out of a working group at the World Wide Web Consortium (W3C), opting, as IBM has, to go its own way in developing a "choreography" standard for Web services. This is bad news for future users of products depending on this particular standard to interoperate.

"The most controversial area in Web standards now is the choreography or orchestration of the services," says Eric Newcomer, chief technology officer at Iona Technologies Inc. and an active member of the W3C. "It's about how to combine them rapidly and change the combinations to change business processes quickly and create affordable integration."

If Microsoft's latest move was the only point of standards contention, we could all go back to watching that paint dry. But similar fractures have taken place in both the Web services security and messaging arenas. For example, there are two camps pushing a Web service specification for reliable messaging. The original spec, published in January by Oracle, Sun and others, now has a rival from IBM, Microsoft and their supporters.

Whose offering is better? Does it matter? The key reason to standardize is to create a *common* base of technology from which industry players can then innovate and compete, leaving customers to enjoy an array of product choices.

The last place we need another pointless, stupid standards battle is in Web services. Did vendors learn nothing from the Unix wars of a decade ago? From the tangled mess that client/server became?

The first phase of setting Web services standards went uncommonly well, with the swift establishment of the core technologies of XML, SOAP, WSDL and UDDI. But this second phase we're now in — where security and reliability must be addressed — is collapsing into a muddle of conflicting vendor agendas. "It's easy to agree on the low levels of the technologies," Iona's CTO points out. "But where you get to real business value, it's harder to get agreement [among the vendors]."

Adding to the complexity of it all is the proliferation of standards groups circling their wagons around Web services. Along with the influential W3C, there's OASIS (the Organization for the Advancement of Structured Information Standards), the IETF (the Internet Engineering Task Force) and the newest one, the WS-I (the Web Services Interoperability Organization).

Despite these widening cracks in the Web services foundation, there is still hope rising around the integration possibilities and potential business benefits. Major companies in every industry are rolling out Web services products, albeit cautiously. Forrester Research surveyed 292 CIOs last summer and found that only 30% had active Web services projects under way. IDC pegs last year's Web services market at about $416 million but predicts that by 2006 it will blossom into a $2.9 billion market. For Web services to really take off, however, key standards must be in place.

"Everyone, from vendors to customers to standards bodies, wants to see Web services succeed, in view of the key role they are destined to play in enterprise architecture," a Gartner analyst pointed out in a recent research note.

That's certainly true for the customers, and it's likely true for the standards bodies. But the jury is still out on the vendors, especially IBM and Microsoft.

PIMM FOX

Security Lessons From Israel

ONE OF THE differences between how Israeli and American companies handle IT security is simple: seriousness. We have yet to treat IT security as a paramount issue. But as the U.S. enters a time of heightened threats, we can adapt some Israeli lessons for our own purposes.

Every corporation must have someone who reports to the chief security officer and has overall responsibility for the security and protection of hardware. Routers, switches and storage devices must be inventoried and supervised against tampering or theft.

Security for PCs and local communications networks must be assured through best practices and personal attention. Israel has no companies the size of those in the Fortune 500, and that smaller size makes it easier for security officers at Israeli firms to monitor IT operations. Still, the consequences of even a minor attack on Israeli IT infrastructure are potentially so deadly that greater security awareness is essential.

Companies need to treat software security as a separate discipline, with dedicated reviews and vendor certifications. If vendors can't help build and verify security for their products, look elsewhere.

Communications security should not take second place — indeed redundant telephone and data systems should be tested on an random basis and fully integrated into the IT security plan.

A careful and up-to-date review of legal and contractual obligations related to IT security should be built into a corporate curriculum designed to protect hardened IT assets.

An advantage Israeli firms have is

the flow of IT talent between the armed forces and the private sector. This gives companies a ready supply of well-trained, experienced personnel, many of whom have formed long-term working relationships with their military colleagues. While U.S. companies may not be able to call upon military personnel, they can promote industry associations, support working groups and build corporate partnerships for IT security. They must move from competing in IT security to cooperating.

Companies must produce a review of computerized data systems and organize damage assessments and recovery plans in the event of an attack. Israel's constant exposure to external threats has bred planning for the worst with sophisticated IT skills. U.S. IT managers must form relationships with U.S. government officials so that both sides understand the other's needs.

Finally, it's time companies send a signal to IT personnel by funding diploma-level course work for security. Who knows, maybe the U.S. government will give its stamp of approval to security education, similar to what Israel's Ministry of Education does, by funding student loans. It's time to get serious.

DAVID FOOTE

Building Confidence in Tough Times

A FEW YEARS of downsizing, belt-tightening and fanatical attention to ROI have tested IT professionals' patience and confidence. Many have been through tough economic times before, and they're coping reasonably well. But they're not dealing as well with fears of terrorism and concern about the Iraq war. These have left most people confused and uncertain and searching for sources of stability and comfort both at work and at home.

How much can an employer help? A lot, it turns out. This column has focused on successful IT management practices for four years, and a glance backward reveals a treasure trove of practical strategies and ideas ripe for today. They needn't be anchored in altruism; they're all profitable business practices within the grasp of any employer.

The power of process. You may think that the recent attention to project management practices is being driven strictly by budget controls, risk aversion and a desire to reduce complexity. But think again. Doing things in a routine, predictable manner builds familiarity and confidence, which IT workers are craving right now. What better antidote for stress than working within a system of well-defined beginnings and endings, systematic approaches to managing portfolios of concurrent projects, and stringent attention to communication and collaboration issues, especially when problems arise?

Organizations should be investing in project management as a key strategy (as well as corporate cultural beacon) to become more adaptive, responsive and profitable in a rapidly changing business environment. Best practice: Organize project management offices, staffed by both business and IT workers, and make them responsible for training workers. These offices would find ways to incorporate project management into daily routines and serve as project management information repositories.

Focus on transition issues. Business leaders are notorious for undermining change initiatives by failing to anticipate who will have to let go of what and for not adequately preparing their workers for the psychological and emotional adjustments needed in new situations. Look no further than recent heavy-handed workforce reductions and the deep resentment still palpable among those workers who kept their jobs.

The management challenge is to get people to stop doing things the old way, which requires attending to extremely unsettling personal stuff in projects, workload, pay and careers. That can't be accomplished impersonally. Required road map: *Managing Transitions: Making the Most of Change*, by William Bridges.

Pay attention to retention. Lack of commitment is the major reason you lose good people, or at least see their productivity decline. Among the top 20% of your best performers (the ones you can't afford to lose), some are bound to leave, even in a rotten economy. Everything that binds them to their jobs and to their employer needs to be unearthed and deftly managed, especially now that they are frustrated by increased workloads. Build their loyalty with thoughtful, well-executed retention strategies and a willingness to listen and continually recalibrate. What you do with the other 80% is arguably less important.

Character and ethics matter. How we handle ourselves and treat others is even more important in unsettled times, because perceptions are more emotionally charged. Ethical issues aren't simply about right and wrong; they're about making tough choices in a brutal world. Your superiors, customers and peers take character and ethics into account far more than you realize. Required reading: Daniel Goleman's books about emotional intelligence and the writings on ethical issues in engineering by Hiram College ethics professor Kenneth Alpern.

Confident people perform at higher levels. That's the kind of ROI you can't ignore.

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READERS' LETTERS

Forgotten Father

ONE PERSON who seems to have been forgotten about in the operating system history "The Story So Far" [QuickLink 36541] is the late Gary Kildall, whose CP/M was the predominant microcomputer operating system of the 1970s and is generally regarded as the core of MS-DOS. He was the true father of modern computing.

Fred Cooper
Saratoga Springs, N.Y.

Looking Past ROI

GIVEN THE FACT that the majority of costs associated with IT investments will occur during operations (and not during the traditional investment period of design and building), I wish all those calculating ROI loads of luck ["The Next Chapter: ROI," QuickLink 35584]. Please tell me where the investment stops? Financial management of IT is truly essential and easier than most people think. A life cycle approach is essential, however. Well-published approaches are those of John Thorp and Dan Remenyi.

Egon Berghout
Professor of business and ICT, University of Groningen, Rotterdam, Netherlands, e.w.berghout@eco.rug.nl

Not a Strong Suit

ALTHOUGH IT IS TRUE that many times management refuses to perform due diligence on IT investments, I must point out that some IT shops refuse to even provide adequate information to make an informed decision ["Save the Suits From Themselves," QuickLink 36692].

I spent several years working on a major upgrade/conversion. When business representatives were finally allowed to initiate an open discussion where all of the options could be presented, we found that the CIO had slipped in ahead of us and "presold" the sponsors with promises that were never kept. That CIO moved on before the system went live and before the business could see exactly what it had invested in. There must be an honest representative involved in the process who has the best long-term interests of the business in mind and not just his résumé.

Chuck Houle
Senior consultant, Impac, Portland, Ore.

Trapped in NT

MY BUSINESS is staying on NT 4 for the foreseeable future for the same reason that many others are – it's stable and reliable and runs within the footprint of our existing server hardware [QuickLink 36543]. We had considered upgrading to Windows 2000, but that option vanished pretty quickly when XP was released; Windows 2000 suddenly became unavailable from local resellers. Many of our applications would survive the transition to Windows 2000, but new versions would be needed to go to XP. The cost of application upgrades, faster servers and larger storage makes the trip to XP across the board prohibitive for now. So in a sense, we are trapped – and your article suggests that we have lots of company.

Gregory Lalish
Consultant, Toronto

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MARYFRAN JOHNSON

Standards Stupidity

GIVEN THE CHOICE of watching paint dry or paying attention to the techno-political infighting that goes on within industry standards bodies, most of us would opt for the paint. But when there's big trouble brewing over Web services — between the Web's leading standards organization and the dominating duo of IBM and Microsoft — it's time to take notice.

Last week, Microsoft dropped out of a working group at the World Wide Web Consortium (W3C), opting, as IBM has, to go its own way in developing a "choreography" standard for Web services. This is bad news for future users of products depending on this particular standard to interoperate.

"The most controversial area in Web standards now is the choreography or orchestration of the services," says Eric Newcomer, chief technology officer at Iona Technologies Inc. and an active member of the W3C. "It's about how to combine them rapidly and change the combinations to change business processes quickly and create affordable integration."

If Microsoft's latest move was the only point of standards contention, we could all go back to watching that paint dry. But similar fractures have taken place in both the Web services security and messaging arenas. For example, there are two camps pushing a Web service specification for reliable messaging. The original spec, published in January by Oracle, Sun and others, now has a rival from IBM, Microsoft and their supporters.

Whose offering is better? Does it matter? The key reason to standardize is to create a *common* base of technology from which industry players can then innovate and compete, leaving customers to enjoy an array of product choices.

The last place we need another pointless, stupid standards battle is in Web services. Did vendors learn nothing from the Unix wars of a decade ago? From the tangled mess that client/server became?

The first phase of setting Web services standards went uncommonly well, with the swift establishment of the core technologies of XML, SOAP, WSDL and UDDI. But this second phase we're now in — where security and reliability must be addressed — is collapsing into a muddle of conflicting vendor agendas. "It's easy to agree on the low levels of the technologies," Iona's CTO points out. "But where you get to real business value, it's harder to get agreement [among the vendors]."

Adding to the complexity of it all is the proliferation of standards groups circling their wagons around Web services. Along with the influential W3C, there's OASIS (the Organization for the Advancement of Structured Information Standards), the IETF (the Internet Engineering Task Force) and the newest one, the WS-I (the Web Services Interoperability Organization).

Despite these widening cracks in the Web services foundation, there is still hope rising around the integration possibilities and potential business benefits. Major companies in every industry are rolling out Web services products, albeit cautiously. Forrester Research surveyed 292 CIOs last summer and found that only 30% had active Web services projects under way. IDC pegs last year's Web services market at about $416 million but predicts that by 2006 it will blossom into a $2.9 billion market. For Web services to really take off, however, key standards must be in place.

"Everyone, from vendors to customers to standards bodies, wants to see Web services succeed, in view of the key role they are destined to play in enterprise architecture," a Gartner analyst pointed out in a recent research note.

That's certainly true for the customers, and it's likely true for the standards bodies. But the jury is still out on the vendors, especially IBM and Microsoft.

PIMM FOX

Security Lessons From Israel

ONE OF THE differences between how Israeli and American companies handle IT security is simple: seriousness. We have yet to treat IT security as a paramount issue. But as the U.S. enters a time of heightened threats, we can adapt some Israeli lessons for our own purposes.

Every corporation must have someone who reports to the chief security officer and has overall responsibility for the security and protection of hardware. Routers, switches and storage devices must be inventoried and supervised against tampering or theft.

Security for PCs and local communications networks must be assured through best practices and personal attention. Israel has no companies the size of those in the Fortune 500, and that smaller size makes it easier for security officers at Israeli firms to monitor IT operations. Still, the consequences of even a minor attack on Israeli IT infrastructure are potentially so deadly that greater security awareness is essential.

Companies need to treat software security as a separate discipline, with dedicated reviews and vendor certifications. If vendors can't help build and verify security for their products, look elsewhere.

Communications security should not take second place — indeed redundant telephone and data systems should be tested on an random basis and fully integrated into the IT security plan.

A careful and up-to-date review of legal and contractual obligations related to IT security should be built into a corporate curriculum designed to protect hardened IT assets.

An advantage Israeli firms have is

the flow of IT talent between the armed forces and the private sector. This gives companies a ready supply of well-trained, experienced personnel, many of whom have formed long-term working relationships with their military colleagues. While U.S. companies may not be able to call upon military personnel, they can promote industry associations, support working groups and build corporate partnerships for IT security. They must move from competing in IT security to cooperating.

Companies must produce a review of computerized data systems and organize damage assessments and recovery plans in the event of an attack. Israel's constant exposure to external threats has bred planning for the worst with sophisticated IT skills. U.S. IT managers must form relationships with U.S. government officials so that both sides understand the other's needs.

Finally, it's time companies send a signal to IT personnel by funding diploma-level course work for security. Who knows, maybe the U.S. government will give its stamp of approval to security education, similar to what Israel's Ministry of Education does, by funding student loans. It's time to get serious.

DAVID FOOTE

Building Confidence in Tough Times

A FEW YEARS of downsizing, belt-tightening and fanatical attention to ROI have tested IT professionals' patience and confidence. Many have been through tough economic times before, and they're coping reasonably well. But they're not dealing as well with fears of terrorism and concern about the Iraq war. These have left most people confused and uncertain and searching for sources of stability and comfort both at work and at home.

How much can an employer help? A lot, it turns out. This column has focused on successful IT management practices for four years, and a glance backward reveals a treasure trove of practical strategies and ideas ripe for today. They needn't be anchored in altruism; they're all profitable business practices within the grasp of any employer.

The power of process. You may think that the recent attention to project management practices is being driven strictly by budget controls, risk aversion and a desire to reduce complexity. But think again. Doing things in a routine, predictable manner builds familiarity and confidence, which IT workers are craving right now. What better antidote for stress than working within a system of well-defined beginnings and endings, systematic approaches to managing portfolios of concurrent projects, and stringent attention to communication and collaboration issues, especially when problems arise?

Organizations should be investing in project management as a key strategy (as well as corporate cultural beacon) to become more adaptive, responsive and profitable in a rapidly changing business environment. Best practice: Organize project management offices, staffed by both business and IT workers, and make them responsible for training workers. These offices would find ways to incorporate project management into daily routines and serve as project management information repositories.

Focus on transition issues. Business leaders are notorious for undermining change initiatives by failing to anticipate who will have to let go of what and for not adequately preparing their workers for the psychological and emotional adjustments needed in new situations. Look no further than recent heavy-handed workforce reductions and the deep resentment still palpable among those workers who kept their jobs.

The management challenge is to get people to stop doing things the old way, which requires attending to extremely unsettling personal stuff in projects, workload, pay and careers. That can't be accomplished impersonally. Required road map: *Managing Transitions: Making the Most of Change*, by William Bridges.

Pay attention to retention. Lack of commitment is the major reason you lose good people, or at least see their productivity decline. Among the top 20% of your best performers (the ones you can't afford to lose), some are bound to leave, even in a rotten economy. Everything that binds them to their jobs and to their employer needs to be unearthed and deftly managed, especially now that they are frustrated by increased workloads. Build their loyalty with thoughtful, well-executed retention strategies and a willingness to listen and continually recalibrate. What you do with the other 80% is arguably less important.

Character and ethics matter. How we handle ourselves and treat others is even more important in unsettled times, because perceptions are more emotionally charged. Ethical issues aren't simply about right and wrong; they're about making tough choices in a brutal world. Your superiors, customers and peers take character and ethics into account far more than you realize. Required reading: Daniel Goleman's books about emotional intelligence and the writings on ethical issues in engineering by Hiram College ethics professor Kenneth Alpern.

Confident people perform at higher levels. That's the kind of ROI you can't ignore.

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READERS' LETTERS

Forgotten Father

ONE PERSON who seems to have been forgotten about in the operating system history "The Story So Far" [QuickLink 36541] is the late Gary Kildall, whose CP/M was the predominant microcomputer operating system of the 1970s and is generally regarded as the core of MS-DOS. He was the true father of modern computing.

Fred Cooper
Saratoga Springs, N.Y.

Looking Past ROI

GIVEN THE FACT that the majority of costs associated with IT investments will occur during operations (and not during the traditional investment period of design and building), I wish all those calculating ROI loads of luck ["The Next Chapter: ROI," QuickLink 35584]. Please tell me where the investment stops? Financial management of IT is truly essential and easier than most people think. A life cycle approach is essential, however. Well-published approaches are those of John Thorp and Dan Remenyi.

Egon Berghout
Professor of business and ICT, University of Groningen, Rotterdam, Netherlands, e.w.berghout@eco.rug.nl

Not a Strong Suit

ALTHOUGH IT IS TRUE that many times management refuses to perform due diligence on IT investments, I must point out that some IT shops refuse to even provide adequate information to make an informed decision ["Save the Suits From Themselves," QuickLink 36692].

I spent several years working on a major upgrade/conversion. When business representatives were finally allowed to initiate an open discussion where all of the options could be presented, we found that the CIO had slipped in ahead of us and "presold" the sponsors with promises that were never kept. That CIO moved on before the system went live and before the business could see exactly what it had invested in. There must be an honest representative involved in the process who has the best long-term interests of the business in mind and not just his résumé.

Chuck Houle
Senior consultant, Impac, Portland, Ore.

Trapped in NT

MY BUSINESS is staying on NT 4 for the foreseeable future for the same reason that many others are – it's stable and reliable and runs within the footprint of our existing server hardware [QuickLink 36543]. We had considered upgrading to Windows 2000, but that option vanished pretty quickly when XP was released; Windows 2000 suddenly became unavailable from local resellers. Many of our applications would survive the transition to Windows 2000, but new versions would be needed to go to XP. The cost of application upgrades, faster servers and larger storage makes the trip to XP across the board prohibitive for now. So in a sense, we are trapped – and your article suggests that we have lots of company.

Gregory Labiak
Consultant, Toronto

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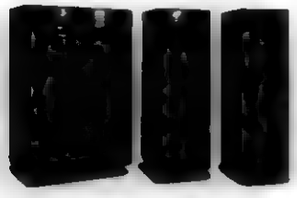

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Q&A

Making the Connection

Netegrity CTO Deepak Taneja (left) discusses the future of identity and access management technologies in an environment transformed by the Internet and in which the definition of an application is changing. **Page 34**

SECURITY MANAGER'S JOURNAL

Porn Policy Collars a Million-Dollar Customer

Vince Tuesday decides that strict policies against pornographic e-mail messages will have to bend a bit when one offender turns out to be a rep for his company's best customer. **Page 40**

OPINION

Scope Creep and Exchange Server 2003

Realizing the full benefits of Microsoft's latest e-mail server software will require much more than just upgrading existing e-mail servers, writes Robert L. Mitchell. **Page 42**

"Datacenter is basically Advanced Server on steroids," says Mary Kay's [illegible]

PHIL HOLLENBECK

Users say they've experienced a few glitches, but the high-end operating system has largely delivered on its reliability and scalability promise. By Carol Sliwa

LIVING WITH DATACENTER SERVER

RUNNING MISSION-CRITICAL APPLICATIONS on an unproven operating system is too dicey for many corporations to stomach. But three trailblazers now running Windows 2000 Datacenter Server say they had good reasons to consider it.

Microsoft Corp.'s Windows Datacenter Program calls for well-established hardware makers to sell, support and test the product in configurations guaranteed to produce the sort of reliable and stable results that customers of rival Unix systems expect.

And Windows Datacenter Server is a logical consideration for companies using Microsoft software, particularly those pushing the limits of eight-way boxes running SQL Server on Windows 2000 Advanced Server. Datacenter Server scales to 32 processors, and its license allows for as many partitions as desired on a single physical server.

So far, the only choice for a 32-way box has been the ES7000 from Unisys Corp. in Blue Bell, Pa. But three early adopters who were glad to find the ES7000 say their Datacenter-based systems have largely delivered on the promise of high availability, scalability and reliability.

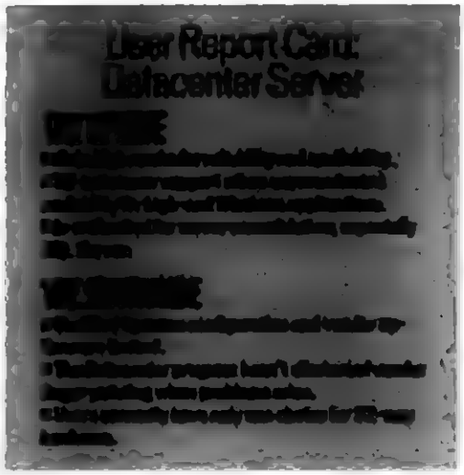
MARY KAY CONSOLIDATES SQL

Mary Kay Inc. in Addison, Texas, purchased a 32-way ES7000 server in April 2001 to cope with the explosive growth of its online offerings.

Prior to that, the cosmetics, skin care and dietary products manufacturer and distributor had clustered four-way servers, upgraded processors and shifted from Windows NT to Windows 2000 Advanced Server.

But Morris Koeneke, database services manager, says distributing databases evenly was becoming difficult. Database replication was gobbling up resources. Single-user interactions could trigger requests to multiple database servers, slowing the network. And Mary Kay was outgrowing servers before its leases were up.

The company went live in June 2001 with its ES7000, initially on Windows Advanced Server. Using Unisys tools, IT staffers carved up the 32-processor, 32GB frame into four eight-CPU partitions and configured them as two clusters: one for SQL Server 2000 production databases and the other for testing, staging and fail-over.



Mary Kay was able to consolidate four production database servers to two, but it soon needed more horsepower and shifted to Windows Datacenter in April 2002. Administrators converted the four eight-way partitions to two 16-CPU, 16GB partitions: one for the production SQL Server and the other for backup.

"Datacenter is basically Advanced Server on steroids," Koeneke says. "It's the same operating system. It just has gates opened up that let you manage large servers."

Consolidating to a single SQL Server instance for e-commerce improved performance and eliminated redundant databases and replication headaches, says Koeneke. Processing capacity went from 1,800 orders per hour to more than 3,000. And Koeneke says problems were scarce and insignificant compared with prior Windows versions.

Mary Kay purchased three more ES7000s last year for a supply chain initiative. One has a 16-CPU instance of SQL Server and two eight-CPU partitions of BizTalk Server. Another has SQL Server running on 12 CPUs, clustered to the 16-CPU SQL Server on the other box, and five four-way partitions for Mary Kay's J.D. Edwards & Co. enterprise resource planning (ERP) system. The third box is for development and testing.

Plans call for the BizTalk and ERP database servers to be consolidated. Koeneke says he also hopes to run a four-way Datacenter cluster with three active 16-way nodes and one passive 16-way node hosting all of the company's databases.

Koeneke says he isn't convinced that total cost of ownership is cheaper with Datacenter Server than it would be with Unix, but given Mary Kay's commitment to Microsoft products, Datacenter made sense. His only gripe is with the Datacenter program, which Microsoft is revamping. Under the existing program, the hardware provider is supposed to be the single point of contact for problems, yet Koeneke says he often waits for answers as vendors point fingers.

Koeneke would also like more choice in the subsystems that attach to his Datacenter Server beyond those in the exact configuration Unisys tested. "They tell us how great everyone gets along and that we have one throat to choke," he says. "But the reality is we get total certification on a solution provided by one OEM. Our flexibility is limited."

PREMERA DOWNSIZES

Premera Blue Cross in Mountlake Terrace, Wash., wanted to replace the homegrown, mainframe-based core systems suite that its 3,000 employees used to administer membership, enrollment and claims. The $3 billion health insurance company, with 1.4 million members in the Pacific Northwest, already used Windows on the desktop; has about 450 Windows servers running e-mail, file-and-print services and various applications; and planned to use Microsoft's development environment.

CIO Alan Smit says he saw an opportunity to focus on a single vendor, even though he shared the general industry skepticism about Microsoft's ability to support enterprise transaction processing.

Premera CIO wanted to focus on one vendor.

Careful analysis of the technology, benchmarks and Datacenter program helped ease his concerns. So did the Windows-based client/server claims and membership administration system Premera bought from TriZetto Group Inc. in Newport Beach, Calif.

In July 2001, Premera went live with two ES7000s running Datacenter Server — one 32-way system and one 16-way box in a clustered, fault-tolerant configuration. IT staffers created an eight-way partition on the 32-way box to run SQL Server and used a clustered eight-way partition on the 16-way box as a failover system. That paid off late last year when a memory problem caused the active server to crash. Users noticed only a 20-second slowdown as the second node took over the workload, says Bob Crownhart, an IT director at Premera.

Premera now has 172,000 members loaded into the Datacenter-based system and has been running nonstop since August, when it took down the system to address a hardware problem, says Crownhart.

The company plans to move to 16-way partitions as it scales to more than 1 million members. "Knowing we can scale beyond eight-way partitions is the biggest comfort. That's what we needed to convince ourselves that we could scale to 1.4 million members and beyond," Crownhart says, noting that the target completion date is 2005.

Premera is also looking to shift online analytic processing from its mainframes to Datacenter Server. "The fewer platforms I have to support, the better," Smit says.

FIRST AMERICAN MAXES OUT

First American Title Insurance was pushing CPU utilization in its eight-way Compaq ProLiant database servers to over 90% when it decided to convert to a 32-way Unisys ES7000 running Windows 2000 Datacenter Server.

At the time, the Santa Ana, Calif.-based insurer was halfway through the rollout of its homegrown First American Software Technology (FAST) Transaction System, a consolidated title and escrow system for 10,000 users in 1,200 offices, says CIO Larry Godec. Tuning the application to make fewer database calls was one way to solve the problem. Porting the database server to Unix was another possibility, but that would have meant an extra six months to rewrite application code in Java, says Godec.

Yet another choice was splitting the database and creating a number of regional databases. However, Godec frowned on that option from a support and maintainability standpoint.

First American was adding hundreds of users each week and didn't want to stop the rollout's momentum, so it turned to a bigger box for its application's SQL Server 2000.

First American CIO kept an application rollout moving.

Godec figured that switching to an ES7000 wouldn't stop the rollout for more than a few weeks. Coordinating the setup with Unisys, Microsoft and EMC Corp., which was supplying a storage-area network, required about six weeks. The conversion itself took 12 to 16 hours.

But the rush through the migration process wasn't without incident. A bad ES7000 CPU caused a business interruption, and incorrect settings caused two more outages, Godec says. He advises users to make sure all processors are burned in appropriately and all settings are triple-checked before going live.

As the system load soared, First American encountered a problem with the Datacenter Server's scheduler, which is part of the operating system's kernel. The operating system froze when the scheduler backed up under extremely heavy load, Godec says.

"Adding that number of users that quickly to a system, you're going to find the stress points pretty quick," he says.

Microsoft tested the application to identify the problem and developed a more efficient scheduler that will ship in April with Windows Server 2003, Godec says. First American plans to upgrade as soon as it can.

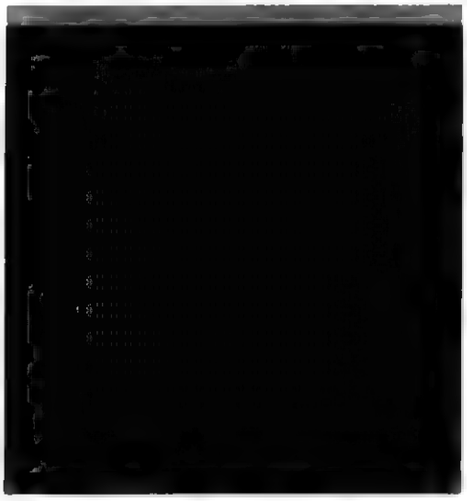
In the meantime, turning off the affinity setting, which can dedicate processors to a specific system, such as the operating system or the database, has helped to offload some of the work from SQL Server and reduce the overall load, Godec says. Reducing the frequency of the database monitoring and replication on the EMC storage system also helped, he adds.

Unlike other companies that partition their ES7000s, First American has all 32 processors managing the workload of the operating system and the database. Godec says he considered 16-way partitions, but uncertainty about the effect on utilization led his team to use all the processors and add a second ES7000 at its Dallas site for redundancy and fault tolerance.

The Unisys box now runs at 40% capacity, so First American has plenty of headroom, Godec says. And he adds that he has been happy with the Datacenter Server technology.

"I would equate the ES7000 to other things that I've known and run in the past, which include the E10000 from Sun, and the Hitachi and IBM mainframes," he says. "It's every bit as reliable."

Godec says he never had a scheduler problem on an IBM mainframe, but he has encountered problems on large systems where the vendor response has been, "You need to upgrade to the new release."



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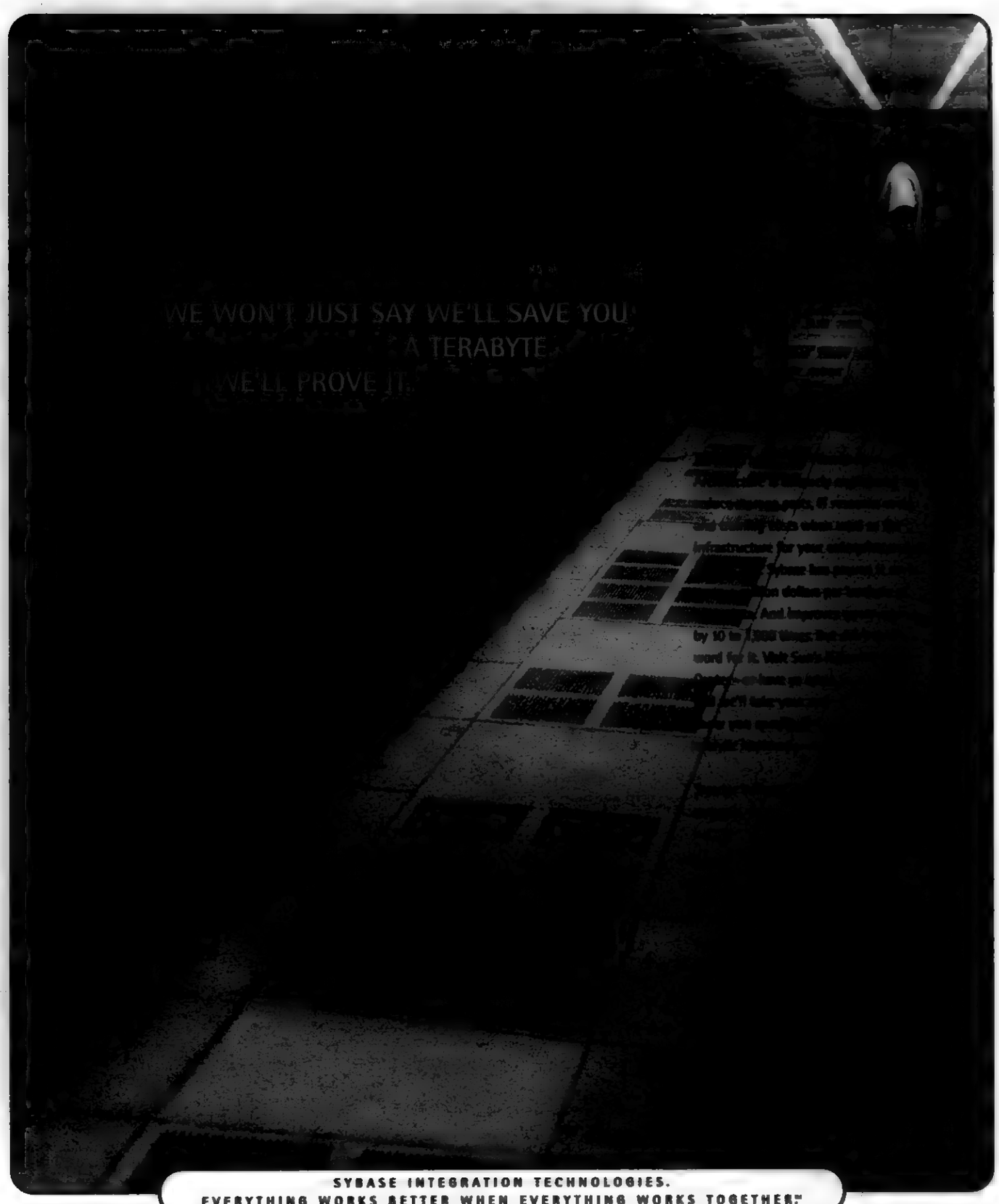

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A close look at system logs provides clues to spot hacking or worm activity. **By Dan Verton**

Trace Evidence

YOU CAN DEPLOY all of the firewalls and intrusion-detection devices money can buy to protect your network from hackers and malicious code, but when it comes to truly knowing what's happening on your network, there's no substitute for digging through system log files.

Telltale signs that appear in logs offer strong indications that you may have been hacked, say experts. The following should raise alarms in any IT administrator's head: long entries of random characters, repeated occurrences of "..\", passwords that have been changed by someone using a user ID of "0" and a null log-in, unexpected configuration changes to systems or devices, and a sudden increase or decrease in the number of log messages generated, to name just a few. But even with these known indicators, uncovering hacker activity can be difficult.

"Log analysis is a dirty job," says Chris Kirschke, senior security analyst at Santa Clara, Calif.-based Silicon Valley Bank, where 1,200 users in 27 locations create 25GB of log data every month. "Logs are where you go to find out what has happened," Kirschke says.

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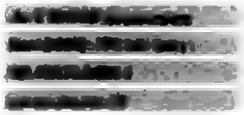

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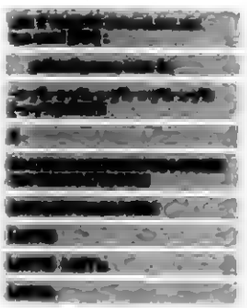

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The addition of new user names and changes to passwords can also be indicators of malicious activity on Unix systems. For example, Unix systems often assign accounts to legitimate processes, such as "mail" or "Web."

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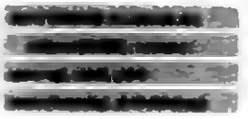

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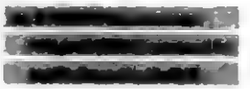

Then, in Example 4, the hacker changes the password.

What's interesting about the last two entries is that the hacker uses the user name "cgi" in hopes of avoiding detection by posing as a legitimate process. In addition, the user ID (uid) in Example 3 has been set to 0, indicating root-level access to the system. Likewise, the reference in the last line of Example 4 – changed by ((null)/0) – indicates the hacker changed the password for the account without logging into the system, which is another red flag.

– Dan Verton

A close look at system logs provides clues to spot hacking or worm activity. **By Dan Verton**

Trace Evidence

YOU CAN DEPLOY all of the firewalls and intrusion-detection devices money can buy to protect your network from hackers and malicious code, but when it comes to truly knowing what's happening on your network, there's no substitute for digging through system log files.

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Making the Connection

The link between users and applications is the focus for Netegrity's CTO. By Tommy Peterson

Q&A *Chief Technology Officer* **Deepak Taneja** *is in charge of technology strategy and initiatives at Waltham, Mass.-based Netegrity Inc., a leader in the burgeoning identity and access management market. He recently spoke with* Computerworld *Technology editor Tommy Peterson about how the Web has changed the notions of identity and access control in corporate computing, as well as the definition of an application. Taneja also described how Netegrity's technical focus is shifting to match those transformations.*

Identity and access-control issues have been around for as long as there has been corporate computing, but this particular market has emerged in the past four or five years. Why now? In the mid-'90s, the Internet caused companies to think about putting intranets and extranets in place. As these extranets were developed, they provided an opportunity for companies like Netegrity to come in with technology that delivered security as a shared service for the entire extranet.

The center of gravity for us and other companies in the space was Web-based applications, which didn't exist 10 years ago. What's happened now is people have gotten control over their extranet, but they've got a mess on their hands inside the enterprise. So they're . . . unifying the infrastructure for the extranet and the enterprise. They're rationalizing the overall problem of how you connect users and principals in general to applications and resources, whether they're Web-based applications or non-Web, whether it's legacy or not, whether it's enterprise applications [or not], portal applications or nonportal applications. The real problem is how you connect users to those applications.

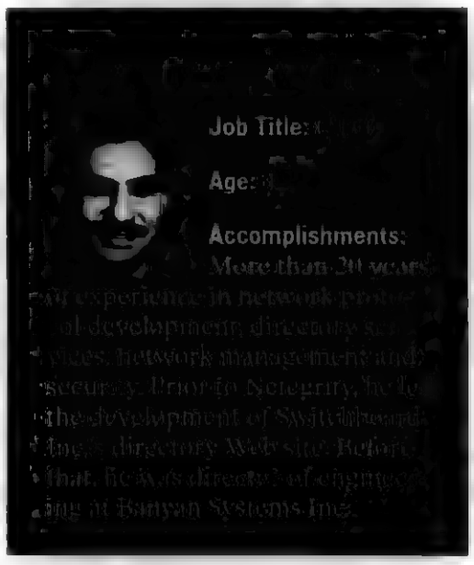
How has your technology focus changed in the five years you've been at Netegrity? The initial focus was access controls and authentication for Web-based applications. The user management side of things has become a whole lot more important. Companies have said to us, "It's great to take a policy-based approach to securing applications for the extranet, but help us manage our user populations. Help us delegate the administration of our user population."

We've been pulled in two directions. Customers say, "Help us deal with the enterprise problems," which is the provisioning issue, which is user management across the enterprise.

We've also been pulled out of the extranet with respect to business-to-business interactions with partners, with respect to business-to-consumer issues and from one Web site to another Web site. The real issue there is, How do you deal with partners and affiliates, and how do you federate your security? So the problem has grown — it's stretched into the enterprise and stretched out to partner sites.

The other key change over the past few years is the shift in distributed computing to a service-oriented architecture. The very definition of an application is now changing. This whole space is based on connecting users with applications, but the application is no longer the application it used to be. It's not this big monolithic thing. It's now Web services, which are these relatively small things that can be reused and integrated.

How do you differentiate your technology from your competitors? How do you say, "This is the way we do it, and it's different from the way somebody else does it"? First, a key design principal for us is whatever we do, we do assuming it's a heterogeneous environment. So we have to support a heterogeneous environment. We're not a Microsoft that can make the assumption that all the applications are going to be Kerberos-based.



Second, the model to us is an end-to-end model. It's not merely about the extranet or about the enterprise or about the partner side. It's end to end, all the way from interactions with partners, interactions between users and extranet applications, interactions between users and enterprise applications.

A third issue is integration. A good way to think about it is, What do administrators deal with in managing this converged infrastructure? We think that giving them two different role models, two different delegated administration models, two different workflow models, two different auditing models is the wrong thing to do. All audit data goes to one place, and there's a single set of reports that people can run. The delegation model is the same whether you're a policy administrator or a user administrator. So provisioning, whether it's extranet user provisioning or enterprise provisioning, is the same workflow model.

Another really important point is the shift to service-oriented architecture. We started thinking about XML messaging and Web services security three and a half or four years ago. Through our partnerships, we are going to broaden our footprint in that area. The last point is scalability. We think in terms of tens of millions of users and hundreds of thousands of applications. We're not really worried about small companies here. This is about the needs of the Fortune 500 and the Global 2000.

The conventional wisdom is that security is one of the biggest barriers to adoption of Web services. How do you specifically get over that barrier? The challenge with Web services is that the standards are not in place yet. We've worked very diligently with other vendors to come up with SAML (Security Assertions Markup Language), and that's going to help us on the Web services side. But overall, there's a lot of potential standards battling for attention, and there's a lot political agendas in the mix. And without having standards in place, people are uncomfortable putting a Web services architecture in place that's based on one implementation or another.

Having said that, I think you can get started with what already has been standardized to some extent. So there's WS Security; there are companies coming up with WS Trust and WS Policy; and Sun has just announced something — they're working with Fujitsu and a bunch of other companies on WS Reliability. All this will take time, but the basics are in place. WSDL, SOAP, UDDI, SAML — you can get started, and I think a lot of people are starting to do that.

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IDENTITY AND ACCESS

For more of this interview with Netegrity's Deepak Taneja, visit our Web site

QuickLink 37354
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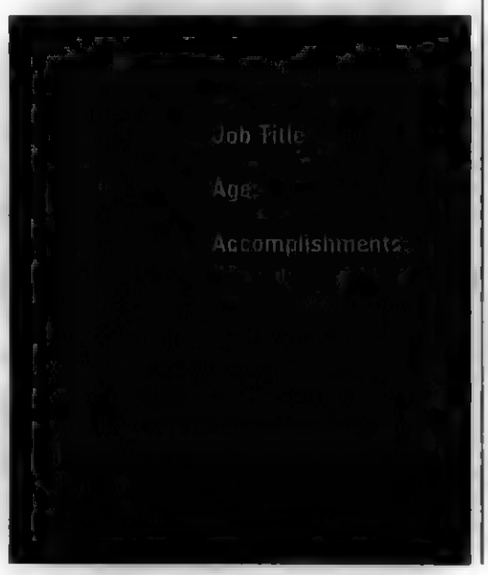

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Serial ATA Takes on SCSI

Outlook: Serial Advanced Technology Attachment storage could replace SCSI for some applications. By Lucas Mearian

Interface Advantage

While the ATA drive uses a 40-pin interface (bottom), Serial ATA devices use a compact, seven-pin edge connector with a ribbon cable that's just 5/16 in. wide (top). These drives should be faster, require less power and allow for more efficient and reliable array designs.

EMERGING TECHNOLOGIES

LOW-COST Advanced Technology Attachment (ATA) disk arrays are already gaining ground in near-line storage and disk-to-disk backup applications, but a faster class of drive arrays that uses the new Serial ATA interface standard is likely to challenge SCSI for high-performance applications as well.

The Serial ATA standard, approved in November by the Institute of Electrical and Electronics Engineers Inc. (IEEE), has several advantages over the parallel, shared-bus master/slave architecture of ATA.

Serial ATA works at lower voltages, and because it uses just four data lines compared with ATA's 32, it's 50% faster. It also supports hot-swappable drives and advanced features such as native command queuing, which lets a disk drive make multiple requests for data from the processor and rearrange the order of the data to maximize throughput — a feature traditionally available only on SCSI and Fibre Channel drives. Finally, Serial ATA can support up to 128 devices per channel (vs. two for ATA and 15 for SCSI) and extends the maximum supported cable length from 18 inches to 1 meter.

Serial ATA's biggest potential benefit lies in its price/performance. Analyst company IDC estimates that about 87% of all drives today use ATA. Economies of scale have made ATA disk arrays, at 1 to 2 cents per megabyte, much cheaper than SCSI, at 3 to 5 cents per megabyte. Serial ATA disk arrays should benefit from those same economies and could displace SCSI in small servers and even large storage arrays using the emerging iSCSI storage networking protocol.

"Five to 10 years from now, Serial ATA with iSCSI will be the dominant storage model," predicts IDC analyst Robert Grey.

Serial ATA's first incarnation, available in drives and controllers, won't do much for end users. That's because ATA disk speeds, at a maximum sustained throughput rate of about 75MB/sec., can't use the bandwidth increase that Serial ATA offers. And initial pricing will be about 10% higher than for ATA drives, says Jason Ziller, chairman of the IEEE's Serial ATA Working Group.

But manufacturers will benefit. Serial ATA's seven-pin connector cable, which is 5/16 in. wide, replaces ATA's 40-pin ribbon cable, which is 2 in. wide, restricts airflow and increases heat in an enclosure.

In addition, chips are now smaller, and their voltage needs are lower than ATA's 5-volt requirement. Serial ATA requires just 0.5 volt.

Vendors plan to offer Serial ATA disk arrays that deliver real performance gains. Enhanced specifications are on the way. Serial ATA II, due by mid-2004, is expected to double transfer rates, and a third-generation standard could double them again by 2007 (see chart).

Best Applications

In the data center, Serial ATA is likely to boost emerging ATA disk-based storage applications such as near-line storage and virtual tape servers, since the faster bus speed works well for streaming data and large file transfers.

As the technology evolves, some analysts say ATA disks could be used in high-end primary storage devices, such as EMC Corp.'s Symmetrix and Hitachi Ltd.'s Lightning arrays.

For the time being, though, SCSI and Fibre Channel disks have the advantage for storing data associated with high-performance, online transaction-processing applications because SCSI's higher spindle speeds, at up to 15,000 rpm, enable faster access to smaller files. And the mean time between failures of ATA drives, at 500,000 to 600,000 hours, still doesn't stack up to SCSI's 1.2 million hours.

That doesn't worry Jamie Riis, CIO at BayView Financial Trading Group LP in Miami. The mortgage banking firm uses Network Appliance Inc.'s ATA-based NearStore R100 near-line storage array for disk-to-disk backup of its e-mail, SQL and Oracle databases.

PRODUCTS

"As long as I have a RAID 5-capable system . . . so I can get quick access to the information, then I'm kind of agnostic when it comes to SCSI-attached vs. ATA," he says. "Then it really just becomes a cost issue for me."

HERE COMES SERIAL SCSI

Serial SCSI could soon allow mixed ATA/SCSI arrays:
QuickLink 30878

Living With ATA: BayView Financial Trading Group's Jamie Riis discusses his company's use of ATA array technologies:
QuickLink 30877
www.computerworld.com

TECH SPECS

	5,400 - 7,200	5,400 - 10,000	5,400 - 10,000	5,400 - 10,000	10,000 - 15,000
	100	150	300	600	320
	Final	Final	Due in mid-2004	Due in mid-2007	Final

Revenue Optimization Software

DEFINITION

Revenue optimization software automates the process of calculating the prices businesses need to charge to maximize profits. It can adjust prices using an algorithm that factors in variables such as demand forecasts and inventory.

BY MARC L. SONGINI

JUST ABOUT ALL any business is looking for is a way to maintain precisely the right amount of product inventory or resources to supply a service and to know the highest possible price the market for its products or services will bear. That would mean no overstocks, no disappointed customers and no write-offs to explain to investors. And the price would always be right to maximize profits.

Until someone comes up with a working crystal ball, revenue optimization software may offer the best hope to companies looking to achieve those goals.

This business intelligence software factors variables such as demand, the cost of a good or service, and the amount of revenue the company needs to be profitable. It then calculates the best sales price for a good or service. When key parameters change, the software is designed to revise prices almost instantly.

For example, if a travel company selling space on a cruise ship knows from historical trends that February is a bad month for a particular trip, it can drop the price to a level most likely to close the deal with a given customer.

At the same time, the company's price planners, using a revenue optimization system, can draw data from applications that handle sales and marketing operations, as well as from data repositories containing customer-related information, in order to make their calculations.

QUICK STUDY

The planners can also factor in other variables, such as the cost of the trip at this particular time of the year based on fuel prices or the weather. They can even launch marketing campaigns targeted at the audience most likely to respond to an offer.

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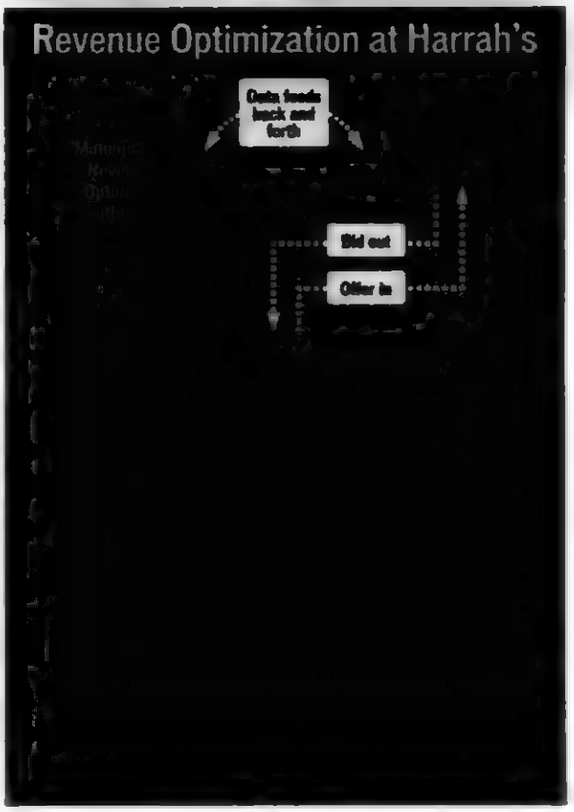
Revenue Optimization at Harrah's



Serial ATA Takes on SCSI

Outlook: Serial Advanced Technology Attachment storage could replace SCSI for some applications. By Lucas Mearian

Interface Advantage

While the ATA drive uses a 40-pin interface (bottom), Serial ATA devices use a compact, seven-pin edge connector with a ribbon cable that's just 5/16 in. wide (top). These drives should be faster, require less power and allow for more efficient and reliable array designs.

LOW-COST Advanced Technology Attachment (ATA) disk arrays are already gaining ground in near-line storage and disk-to-disk backup applications, but a faster class of drive arrays that uses the new Serial ATA interface standard is likely to challenge SCSI for high-performance applications as well.

The Serial ATA standard, approved in November by the Institute of Electrical and Electronics Engineers Inc. (IEEE), has several advantages over the parallel, shared-bus master/slave architecture of ATA.

Serial ATA works at lower voltages, and because it uses just four data lines compared with ATA's 32, it's 50% faster. It also supports hot-swappable drives and advanced features such as native command queuing, which lets a disk drive make multiple requests for data from the processor and rearrange the order of the data to maximize throughput — a feature traditionally available only on SCSI and Fibre Channel drives. Finally, Serial ATA can support up to 128 devices per channel (vs. two for ATA and 15 for SCSI) and extends the maximum supported cable length from 18 inches to 1 meter.

Serial ATA's biggest potential benefit lies in its price/performance. Analyst company IDC estimates that about 87% of all drives today use ATA. Economies of scale have made ATA disk arrays, at 1 to 2 cents per megabyte, much cheaper than SCSI, at 3 to 5 cents per megabyte. Serial ATA disk arrays should benefit from those same economies and could displace SCSI in small servers and even large storage arrays using the emerging iSCSI storage networking protocol.

EMERGING TECHNOLOGIES

"Five to 10 years from now, Serial ATA with iSCSI will be the dominant storage model," predicts IDC analyst Robert Grey.

Serial ATA's first incarnation, available in drives and controllers, won't do much for end users. That's because ATA disk speeds, at a maximum sustained throughput rate of about 75MB/sec., can't use the bandwidth increase that Serial ATA offers. And initial pricing will be about 10% higher than for ATA drives, says Jason Ziller, chairman of the IEEE's Serial ATA Working Group.

But manufacturers will benefit. Serial ATA's seven-pin connector cable, which is 5/16 in. wide, replaces ATA's 40-pin ribbon cable, which is 2 in. wide, restricts airflow and increases heat in an enclosure.

In addition, chips are now smaller, and their voltage needs are lower than ATA's 5-volt requirement. Serial ATA requires just 0.5 volt.

Vendors plan to offer Serial ATA disk arrays that deliver real performance gains. Enhanced specifications are on the way. Serial ATA II, due by mid-2004, is expected to double transfer rates, and a third-generation standard could double them again by 2007 (see chart).

Best Applications

In the data center, Serial ATA is likely to boost emerging ATA disk-based storage applications such as near-line storage and virtual tape servers, since the faster bus speed works well for streaming data and large file transfers.

As the technology evolves, some analysts say ATA disks could be used in high-end primary storage devices, such as EMC Corp.'s Symmetrix and Hitachi Ltd.'s Lightning arrays.

For the time being, though, SCSI and Fibre Channel disks have the advantage for storing data associated with high-performance, online transaction-processing applications because SCSI's higher spindle speeds, at up to 15,000 rpm, enable faster access to smaller files. And the mean time between failures of ATA drives, at 500,000 to 600,000 hours, still doesn't stack up to SCSI's 1.2 million hours.

That doesn't worry Jamie Riis, CIO at BayView Financial Trading Group LP in Miami. The mortgage banking firm uses Network Appliance Inc.'s ATA-based NearStore R100 near-line storage array for disk-to-disk backup of its e-mail, SQL and Oracle databases.

PRODUCTS

First Drives Ready to Ship

Serial ATA vendors are beginning to ship disk drives in small numbers, but bulk shipments are expected by mid-2004. Current and planned offerings include

SERIAL ATA DISK DRIVES

Western Digital Corp.
Lake Forest, Calif.
■ The 360B WD Raptor, a 10,000-rpm Serial ATA device.

Seagate Technology LLC
Scotts Valley, Calif.
■ Barracuda V series drives include dual ATA/Serial ATA connections.

Maxtor Corp.
Milpitas, Calif.
■ DiamondMax Plus 9 Performance device and the 7,200-rpm 250GB MaXLine Plus II.

Fujitsu Computer Products of America Inc., San Jose
■ Shipping 2.5-in. Serial ATA hard disk drives in the fourth quarter of this year.

"As long as I have a RAID 5-capable system . . . so I can get quick access to the information, then I'm kind of agnostic when it comes to SCSI-attached vs. ATA," he says. "Then it really just becomes a cost issue for me."

HERE COMES SERIAL SCSI

Serial SCSI could soon allow mixed ATA/SCSI arrays:
QuickLink 36978

Living With ATA: BayView Financial Trading Group's Jamie Riis discusses his company's use of ATA array technologies:
QuickLink 36977
www.computerworld.com

TECH SPECS

Speed (rpm)	5,400 - 7,200	5,400 - 10,000	5,400 - 10,000	5,400 - 10,000	10,000 - 15,000
Transfer rate (MB/sec.)	100	150	300	600	320
Status of standard	Final	Final	Due in mid-2004	Due in mid-2007	Final

Revenue Optimization Software

DEFINITION

Revenue optimization software automates the process of calculating the prices businesses need to charge to maximize profits. It can adjust prices using an algorithm that factors in variables such as demand forecasts and inventory.

BY MARC L. SONGINI

JUST ABOUT ALL any business is looking for is a way to maintain precisely the right amount of product inventory or resources to supply a service and to know the highest possible price the market for its products or services will bear. That would mean no overstocks, no disappointed customers and no write-offs to explain to investors. And the price would always be right to maximize profits.

Until someone comes up with a working crystal ball, revenue optimization software may offer the best hope to companies looking to achieve those goals.

This business intelligence software factors variables such as demand, the cost of a good or service, and the amount of revenue the company needs to be profitable. It then calculates the best sales price for a good or service. When key parameters change, the software is designed to revise prices almost instantly.

For example, if a travel company selling space on a cruise ship knows from historical trends that February is a bad month for a particular trip, it can drop the price to a level most likely to close the deal with a given customer.

At the same time, the company's price planners, using a revenue optimization system, can draw data from applications that handle sales and marketing operations, as well as from data repositories containing customer-related information, in order to make their calculations.

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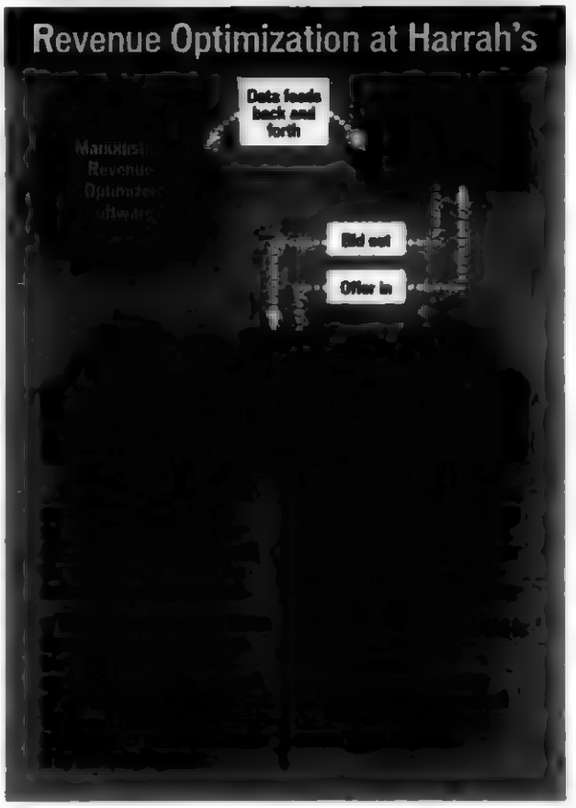

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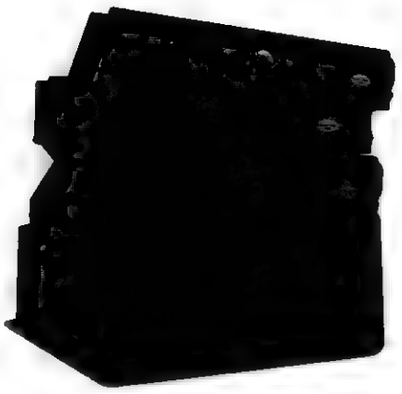

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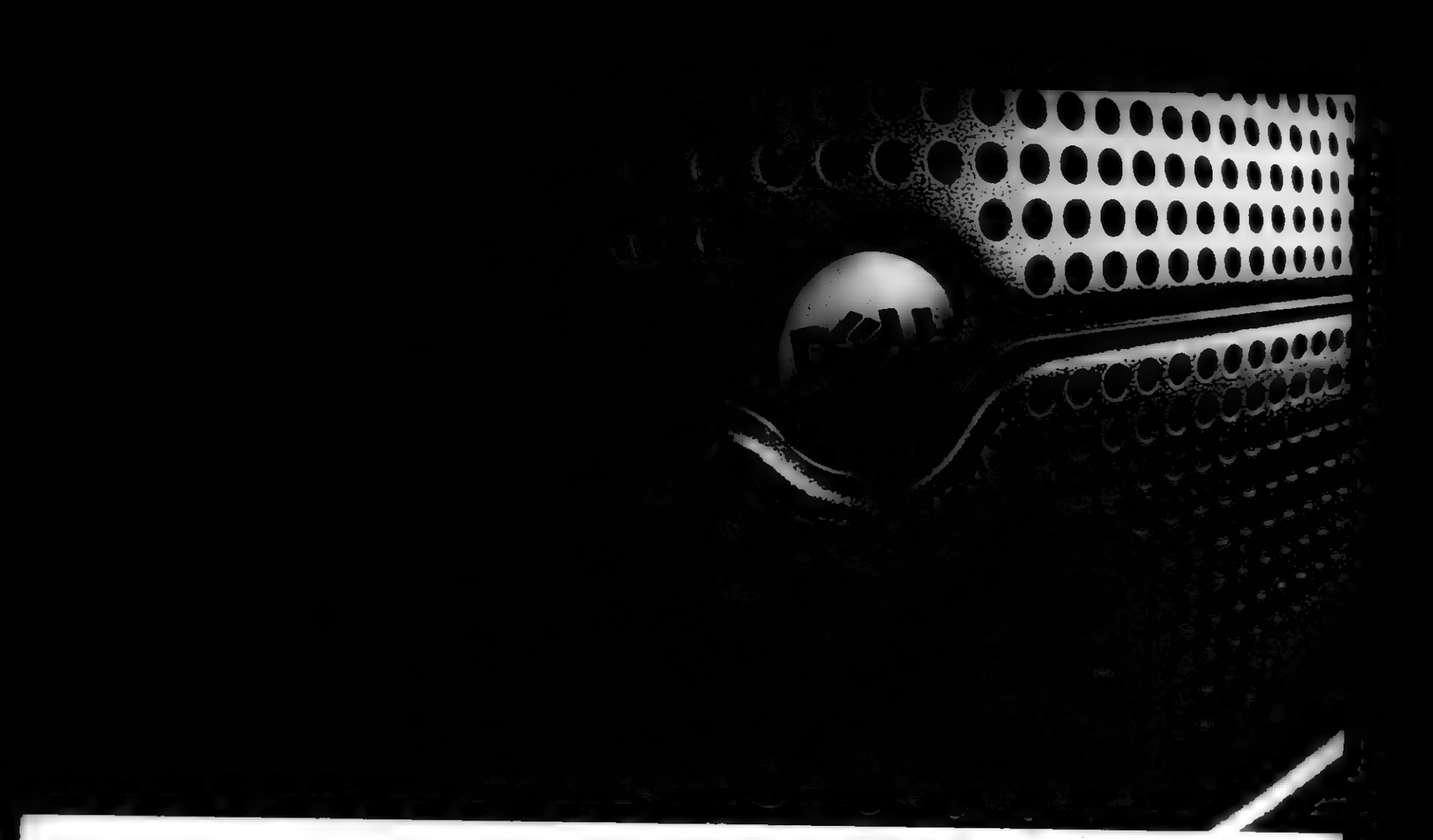

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GO Online For Latest Prices and Weekly Promotions

Porn Policy Collars a Million-Dollar Customer

The HR department bends some rules when offensive content comes in from the company's largest client. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

A BRIEF ALTERCATION this week with a staff salesperson gave me a new perspective on how pornographic e-mail can affect our business.

Like most companies with Internet access, we've had our share of employees who download inappropriate material. To eliminate the excuse that the porn came unsolicited, our most recent policy is quite strict: Anyone who doesn't report even inadvertent access to inappropriate material will be held accountable.

Because of this policy, the security staff has to field calls and e-mails about every offensive message. Still, I'm happy to accept those messages if it means that nobody can get away with downloading pornography by claiming that it was a mistake. But then we heard from Malcolm in sales, who reported receiving an inappropriate e-mail.

Comedy of Errors

I arrived at Malcolm's office with a set of floppy disks, ready to take a copy of the e-mail and its contents for investigation. This was the first time I'd done an investigation with the sales team, and I wanted to make a good impression, since we want them to stress to our customers how secure our company is.

My plan was simple: Copy the e-mail and message headers, delete the original to stop the content from spreading further and investigate the source. Case closed.

But it didn't exactly go well. My company gives Compaq iPaq desktops to most employees. The units are quiet, have a small footprint and work well, but they don't have a great deal of expandability and aren't designed to be upgraded or modified.

The next problem was that Malcolm's machine didn't have a floppy drive. I left him twiddling his thumbs and returned 10 minutes later with a removable drive. Then I discovered that iPaqs come with a locked assembly to stop users from removing the blank plate in order to insert a floppy drive. So I left again. Another 10 minutes later, I returned, this time with a key and the drive. At this point, I was slightly flushed and a little embarrassed.

I installed the drive without a problem and was getting ready to copy the e-mail when Malcolm asked what I was doing. When I started to explain the plan, he suddenly panicked. "Whoa," he screamed, as he tried to grab the floppy disk out of my hand.

> **It was adult content that was unlikely to be illegal but was certainly in breach of our policy – and no doubt in breach of our customer's policy.**

Apparently the pornographic e-mail he received came from the key contact at our largest customer. Malcolm was terrified that any kind of formal complaint would alienate his contact. Our company might then lose the account, and there would be hell to pay.

I gave him our normal platitudes that the course of action is up to the human resources and legal departments and that we just carry out the investigations. However, I also knew that those departments tend to follow my team's advice because of our experience in these matters.

I returned to our lab and reviewed the material. It was adult content that was unlikely to be illegal but was certainly in breach of our policy — and no doubt in breach of our customer's policy.

Moral Dilemma

Did I want to stand firm and help stamp out this kind of behavior, even if my company might lose its largest customer and millions of dollars in revenue? Or should I recommend that our company just ask Malcolm to drop a polite note to his contact saying he'd rather not receive anything like that and let the matter drop?

I must confess that I took the easy route and recommended to human resources that we let the matter drop as long as Malcolm told the sender informally that he should stop sending such stuff — and that we would be forced to take a formal approach next time.

It would be much better if we could find a way to stop this kind of content from getting into our company in the first place. I've always been a little wary of content inspection products, particularly those that look for embedded images, because in my experience, they just don't work. Still, if we could catch even half the porn being sent in, we could block or warn off the top senders.

False Alarms

The reason these products don't work isn't because they can't identify pornographic images but because they tend to have a high false-alarm rate. Pictures of babies, the Mona Lisa and just random landscapes and business logos can be misidentified as pornography.

I did find one company making bold claims in this area. I didn't believe them, but it was willing to provide an evaluation copy of its software. The company did, however, warn me about the one area that the software has problems with: Pictures of elephants are known to cause false alarms. Apparently, the combination of two large round ears and a long trunk raises the red flag.

With this tool, we should be able to successfully block offensive content — so long as that customer doesn't send Malcolm any photos of safari trips. I'll report back on how well the product works in a future column. In the meantime, if you know of any good ways to protect staff from e-mail with offensive content, drop me a line with your suggestions.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: QuickLink a1560

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Cisco Updates Firewalls

Cisco Systems Inc. has introduced software upgrades that boost the speed of and allow more concurrent users on some of its low-end Pix firewall appliances. The upgrades increase the performance of the Pix 501 and 506E models and add support for the Advanced Encryption Standard.

Cisco also announced two new add-on modules, the Pix 535E and 535X. The 535E-4FE costs $7,500, and a pair of devices that hook up each other costs $10,000. A single 535-2GE costs $14,000, and a redundant pair costs $30,000.

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BRIEFS

URoam Upgrades SSL VPN Appliance

URoam Corp. in Sunnyvale, Calif., announced last week that it's shipping a revision of its Secure Sockets Layer (SSL) virtual private network (VPN) appliance, the FirePass 1000/4000 server. Version 3.5 offers greater security and control for IT managers, according to uRoam. It also offers policy-based access for users, giving them e-mail and file access from cell phones, as well as e-mail, intranet and file access from kiosks. No preinstalled client software is required. Pricing starts at $11,000 for a license serving 100 concurrent users.

Vendor Announces PlanView v7.3

PlanView Inc. has announced Version 7.3 of its PlanView Portfolio Management program. The Austin, Texas-based IT portfolio, resource and project management tool vendor said the new version includes tools to rank potential IT investments. PlanView 7.3 also includes portals for viewing IT investments, tracking IT asset performance and managing IT project resources. Other features include a Web-based time and expense module and full-text search capability. Pricing for Version 7.3, which ships in June, starts at $50,000.

E.piphany Ships Two CRM Products

San Mateo, Calif.-based customer relationship management (CRM) software maker E.piphany Inc. last week announced that it is shipping two new products to help companies in the telecommunications and finance markets increase sales volume. Interaction Advisor for Telecommunications and Interaction Advisor for Retail Finance take historical data to help upsell and cross-sell to customers who contact a company by phone or e-mail, according to E.piphany. Pricing starts at $100,000.

ROBERT L. MITCHELL

Scope Creep and Exchange Server 2003

WHEN I WAS IN SCHOOL, I was always working on my car. I had it figured that I'd save a bundle by modifying it myself. But inevitably, I'd would fail to estimate the scope of the project, and I'd spend ridiculous amounts of time throwing good money after bad. That upgrade to a four-barrel carburetor didn't fit unless I changed out a few hoses and feed lines. Then I needed a bigger fuel pump to keep the supply lines humming. In the end, I decided that the carburetor wasn't going to work as advertised unless I had the right motor underneath it. Upgrading IT infrastructure is a lot like that, especially when it comes to Microsoft's products.

Exchange Server 2003, the upcoming release of Microsoft's e-mail server software, is a classic example. Microsoft does a very good job of integrating its products and creating interdependent feature sets that it hopes will push IT into lock-step upgrades of its desktop, server and application software. And to exploit the most compelling features of Exchange 2003, you'll need to do exactly that.

E-mail administrators who already got their fingernails dirty migrating from Exchange 5.5 to 2000 can identify with these sentiments. Exchange 2000 was the first version to use Windows 2000 Server's Active Directory as its repository for user information, a requirement that has led many companies into major server infrastructure upgrades. But Exchange 2000 also delivered real benefits to administrators, enabling faster backbone communications, more granular administrative controls for delegating tasks, improved reliability and server consolidation through support for four-way servers, active-active clustering and multiple message databases per server.

If Exchange 2000 was about the back end, Exchange 2003 is very much user-focused. New features include greatly improved performance between Outlook and Exchange over slow links, support for SSL session encryption and changes to the Outlook Web Access user interface to make it look like the standard Outlook 2003 client. Exchange 2003 also supports snapshot-backup technology that could reverse the trend toward creating multiple, smaller message databases in order to meet backup and restore-time commitments.

Exchange 5.5 users considering a migration to Exchange 2003 face all the same challenges Exchange 2000 users faced, and then some. But for those already on Exchange 2000, going to Exchange 2003 might look like a Sunday drive. It requires upgrading to Windows Server 2003, but the Exchange server upgrade shouldn't require the major revamping of hardware and server configurations that 2000 did.

But what about those performance improvements over slow links? Users at remote sites will benefit. And heck, you might even be able to consolidate by removing servers no longer needed at remote sites. But you won't see these benefits from Exchange 2003 unless you also upgrade to Outlook 2003, which ships with Office 2003 later this year. The latter won't work with anything older than Windows 2000 with Service Pack 3. And you'll probably need at least 245MB of disk space and 256MB of RAM per machine. Are you ready to go down that road?

Then there's Windows Server 2003. You could just slide it under your Exchange 2003 servers and be done with it. But unless you upgrade the entire Active Directory infrastructure, you probably won't be able to use enhancements such as the ability to support more than 5,000 users in a group or to rebuild branch office servers from a CD instead of resynchronizing them over the network.

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BRIEFS

URoam Upgrades SSL VPN Appliance

URoam Corp. in Sunnyvale, Calif., announced last week that it's shipping a revision of its Secure Sockets Layer (SSL) virtual private network (VPN) appliance, the FirePass 1000/4000 server. Version 3.5 offers greater security and control for IT managers, according to URoam. It also offers policy-based access for users, giving them e-mail and file access from cell phones, as well as e-mail, intranet and file access from kiosks. No preinstalled client software is required. Pricing starts at $11,000 for a license serving 100 concurrent users.

Vendor Announces PlanView v7.3

PlanView Inc. has announced Version 7.3 of its PlanView Portfolio Management program. The Austin, Texas-based IT portfolio, resource and project management tool vendor said the new version includes tools to rank potential IT investments. PlanView 7.3 also includes portals for viewing IT investments, tracking IT asset performance and managing IT project resources. Other features include a Web-based time and expense module and full-text search capability. Pricing for Version 7.3, which ships in June, starts at $50,000.

E.piphany Ships Two CRM Products

San Mateo, Calif.-based customer relationship management (CRM) software maker E.piphany Inc. last week announced that it is shipping two new products to help companies in the telecommunications and finance markets increase sales volume. Interaction Advisor for Telecommunications and Interaction Advisor for Retail Finance take historical data to help upsell and cross-sell to customers who contact a company by phone or e-mail, according to E.piphany. Pricing starts at $100,000.

ROBERT L. MITCHELL

Scope Creep and Exchange Server 2003

WHEN I WAS IN SCHOOL, I was always working on my car. I had it figured that I'd save a bundle by modifying it myself. But inevitably, I'd would fail to estimate the scope of the project, and I'd spend ridiculous amounts of time throwing good money after bad. That upgrade to a four-barrel carburetor didn't fit unless I changed out a few hoses and feed lines. Then I needed a bigger fuel pump to keep the supply lines humming. In the end, I decided that the carburetor wasn't going to work as advertised unless I had the right motor underneath it. Upgrading IT infrastructure is a lot like that, especially when it comes to Microsoft's products.

Exchange Server 2003, the upcoming release of Microsoft's e-mail server software, is a classic example. Microsoft does a very good job of integrating its products and creating interdependent feature sets that it hopes will push IT into lock-step upgrades of its desktop, server and application software. And to exploit the most compelling features of Exchange 2003, you'll need to do exactly that.

E-mail administrators who already got their fingernails dirty migrating from Exchange 5.5 to 2000 can identify with these sentiments. Exchange 2000 was the first version to use Windows 2000 Server's Active Directory as its repository for user information, a requirement that has led many companies into major server infrastructure upgrades. But Exchange 2000 also delivered real benefits to administrators, enabling faster backbone communications, more granular administrative controls for delegating tasks, improved reliability and server consolidation through support for four-way servers, active-active clustering and multiple message databases per server.

If Exchange 2000 was about the back end, Exchange 2003 is very much user-focused. New features include greatly improved performance between Outlook and Exchange over slow links, support for SSL session encryption and changes to the Outlook Web Access user interface to make it look like the standard Outlook 2003 client. Exchange 2003 also supports snapshot-backup technology that could reverse the trend toward creating multiple, smaller message databases in order to meet backup and restore-time commitments.

Exchange 5.5 users considering a migration to Exchange 2003 face all the same challenges Exchange 2000 users faced, and then some. But for those already on Exchange 2000, going to Exchange 2003 might look like a Sunday drive. It requires upgrading to Windows Server 2003, but the Exchange server upgrade shouldn't require the major revamping of hardware and server configurations that 2000 did.

But what about those performance improvements over slow links? Users at remote sites will benefit. And heck, you might even be able to consolidate by removing servers no longer needed at remote sites. But you won't see these benefits from Exchange 2003 unless you also upgrade to Outlook 2003, which ships with Office 2003 later this year. The latter won't work with anything older than Windows 2000 with Service Pack 3. And you'll probably need at least 245MB of disk space and 256MB of RAM per machine. Are you ready to go down that road?

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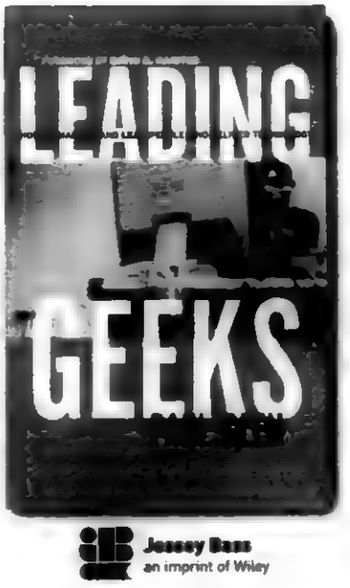

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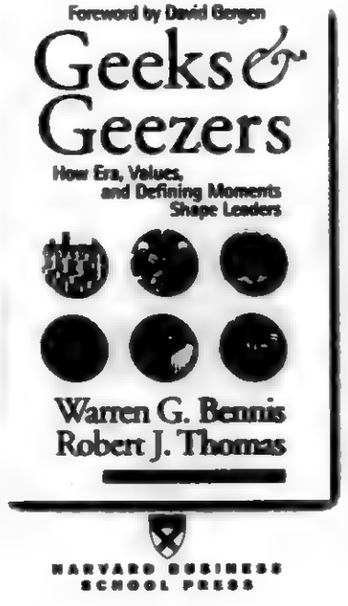

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Snake Pit or Gold Mine?
Times are tough, and most IT execs love a challenge, but not every CIO job is worth accepting. IT professionals like Atefeh Riazi (left) offer tips on how to analyze a job offer. **Page 48**

Premium Protection
A small but growing number of organizations are taking steps to buy insurance as protection against cyber-attacks and data theft. **Page 50**

Sealing the Deal and Collecting Their Due
Sales forces are gaining access to tracking and reporting data through information-sharing software, which helps ensure that they collect accurate commissions. **Page 52**

Cold Calls

FEELING THE HEAT

Automating the process of telemarketing compliance can keep the phones ringing. By Mary Brandel

IN THE PAST 18 MONTHS, the U.S. retail motto has gone from "buyer beware" to "seller beware" when it comes to marketing goods and services over the phone. Thanks to a flood of state-based do-not-call laws, companies in industries ranging from insurance, hospitality and travel to real estate, finance and telemarketing need to pay attention to whose number they're dialing — or face first-time offender fines ranging from $100 in Wisconsin to $25,000 in Indiana.

That's the price they stand to pay for calling consumers who are registered on any of the do-not-call lists that more than half of the states now maintain. States are becoming more aggressive about encouraging people to report violators, and they're collecting fines from the offenders and publicizing their names. And fearing that negative publicity could cut into the hundreds of billions in revenue they make from telephone solicitations, companies are scrambling to perfect their databases and dialing systems.

Do-not-call laws aren't new. Florida enacted the first such law in 1990. Since then, companies have been purchasing lists, which can cost up to $800 annually, and IT departments have been merging their companies' lead databases with these lists, purging numbers that shouldn't be called.

Database administrators also have to integrate their companies' internal do-not-call lists, which are required by the Federal Trade Commission, with their customer lists, which could be in several separate databases across the company. In one exemption from do-not-call laws, companies can call their own customers, even if those customers are on a state do-not-call list.

Unfortunately, the way most companies find out that their in-house list-scrubbing is imperfect is by committing a violation. In the past couple of years, even large companies like Chase Manhattan Bank, Wells Fargo Bank, Discover Financial Services and Marriott Ownership Resorts Inc. have faced fines. As a result, companies are turning to outside service providers for list-scrubbing services, and they're implementing systems that automatically block noncompliant calls.

Future Call

"There might be a few companies out there that think they can handle this in-house, but I don't think it's possible, unless they have a staff dedicated day-in and day-out to doing the research, pulling down the information, verifying it, scrubbing their internal lists and

ASP-BASED LIST-SCRUBBING	NETWORK-BASED SYSTEM (GRYPHON)	CARRIER-BASED SYSTEM (TELEBLOCK)
Strengths: ■ The turnaround time is fast. ■ It's inexpensive. ■ IT departments can retain some control over the process.	**Strengths:** ■ Do-not-call lists are updated in real time, leaving no room for error. ■ Blocks calls placed during restricted hours. ■ Consumers who ask to be on do-not-call list are immediately blocked across the enterprise.	**Strengths:** ■ Agents can dial as if they're making a normal phone call. ■ Do-not-call lists are updated in real time, leaving no room for error.
Weaknesses: ■ The resulting list is only as good as the ASP that does the scrubbing. ■ It's still a somewhat manual process, leaving room for error.	**Weaknesses:** ■ Agents need to dial an access code before making a phone call. ■ The cost is calculated on a per-call basis, so the service can get expensive.	**Weaknesses:** ■ Currently, customers have to sign up with a relatively unknown long-distance carrier. ■ It's still unclear how long-distance providers are going to charge for the service in the future. ■ Doesn't block calls during curfew times.

checking it again," says B.J. Neider, manager of data transmissions and response modeling in the IT department at FutureCall LLC, a telemarketing outsourcer in Colorado Springs.

Neider says achieving perfect compliance required "too much time and money to tackle with the resources we had." He estimates that it took four IT employees 10 hours each per week to subscribe to the new state lists as they came out, keep up with which states had new laws and bring the lists in-house, convert them to a workable format and scrub them against all the contact databases maintained in the call center. Even with all that due diligence, FutureCall was once fined $75,000 in New York.

Neider signed on 14 months ago with PossibleNow.com Inc., an application service provider in Duluth, Ga., that offers DNCSolution, a Web-based list-scrubbing application that sends an e-mail when any state list has been updated. Upon receipt of the e-mail, a FutureCall employee pulls the contact database from the automated dialers in the call centers and sends them to PossibleNow, which returns the database with flags next to numbers that must be suppressed. The employee then sends the updated databases back to the call centers, all within a matter of hours.

For example, Neider says, "If Indiana's [do-not-call list] was just updated and goes into effect tonight, we can log on, go to our client folder, have the system scrub the leads, get a return file and have it in place the next morning before dialing begins," Neider says. Speed is important, he says: "Every hour I spend not dialing is revenue lost."

FutureCall still needs to subscribe and pay for the state lists, but it no longer has to be proactive about the updates. With this service, Neider figures he can scrub 18 million records per month at a cost of $36,000 annually. "If I have two violations in Indiana, there's my $35,000 right there," he says. "The money we paid out for fines exceeded our yearly cost with PossibleNow."

Bankers Life

Other companies find that even that process is too manual. One is Bankers Life and Casualty Co., which uses phone marketing to sell some of its insurance products.

"There are do-not-call lists from 30-plus states at this point, and they all come in different formats, with different update frequencies, some via the Internet, some on floppies. So first you have to aggregate all the lists and then deploy them somehow [to your various locations], whether manually or via a centralized database. That allows people to query it before making a call," says Michael Snavely, a marketing executive at Chicago-based Bankers Life. "It's an incredible investment of money."

Bankers Life chose a service from Norwood, Mass.-based Gryphon Networks Corp., which claims to block noncompliant calls in two ways: One is via a network-based service, for which companies pay a per-call fee. The second is with a system the marketer implements itself and hooks into its automated dialers. The latter system is often used by large telemarketing outsourcing companies.

Bankers Life uses Gryphon's network-based system. Any call originated by a Bankers Life agent gets routed by a local or long-distance carrier through a Gryphon database that contains relevant state do-not-call lists, updated in real time, as well as Bankers Life's internal do-not-call list. If the number matches one in the database, the sales agent hears a message saying it's a restricted number and the call never goes through. A call will also be blocked if the agent is calling at a time that's off-limits in the state being called — say, before 9 a.m. in Connecticut.

Furthermore, if consumers ask to be added to Bankers Life's internal list or say they are on a state do-not-call list, the agent can simply press the pound key to record the name and number in a Gryphon database, blocking access to it in every Bankers Life branch.

"You don't have to buy any equipment of any kind," says Keith Fotta, president of Gryphon. "You access the service via a network access number and put in your code, which locks you in for the whole session."

Snavely estimates that he spends about $100,000 a year to buy the state lists, and about the same for Gryphon's annual subscription fee, which is based on the number of calls the company makes or the number of sales agents making calls. Without the system, he figures, he would easily pay $100,000 per year in fines. "And if you're a multiple offender, the state can theoretically eliminate your ability to conduct telemarketing in that state," he says.

A Matter of Survival

The bottom line is that compliance with do-not-call laws is becoming a matter of survival for companies that reap big revenues through phone-based solicitations. Automating the compliance process may take some control out of IT's hands, but technology managers can play a huge role in helping their legal and marketing departments understand the various technology choices.

IT will also need to remain involved at the implementation level, particularly at companies where customer lists and contact databases are scattered in different formats and on different systems.

"Based on the list of violators I see on a regular basis [as they are published by the states], I get a strong sense that our competitors and peers within insurance and in different industries are doing a lousy job of this and are getting hit again and again and again," Snavely says. Reputations are at stake, not just those of telemarketers but of anyone who engages in phone-based marketing. ▮

Brandel is a freelance writer in Newton, Mass. You can contact her at brandels@attbi.com.

CARRIERS OFFERING SERVICES

Another network-based option is TeleBlock from Call Compliance Inc. in Glen Cove, N.Y. TeleBlock automatically screens and blocks calls to people on state, in-house and third-party do-not-call lists within the network of a participating telephone company.

A company in need of telemarketing services signs up for TeleBlock through its long-distance carrier, where the system is installed.

One drawback is that TeleBlock is offered by only three small long-distance carriers – eMeritus Communications Inc., Covista Communications Inc. and Illuminet, now owned by VeriSign Inc. But through an agreement that VeriSign and Call Compliance reached last year, TeleBlock is now available to all telecommunications carriers nationally.

Robert Brous, president of HD Brous & Co., a Wall Street investment firm with 200 employees, says it "wasn't realistic" for the company to require brokers to constantly check against state do-not-call lists before making a call. He contracted with eMeritus for long-distance service when TeleBlock first became available three and a half years ago. "It basically took any questions away of compliance headaches," Brous says.

Brous says he also looked into building his own database and attaching it to the phone system, but that wouldn't have worked with his company's multiple locations. List-scrubbing doesn't address the problem because it doesn't work in real time, he says, "plus, you're relying on how well the company does the scrubbing."

– *Mary Brandel*

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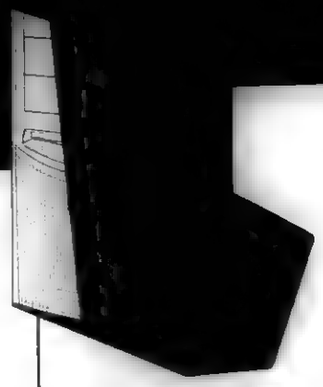

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Snake Pit or Gold Mine?

Here are 10 ways to analyze a CIO job offer. By Alan S. Horowitz

THE MARKET FOR CIOs isn't what it used to be. "Times are poor, and the market is kind of soft," notes Rick Schoenhals, senior director for IT for the National Football League's Denver Broncos. The temptation is great to jump at any decent-sounding offer. Stop. Not every job offer thrown your way should be caught. How can a CIO know which offers are worth serious consideration and which should be given a pass? Here are 10 points to consider when analyzing an offer:

1 Is the organization financially sound? Unless you're a turnaround specialist, beware of a troubled company. It will likely promise more than it can deliver.

"The biggest red flag is the financial condition of the company," advises M. Victor Janulaitis, CEO of Janco Associates Inc., an IT consulting firm in Park City, Utah.

2 Starting compensation matters. Beware if the financial package offered is filled with promises for the future. "I'd really look for them to want me as much as I want to work for them. They need to step up with an offer that shows an interest in you," recommends Schoenhals.

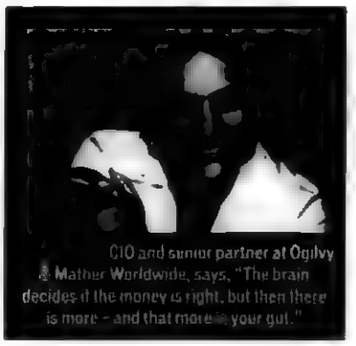
3 Pay attention to the personal chemistry, especially between you and the person to whom you'll report. "Can you work with each other; do you have common goals and a common point of view?" asks Atefeh Riazi, CIO and senior partner at New York advertising agency Ogilvy & Mather Worldwide. No hard and fast rules exist for gauging personal chemistry. Trust your intuition, says Riazi, who adds, "The brain decides if the money is right, but then there is more — and that more is your gut."

4 How important is IT to the company's top management? If you'll be reporting to the CEO, IT is probably viewed as important. What's the chief financial officer's attitude toward IT? Ask the CFO for his vision for IT within the company. If the answer is long and detailed, that's good; if it's short or vague, watch out. Look at the organization's metrics to get an understanding of how IT is viewed and measured. Jo Haraf, CIO at San Francisco-based law firm Morrison & Foerster LLP, says that in law firms, a good ratio of IT staff to overall staff is 1-to-20 or 1-25. If the firm you're considering has a 1-10 or 1-50 ratio, it would indicate a very strong or very weak commitment to IT.

5 How will your performance be measured? Ask the person who will be your boss, "How will you know if I'm doing a good job or not?" You want to know the criteria by which you'll be judged, says Gerry McCartney, CIO at University of Pennsylvania's Wharton School in Philadelphia. You want a prospective boss who can articulate these standards in some detail. "You don't want the job if they can't tell if you're successful or not," says McCartney.

6 Know the state of drivers behind your potential success. Tim Buckley, CIO at mutual-fund company The Vanguard Group Inc. in Malvern, Pa., says for a CIO to be successful, he needs drivers such as good people to work with, a business side that views IT as a partner and a company committed to professional development for IT staff.

Understand management and its expectations. Katherine Spencer Lee, executive director at IT placement firm RHI Consulting Inc. in Menlo Park, Calif., says you should ask yourself the following questions: How experienced is the management team you're going to be a part of? Does it have a history of stability? What are the goals of that management team, and are they smart goals? Have the goals been quantified, and are they realistic? And, of course, could you realistically deliver what they're looking for?



CIO and senior partner at Ogilvy & Mather Worldwide, says, "The brain decides if the money is right, but then there is more – and that more is your gut."

Can you answer all of these questions positively regarding the company you're considering? If not, you may never be successful, no matter how good you are.

7 How does the job situation fit your interests? "Can you have passion for the industry and the company?" asks Buckley. "If you don't groove on the company, you'll never click."

Lee makes the point that you should wake up each day wanting to go to work. If the company seems unlikely to generate that kind of passion in you, look elsewhere.

8 Does the full scope of your responsibilities sound interesting? This refers to not only the responsibilities of IT, but also to the scope of the problems the company faces, what you will be asked to do and how IT and the business side work together, says Lars Rabbe, former CIO at Redback Networks Inc. and now an executive in residence at Clearstone Venture Partners in Menlo Park.

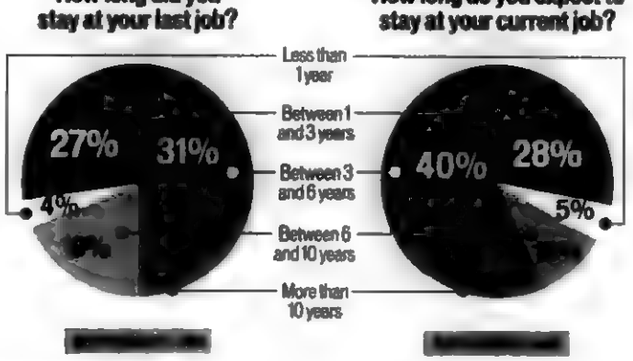
9 Be wary if a company in a major metropolitan area is willing to relocate you. "Why are they spending a lot of money to relocate you? Why didn't locals take the position?" asks Janulaitis.

10 Realistically consider the demands of the job. Do you want to live your job or live your life? If the company's IT department is troubled, you may have to put in more time on the job than you want. "People are looking for a job that allows them to have a life," says Riazi of Ogilvy & Mather. ▶

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.

Should I Stay or Should I Go?

CIOs and the heads of IT have held their titles for an average of four years and eight months, according to a 2002 *CIO* magazine study titled "The State of the CIO." Here's a closer look at their tenure:



SOURCE: *CIO* MAGAZINE, MARCH 2002

Snake Pit or Gold Mine?

Here are 10 ways to analyze a CIO job offer. By Alan S. Horowitz

THE MARKET FOR CIOs isn't what it used to be. "Times are poor, and the market is kind of soft," notes Rick Schoenhals, senior director for IT for the National Football League's Denver Broncos. The temptation is great to jump at any decent-sounding offer. Stop. Not every job offer thrown your way should be caught. How can a CIO know which offers are worth serious consideration and which should be given a pass? Here are 10 points to consider when analyzing an offer:

1 Is the organization financially sound? Unless you're a turnaround specialist, beware of a troubled company. It will likely promise more than it can deliver.

"The biggest red flag is the financial condition of the company," advises M. Victor Janulaitis, CEO of Janco Associates Inc., an IT consulting firm in Park City, Utah.

2 Starting compensation matters. Beware if the financial package offered is filled with promises for the future. "I'd really look for them to want me as much as I want to work for them. They need to step up with an offer that shows an interest in you," recommends Schoenhals.

3 Pay attention to the personal chemistry, especially between you and the person to whom you'll report. "Can you work with each other; do you have common goals and a common point of view?" asks Atefeh Riazi, CIO and senior partner at New York advertising agency Ogilvy & Mather Worldwide. No hard and fast rules exist for gauging personal chemistry. Trust your intuition, says Riazi, who adds, "The brain decides if the money is right, but then there is more — and that more is your gut."

4 How important is IT to the company's top management? If you'll be reporting to the CEO, IT is probably viewed as important. What's the chief financial officer's attitude toward IT? Ask the CFO for his vision for IT within the company. If the answer is long and detailed, that's good; if it's short or vague, watch out. Look at the organization's metrics to get an understanding of how IT is viewed and measured. Jo Haraf, CIO at San Francisco-based law firm Morrison & Foerster LLP, says that in law firms, a good ratio of IT staff to overall staff is 1-to-20 or 1-25. If the firm you're considering has a 1-10 or 1-50 ratio, it would indicate a very strong or very weak commitment to IT.

5 How will your performance be measured? Ask the person who will be your boss, "How will you know if I'm doing a good job or not?" You want to know the criteria by which you'll be judged, says Gerry McCartney, CIO at University of Pennsylvania's Wharton School in Philadelphia. You want a prospective boss who can articulate these standards in some detail. "You don't want the job if they can't tell if you're successful or not," says McCartney.

6 Know the state of drivers behind your potential success. Tim Buckley, CIO at mutual-fund company The Vanguard Group Inc. in Malvern, Pa., says for a CIO to be successful, he needs drivers such as good people to work with, a business side that views IT as a partner and a company committed to professional development for IT staff.

Understand management and its expectations. Katherine Spencer Lee, executive director at IT placement firm RHI Consulting Inc. in Menlo Park, Calif., says you should ask yourself the following questions: How experienced is the management team you're going to be a part of? Does it have a history of stability? What are the goals of that management team, and are they smart goals? Have the goals been quantified, and are they realistic? And, of course, could you realistically deliver what they're looking for?

Can you answer all of these questions positively regarding the company you're considering? If not, you may never be successful, no matter how good you are.

7 How does the job situation fit your interests? "Can you have passion for the industry and the company?" asks Buckley. "If you don't groove on the company, you'll never click."

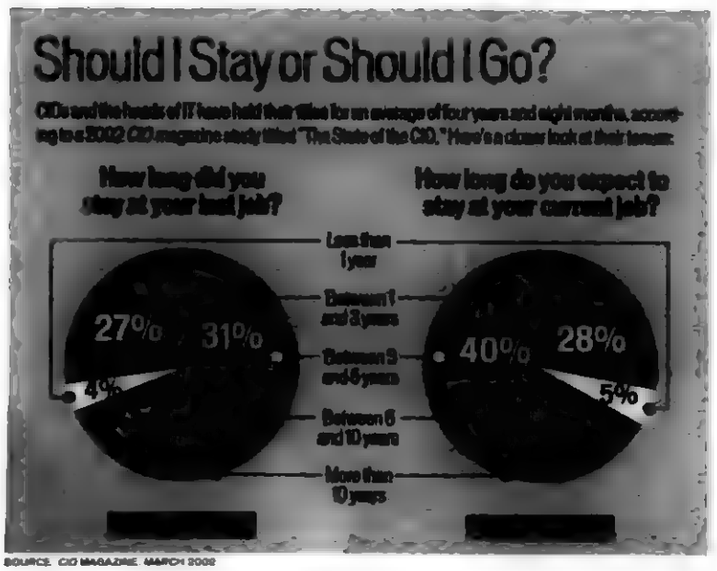
Lee makes the point that you should wake up each day wanting to go to work. If the company seems unlikely to generate that kind of passion in you, look elsewhere.

8 Does the full scope of your responsibilities sound interesting? This refers to not only the responsibilities of IT, but also to the scope of the problems the company faces, what you will be asked to do and how IT and the business side work together, says Lars Rabbe, former CIO at Redback Networks Inc. and now an executive in residence at Clearstone Venture Partners in Menlo Park.

9 Be wary if a company in a major metropolitan area is willing to relocate you. "Why are they spending a lot of money to relocate you? Why didn't locals take the position?" asks Janulaitis.

10 Realistically consider the demands of the job. Do you want to live your job or live your life? If the company's IT department is troubled, you may have to put in more time on the job than you want. "People are looking for a job that allows them to have a life," says Riazi of Ogilvy & Mather.

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.



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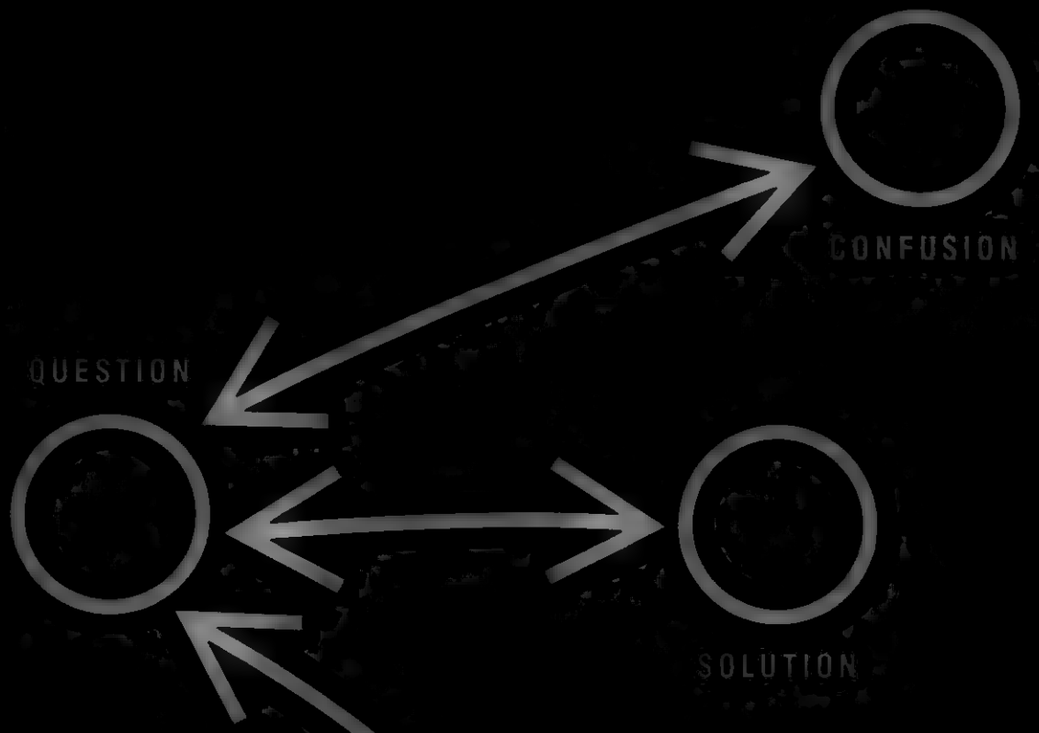

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2] WIN WITH LOTUS: As the leader in business instant messaging, Lotus Sametime® helps you locate and communicate with the people you need, instantly and securely. Lotus. Part of our software portfolio including DB2,® Tivoli® and WebSphere.®

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PREMIUM PROTECTION

Security breaches. Viruses. Should you amend your IT insurance plan to cover such risks? By Thomas Hoffman

A SMALL BUT GROWING number of companies are looking to buy insurance that would provide financial relief in the event of a data security breach caused by cyberattack or digital terrorism.

Let's say a hacker broke into your company's networks and accessed reams of sensitive customer account data. Would your company be covered under its general liability insurance? Probably not.

Three or four years ago, there were a lot more gray areas as to whether information security was covered under general corporate liability policies, says Emily Freeman, a security consultant at AIG eBusiness Risk Solutions in San Francisco, an American International Group Inc. (AIG) division.

Computer and data security "wasn't affirmatively covered, but it wasn't excluded either. But now, the drift is for exclusion," says Freeman. As a result, financial services companies, retailers, hotels, travel-related businesses and technology companies are showing strong interest in data security insurance.

Commercial insurers such as AIG, Zurich North America Insurance Co. and The Chubb Corp. are responding with customized cybersecurity policies based on individual companies' exposure to risk.

Better Policies

Initial security policies that were available a few years ago "had high fees, and they weren't selling well," says Scott Charney, chief security strategist at Microsoft Corp. But over the past few years, he says, insurers "have become more savvy in crafting e-policies," even though the amount of business they're booking "is still relatively small," he adds. AIG has 2,000 network security insurance customers and roughly 70% of the global market, Freeman claims.

But IT and business managers should be aware that potentially crippling worms and viruses like the recent Slammer virus typically aren't covered under these newer data security insurance policies.

Why not? Consider the following analogy: Companies can buy fire insurance for 20 buildings in one city because the chance of a fire sweeping through all of the facilities at the same time is pretty remote, says Alan Paller, director of the SANS Institute in Bethesda, Md., a research organization for security managers and systems administrators. "But the rules for viruses are completely different — they can affect everyone," he says. Therefore, insurers typically either won't provide general liability coverage against worms and viruses or will offer only extremely limited property coverage, says Freeman.

Outside of the financial services industry, where electronic transactions with customers are an integral business component and high levels of security are critical, few CIOs and chief security officers are aware of the need for cybersecurity insurance, and senior managers rarely seek their advice when they are considering the company's insurance needs. "We haven't done any work on this yet, but there's a slow groundswell among some companies to begin taking actions on these issues," says RA Vernon, vice president and CIO at Reuters America Inc., which provides information to Wall Street brokerages and the financial services industry.

Before obtaining cybersecurity insurance, companies should have a third party conduct a network security risk assessment to demonstrate compliance to insurers. [See "How to Do an IT Security Audit," QuickLink 35761.] The process includes following security compliance steps that are mapped out by the ISO 17799 standard, a set of controls that detail best practices in information security.

While the ISO standard is widely used, critics say it's too high-level and specifies security practices that are common sense. An example, says Paller: "Make sure your systems are safe." A revamped version of the standard is being written to address some of these shortcomings. "Like any tech-related field, [ISO 17799] is moving in a million different directions at a crazy pace," says Chris Mullins, director of policy and compliance products at Bindview Corp., a security software vendor in Houston.

Evaluation Guidelines

Mullins advises IT managers to follow the guidelines offered by the National Security Agency and the National Institute of Standards and Technology to evaluate their security compliance. These guidelines are also used by some companies to demonstrate their security readiness to would-be insurers, he says.

Insurance companies also look at other factors, such as the frequency of internal security audits, the transfer of internal auditors among business units and the clauses in contracts between companies and their customers and business partners that stipulate the security compliance obligations necessary to receive online access to data.

They also consider human resources policies, says Tracey Vispoli, a manager at Chubb, in Warren, N.J. These include examinations of how employees are trained on IT security practices, how often passwords are changed on laptops and whether organizations conduct criminal background checks of job applicants. "We're not so much concerned with the products [customers] are using to mitigate attacks as we are with the [employee and access] controls and policies they've put in place," she says.

Insurers also tend to consider how vulnerable a particular industry is to attack. For example, if a $15 million office supplies retailer with a limited online presence wanted to buy insurance, AIG's Freeman says she first would have it conduct a security self-assessment using AIG's Web-based auditing tool. But if the client was a bank, AIG would probably require a third-party audit or perform an audit itself, she says. "It depends on the amount of exposures they have and the amount and type of insurance they want," Freeman says.

For its part, Bindview held a Web-based seminar in association with SANS in late February on the legal liability for security breaches. "We've done enough of these to anticipate audience attendance, and we had four times the number of people [4,000 total] register for this event than we normally have," says Mullins. "We're definitely seeing a lot more interest in this space."

THE BLACK HOLE

The Computer Security Institute in San Francisco reported these alarming findings, based on the results of its 2002 Computer Crime and Security Survey:

44% of respondents were willing and/or able to quantify their financial losses

TOTAL LOSSES

While that group, the most-cited reasons for losses were:

TOTAL LOSSES

5.1% attributed losses to theft of proprietary information

4.8% attributed losses to financial fraud

BASE: 503 COMPUTER SECURITY SPECIALISTS IN U.S. ORGANIZATIONS AND GOVERNMENT

THE MISSING CSO

When companies look to buy cybersecurity insurance, CIOs, CSOs and other IT executives are typically absent from the discussions.

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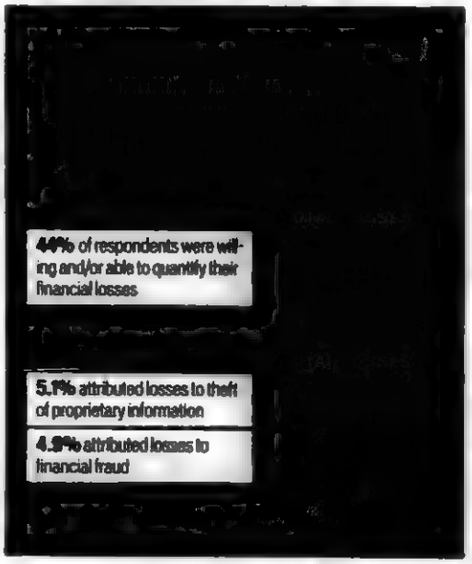

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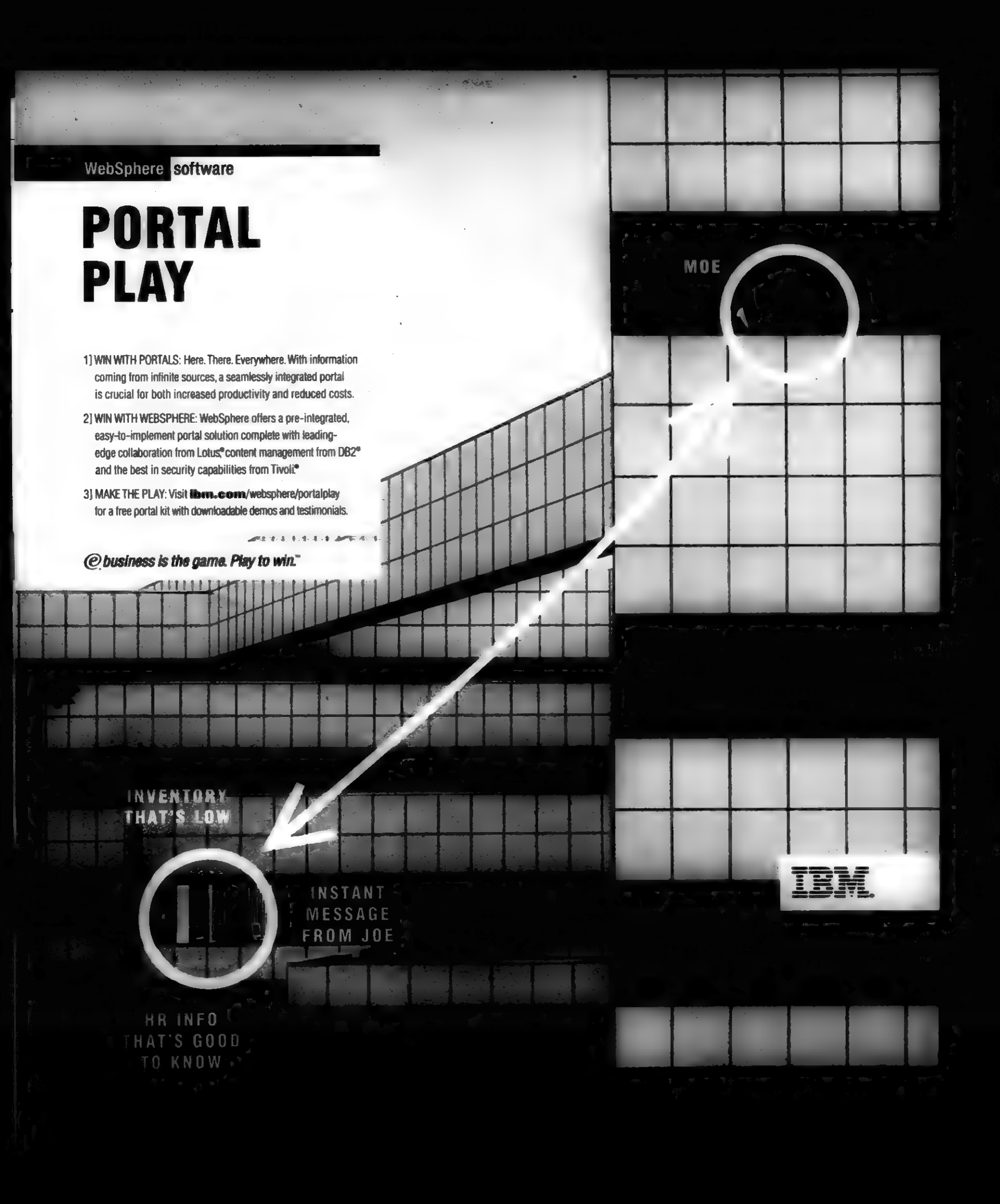
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Sealing the Deal and Collecting Their Due

IT helps salespeople at the front lines and on payday. **By Julia King**

CALL IT A CLASSIC CASE of silo syndrome. Every month, corporate marketing departments spend hundreds of hours and tens of thousands of dollars conducting research, preparing reports and developing promotional materials designed to help their companies' salespeople sell more products and services. The problem is that salespeople often have no easy way to access the gold mine of information.

"Like a lot of companies, Kodak was good at collecting data but not very good at sharing and updating that data," says James Sanford, senior manager of sales communication and strategy development at Eastman Kodak Co.'s consumer imaging unit in Atlanta. The upshot was that a lot of scattered but valuable marketing information and other intellectual property, such as details about customer preferences and orders, was going untapped by the Rochester, N.Y.-based company's sales force.

That's the business challenge Eloquent Inc. is addressing with its LaunchForce content production and navigation software, which enables Kodak, Hewlett-Packard Co. and several other big companies to deliver a full range of product information — including text, synchronized video, graphics, audio and search capabilities — to globally dispersed sales organizations. Earlier this month, San Mateo, Calif.-based Eloquent merged with Open Text Corp., a knowledge management and collaboration software vendor in Waterloo, Ontario.

The vendor bills the software as a "sales readiness tool" that can give salespeople instant access to information about new products, pricing and special promotions, all of which can be critical to sealing a deal and boosting sales.

In August, Kodak deployed Eloquent's software as a means of establishing a central Web-based repository for all product information and collateral marketing materials.

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At HP's Nonstop Enterprise Division in Cupertino, Calif., program manager Tom Hill says the Eloquent system has delivered a tenfold return on investment since its deployment in November 2001. One of the system's biggest tests came with the merger of HP and Compaq Computer Corp., when the newly combined company needed to get hundreds of salespeople up to speed very quickly on an expanded product line.

"The business problem was real simple. Before the merger was finalized on May 7, we couldn't do any [product] training of salespeople prior to that date," Hill explains. "We also didn't have travel money to spend."

Instead, all of the Compaq product information, complete with technical manuals, graphics, video and audio, was loaded into the Eloquent system running on a Compaq/HP server, which was then accessible simultaneously via the Web to HP's salespeople around the globe.

Hill says HP is in the process of "closing the loop on sales readiness" by tapping the Eloquent software's capability to track and report on how frequently people actually use the system and to measure what they learn from it. For example, Hill says he can provide a sales manager in California with information on how a sales and support engineer in El Salvador performs on an online test about a particular product. "We're finally taking learning content and integrating it with sales," Hill says. "When we have additional product lines and salespeople, it will probably add up to a ten- to twentyfold ROI on the system."

At $1 billion Amersham Biosciences Corp., the business issue wasn't getting information to salespeople, but rather paying them accurately for what they had already sold, says Dan Eldridge, manager of business operations at the Piscataway, N.J.-based company. Again, information silos — in the form of dozens of Microsoft Excel spreadsheets with data downloaded from Oracle Corp. databases — were to blame.

"We were managing incentive compensation for 150 to 160 employees via Excel spreadsheets, which was a very manual process, very labor-intensive and fraught with error," Eldridge says. "Our sales reps had no confidence in our ability to produce accurate sales reports and accurate incentive [payments]. The financial quarter would end, and we'd begin calculating incentives, and then it would take us six weeks to pay. After that, we'd spend the next four weeks putting out fires, making corrections. So we'd spend 12 weeks out of every quarter paying incentives."

The issue came to a head when Amersham named a new president, who spent his first weeks in office getting an earful from disgruntled salespeople.

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"To calculate ROI, I looked at things like 'shadow accounting,' which is how much time sales reps were spending analyzing their reports for mistakes rather than spending it out in the field selling," Eldridge says. He was also able to reduce his department's head count by one full-time worker.

The bottom line: "We used to spend four weeks after we paid salespeople fixing problems. Now, we don't even spend a week because very few salespeople have problems with their payments," he says.

Not Your Average Paycheck

Salespeople's pay is based on a combination of ever-shifting factors. This year, for example, 90% of companies will change their sales compensation plans, which typically include the following metrics:

- **Profit**
- **Quotas**
- **Customer retention**
- **Customer satisfaction**
- **Team-based measures**
- **Product mix**

SOURCES: THE ALEXANDER GROUP INC. AND THE AMERICAN COMPENSATION ASSOCIATION

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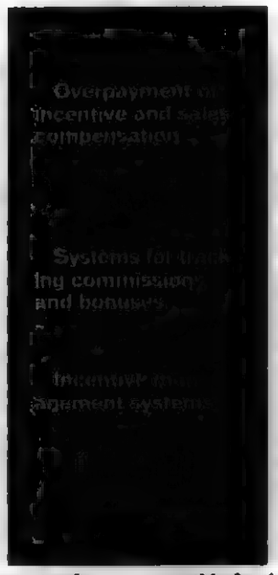

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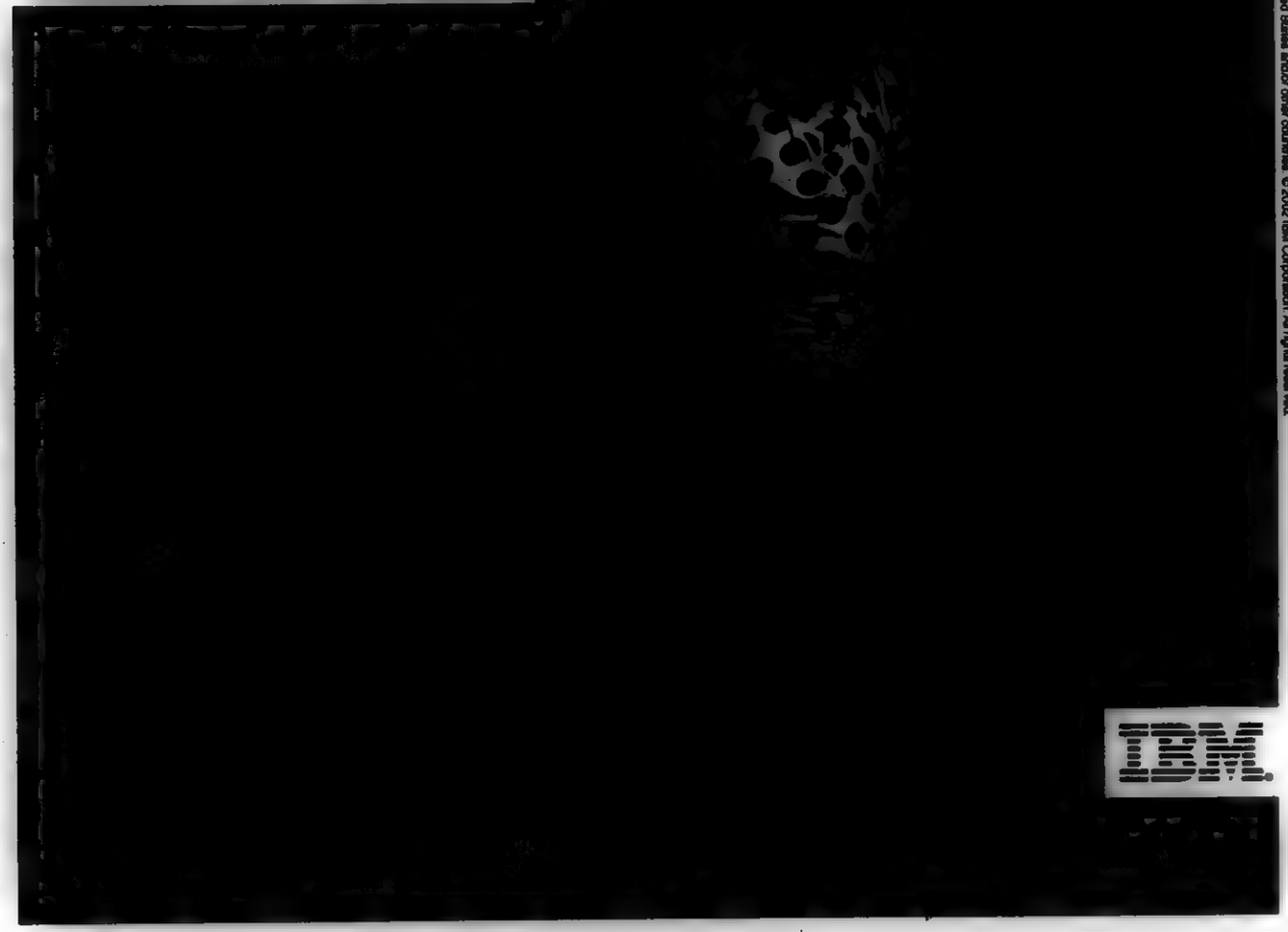

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BRIEFS

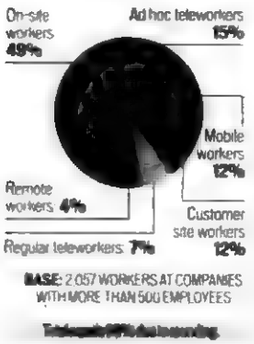
Purchasing Tactics

Business managers and chief financial officers are playing an increasingly important role in IT procurement, according to research firm Summit Strategies Inc. in Boston. Once a company decides to evaluate or do business with a vendor, Summit said, the business side will turn up the heat on the vendor using five tactics:

- Testing the waters with small, measurable pilot projects.
- Forcing the vendor to share the business risk.
- Shifting to pay-as-you-go strategies.
- Seeking offshore professional services support.
- Training the IT staff as contract managers rather than as pure technologists.

Where We Work

According to a recent survey, a majority (51%) of employees work off-site, but from various locations.



BASE: 2,057 WORKERS AT COMPANIES WITH MORE THAN 500 EMPLOYEES

Outsourcing Deals Are Falling Short

Through 2003, senior executives will give failing grades to 50% of all outsourced IT deals because they don't deliver the anticipated value, according to Gartner Inc. One problem is that many companies have failed to develop a comprehensive strategy and instead try to fix problems and change contracts on the fly. Gartner estimates that fewer than 30% of companies have formal plans for managing long-term relationships with external IT service providers.

MICHAEL H. HUGOS

Working Hard: Making the Same Mistakes Over and Over

I BELIEVE that IT is not yet a profession because we do not learn from our mistakes. We do not change our behavior. We have not codified the body of knowledge gained from the past 40 years of experience, and we do not teach this knowledge in any coherent manner to those entering or already working in the field. Massive, multimillion-dollar debacles are not just isolated occurrences in IT. They are the norm.

We are all aware of The Standish Group's studies of the past few years that document a 70% failure rate for IT projects. Some 30% fail outright, and another 40% drag on for years, propped up by huge cash infusions until they are finally shut down.

How can a group that has a 70% failure rate call itself a profession? What if surgeons had a 70 % failure rate? What if airline pilots had a 70% failure rate? Would they even be allowed to continue to practice their professions? People in the construction industry routinely build buildings that don't fall down until they are torn down. We IT folks — many of whom have fancy advanced degrees — can barely build an accounting system that will survive a month-end close.

Companies can't afford to continue throwing money at IT projects and accept the paltry 30% success rate that's the current norm. Yes, the IT field is full of complexity. Yes, the pace of change seems overwhelming at times. Yet if we who claim to be professionals in the field can't define a basic set of practices and use them to drastically increase the success rate of IT projects, then we have little reason to exist.

I propose a set of seven design guidelines and six organizational principles for developing information systems. These guidelines and principles should remain constant over time, regardless of the technology being used. They create a clear and accurate framework that codifies what has been learned about building information systems. The simplicity of the framework makes it readily understandable so that it can be widely used.

Design Guidelines

A system design that respects all seven of these guidelines is the best. It's still a competent design if one of these guidelines is violated, as long as it's not the first guideline. If two guidelines are violated, there need to be very good reasons for doing so, and compensations must be made for those guidelines that are broken. If three or more guidelines are broken, then the design is seriously flawed, and the system can't be successfully built.

The guidelines are as follows:

1. Closely align systems projects to respond to specific business opportunities or needs.
2. Use systems to change the competitive landscape.
3. Leverage the strengths of existing systems to build new systems.
4. Use the simplest possible combinations of technology and business processes.
5. Break the design of big systems into smaller subsystems to reduce the overall complexity and lower the risk of building each subsystem.
6. Don't try to build a system whose complexity exceeds the organization's capabilities.
7. Don't renew a project that has failed once using the same system design and project organization.

Organizational Principles

If the design of a system respects the guidelines listed above, then the use of these six principles will ensure a successful project. If any one of these principles is ignored, then special precautions must be taken to compensate for that. If two or more principles are violated, then the project will flounder and fail.

The principles are as follows:

1. Make sure that every project has a qualified full-time leader with overall responsibility and authority.
2. Define a set of measurable and nonoverlapping objectives that are both necessary and sufficient to build the system that's the goal of the project.
3. Assign project objectives (or subsystems) to teams of two to seven people, with hands-on team leaders and the appropriate mix of business and technical skills.
4. Tell project teams what to do, but let each team figure out how to do what has been assigned to them.
5. Break project work into tasks that are each a week or less in duration and that produce usable subsystems every 30 to 90 days.
6. Provide office staff to work with the project leader and the team leaders to keep project plans and budgets up to date and accurate.

We IT people need to understand these guidelines and practice these principles in different situations. The ability to do this consistently is what will deliver the successful results that enable us to truly call ourselves professionals.

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SOURCE: AMERICAN BUSINESS COLLABORATIVE

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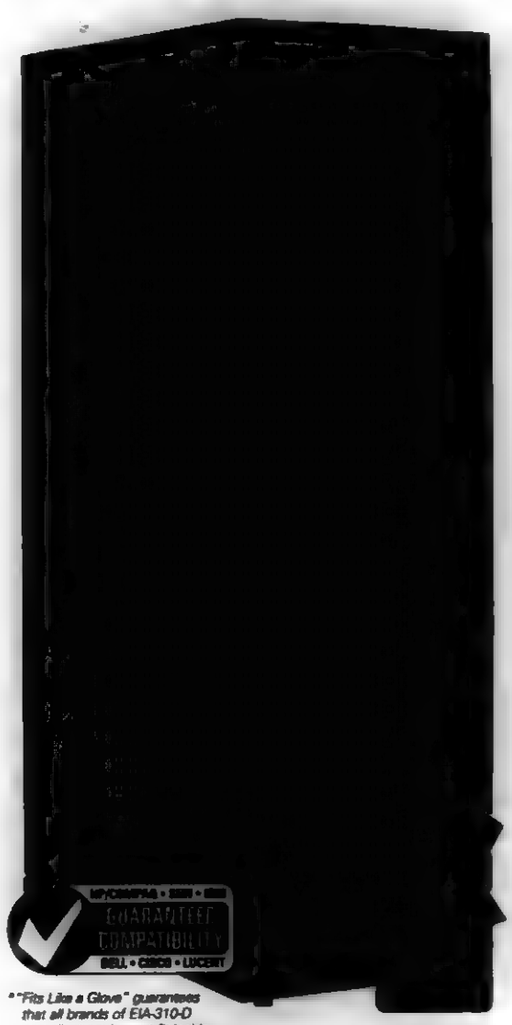
New! APC solves top 4 rack problems.

TOP FOUR RACK-BASED PROBLEMS

	PROBLEM	SOLUTION
1	[illegible]	Additional enclosure depth for better cable management and power distribution
2	[illegible]	Optimal cooling distribution and heat removal for rack environments
3	[illegible]	Monitoring of power and environment at rack helps avoid downtime
4	[illegible]	Vendor-neutral mounting backed up by "Fits like a Glove"* money-back guarantee



*"Fits Like a Glove" guarantees that all brands of EIA-310-D compliant equipment fit inside.

Benefit today from optimal cable management, effective cooling, and remote power distribution. The NetShelter® VX rack enclosure supports your entire data environment, including servers, networking and communications, and storage devices.

With a full range of compatible APC components, you can customize a solution to fit current availability needs, and build upon this foundation as future requirements change. Why wait? To find out more today, visit us online at *www.apc.com*.

NetShelter® VX Enclosures (X-CERTIFIED)

Next generation, high-quality enclosures

- Fully ventilated front and rear doors with enhanced ventilation pattern maximize airflow
- Overhead, base and side cable access provides easy, integrated cable management
- Rear Cabling Channel (42" deep versions only) allows for easy installation, access and serviceability of both data cables and power distribution
- Available in multiple configurations: 35.5" deep, 42" deep, beige or black

NetShelter® Open Frame Racks (X-CERTIFIED) (4-post only)

Economical solutions for wiring closets and networking applications

- Designed to accommodate networking devices such as hubs, routers and switches
- Industry standard 7' high design provides 45U of equipment mounting space
- Self-squaring design allows one-person assembly
- Made of high-strength 6061-T6 structural-grade aluminum

Air Distribution Unit (ADU) (X-CERTIFIED)

2U rack-mounted fan unit distributes cool air to rack enclosure equipment.

- For racks up to 3kW of power consumption on raised floors
- Adds 30% efficiency air filtration to supply air for equipment intake
- Delivers equalized airflow from the bottom to the top of the rack enclosure with dual fans
- Adjustable depth to fit most leading enclosures

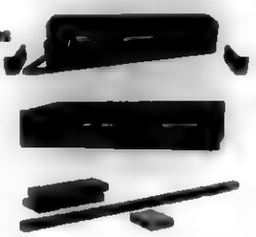
Air Removal Unit (ARU) (X-CERTIFIED)

Heat removal for enclosures in IT rooms and data center hot spots

- Enables up to 7.5kW of power consumption in a rack, without taking up U space
- Automatic fan speed adjustment leads to greater energy efficiency
- Dual-power input cords allow the unit to attach to redundant power sources
- Ducting kit to drop ceiling plenum allows higher temperature from equipment exhaust to be delivered directly to A/C return stream

Power Distribution Units (X-CERTIFIED)

Distribute, monitor, and remotely control power in rack enclosures



- **Basic:** Vertically and horizontally mounting with a range of amps and voltages
- **Metered:** Ability to monitor the current draw and set alarm thresholds that when exceeded, provide both visual and audible alarms
- **MasterSwitch™:** Advanced, remote power distribution and control. User configurable. Users can configure the sequence in which power is provided to individual receptacles upon start up

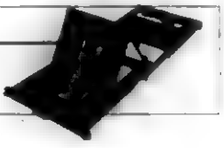
Environmental Monitoring Unit (X-CERTIFIED)

Monitors environmental conditions in racks and rooms

- Sensors continuously monitor the temperature and humidity of environment
- Four user-definable external inputs allow use with sensors for fire, water, smoke, unauthorized entry and physical security
- Communicates information in a variety of formats to ensure that your application is supported

LCD Monitors (X-CERTIFIED)

Rack-mount LCD monitors save space in IT environments



- Provides optimal functionality while utilizing only 1U (1.75") of rack space

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Computer Systems Analyst

Perform the role of Technical Lead. Analyze data processing requirements for software development, using Business Objects, Visual Basic, ASP, J2EE, Java, Weblogic, Data warehousing. Interface with project manager, customers and developers. Req. 2 yrs prev exp. Send resume to BLC Consulting, Human Resources, 26 Jefferson Court, Wethersfield, CT 06109.

J2EE Developer Design, implement, and test the web application using HTML, JavaScript, DHTML, CSS, XML, Java Servlets, and JSP. Implement server side functionalities using EJB, JMS with the Weblogic application server. Req. Bachelor Degree or equivalent in CS, CIS, Engineering, or related field with nine months exp. in job offered or as programmer. Must be proficient in Java, JavaScript, JSP, Java Servlets, XML and SQL Server. 40hrs/week, 9-5. Contact Business Computer Applications at 2180 Satellite Blvd., Ste. 325, Duluth, GA 30097.

Manager, Software Development sought by NJ based Securities Dealer for position in Jersey City, NJ office. Must possess Bachelor's degree or equivalent in Computer Science or directly related field and 5 years exp in software/systems development and design including C/C++, JAVA, PL/SQL. Respond to: Human Resources Department, KFP02-095, Knight Financial Products, 130 Cheshire Lane, Suite 102, Minnetonka, MN 55305.

Manhattan Associates, Inc., a worldwide leader in supply chain execution systems is looking for IT professionals to join our team at our Atlanta, GA & Burlington, MA locations. Openings include the following technologies: C++, XML, Java, JSP, HTML, EJB & J2EE, COM, VC++ & VB. Some positions req masters &/or substantial travel. To be considered: Must be authorized to work perm in US. Resumes to: J. Lurey, Manhattan Associates, 2300 Windy Ridge Pkwy, 7th Fl.N, Atlanta, Georgia 30339.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree* in computer science, business, math, engineering or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with SQL, CGI environment and J2EE environment also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sib George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Software Engineer Design, develop, implement, maintain, troubleshoot the network infrastructure, data communications & associated hardware.Exp with Windows NT server, Cisco Routers, LAN/WAN, switches & hubs. Req MS in Comp. Sci. Engg/Rel field with 2 yrs exp or BS with 5 yrs exp. Wages: $78,000/yr, 40 hrs/wk, 8am-5pm. Send 2 resumes to: Case#200114223, Labor Exchange Office, 19 Stanford St. 1st Fl., Boston, MA 02114.

Sr. Database Administrator

Oversees client/server applications, build using Visual Basic & Oracle. Installs, maintains, supports & enhances applications. Req Bach in any field & 2 yrs exp in the job/2 yrs exp as Programmer Analyst. Jobsite: West Greenwich, Rhode Island. Send ad & resume: Yen C. Chong, Amgen Inc., One Amgen Center Dr., Thousand Oaks, CA 91320-1799. Include Ad# 02-449FV.

Systems Admins to plan, implement, maintain and troubleshoot LAN/WAN installations; install, maintain, administer IIS Web Servers, SQL Server, Windows, UNIX, LINUX; design, develop systems for transmission of voice/image data within multiple network environments; install, upgrade network computer hardware/software. Require: B.S. or foreign equiv in CS/Engg. (any branch) with 2 yrs exp in sys. administration. High salary. F/T position. Travel involved. Resumes to: HR, ACT, 3355 Breckinridge Blvd. Suite 128, Duluth GA 30096.

IS/IT

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Lenexa, KS lab company looking for professionals to perform maintenance on legacy systems. Must have a permanent work visa. Must have BA in Computer Science or related field and 2 years experience.

Send resume, including salary history to: Human Resources at 913-859-4888 or jobs@labone.com.

Job/benefits line: (913) 577-1247
www.labone.com EOE M/F/D/V

Software engg or other IT professionals wanted. Duties include: design, develop, test, code & implement software applications and computer systems to meet client's needs; customize application including a special software application QC Manager 3.0 to improve data review and reporting and enhance management; perform system testing, use Window 2000 Server, SQL Server, Kava Charts 3.0; VB, Oracle, SQA Robot. Require: MS or equivalent (BS with 1-5yr exp. in IT field). Send resumes to Informenc, 3711-C University Dr., Ste. 4, Durham, NC 27707.

VT consulting co. with clients on the East Coast needs:
- SAP R/3 All modules, APO, CPCC
- C, C++, VC++, PB, VB, .Net, Unix, Brokerage
- J2EE, HTML, ASP, Vignette
- DBA-Oracle/SQL/Sybase, DB2/UDB
- Legacy systems conversion
- QA testers / Network Analysts

Mid and Sr. positions. Bachelors with min. 1 year of exp. Salary competitive. Re-location required. Send cover letter and resume with salary requirement (Mention VTREQ0301 in subject) to: resumes@syncrotechnologies.com

Programmer/Analyst

Integrate computer systems for 10 jewelry stores; Analyze systems, determine req. & plan interface. Create & test prototypes. Perform project adm. & network mgmt. Req.: Assoc. Deg., Comp. Sci. or related or equiv., and 2 yrs. exp in job, or 2 yrs. as Comp. Programmer. Resume to: Gold 'N Diamonds, Inc., 250 Spring St., #6E320, Atlanta, GA 30303.

Management Analyst

Conduct analysis on company's management information, financial and business data to make suggestion to the management; and conduct marketing research and study in computer parts wholesales and PC networking products. Min. Bachelor degree in management or business plus 1 year exp. in job offer or 2 years related management exp. Send resume to HR, Computer Byte Technologies, LLC, 33838 Pacific Hwy S, B-104, Federal Way, WA 98003

Sys/Prog. Analyst with experience in E-Commerce. Applicant would assess the current environment, provide recommendations for achieving highly secure solutions within the required time frames, and provide remediation assistance and training. Prepare work plans, status reports and conduct status briefings. Assist in the development and presentation of proposals. MS in IS or equivalent + 1 yr. Exp. in s/w design, development and implementation. Experience with SDLC, OOPS, XML, ASP.NET, VB, SOAP, payment gateways (using either XML, C/C++, Java API's) is required. Apply to point b inc., PO Box 955, Pierre, SD 57501.

Computer Program Analyst

International Advanced Business Computing, Inc. now has 2 Computer Program Analyst positions available. Incumbent should hold a BS in Computer Science or Engineering and have at least one (1) year of experience in the industry. Please send your resume and credentials to Human Resources at IABC, 5634 Owens Drive, Suite 208, Pleasanton CA 94588.

SAS Programmer: Provide computer support and programming services to facilitate the data management and analysis for CDC. Write SAS programs for data analysis, coordinate, develop, and maintain large databases and applications, and provide data, graphics, and analysis to appropriate branch personnel. Req. BS in CS or related field. Must be proficient in SAS/AF, SAS/FSP, SAS Intranet, and Base SAS. 40hr/wk, 9-5. Contact Business Computer Applications, Inc. at 2180 Satellite Blvd., Suite 325, Duluth, GA 30097.

Programmer Analyst. Experience w/ C++, VB, Java. Must have BS in CS, Comp. Eng., or EE. Must have authority to work in US. Send cover letter and resume to Jennifer c/o PCS at 1415 N. Dayton, Chicago, IL 60622.

TAMKO Roofing Products, Inc. seeks Computer Programmer in our Joplin, MO loc. Pos. involves coding and testing, work with data, draw flowcharts, write operator instructions. Must have BS in Computer Science or related field + 2 yrs relevant experience. Send résumé to TAMKO Roofing, 220 West Fourth Street, Joplin, MO 64801.

Exp'ed Prog/Sys Analysts, S/W Engrs, DBA's required to design/develop appls using some of the fol: C, C++, VB, PB, Dev 2000, Pro*C, Java, J2EE, HTML, JDBC, EGRET, EPI-INFO, XML, JSP, Servlets, ASP, SQL, COBOL, CICS, VSAM, XGEN, packages (SAP, BAAN, Oracle, PeopleSoft), web/wireless/internet technologies, data warehousing and decision support appls with MS SQL Server, Sybase, Oracle, DB2 on MVS, UNIX, Windows, UNISYS platforms. All positions req BS/MS or foreign equiv in CS/Engg /Sci./Math/Busss Admin./related field with relevant exp. High salaries. F/T Travel required. Resumes to: HR, Salem Associates, Inc., 465 6th Ave., Ste 102, Des Moines, IA 50309.

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SOFTWARE ENGINEER. Requirements: developing banking and financial applications using Oracle and utilities as a backend and Oracle software development tools as the front end. Developing Data Warehousing project using Oracle as a backend. Ability in using Pro*C, PL/SQL, Visual Basic, Developer 2000 and Oracle utilities. Knowledge in UNIX, MS-DOS, Windows 3.0/95/NT operating systems. The job duties are Analysis of current procedures and problems to refine and convert the data to programmable form; determine output requirements; study existing system to evaluate effectiveness, upgrade systems presently in use, develop, test, and implement new software; observe functioning of newly implemented systems and programs for trouble areas; correct systems/programs as necessary. Requires Master's in Computers or Sciences or equivalent, no experience necessary. 40 hours per week at $71,000 per year. Please send 2 copies of resume to Case #2000115618, Labor Exchange Office, 19 Stamford St, 1st Floor, Boston, MA 02114

SENIOR APPLICATIONS DEVELOPER (SENIOR SOFTWARE ENGINEER) - 40 Hours Per Week, 9 a.m. - 5 p.m., $68,453.00 per year, Located in Miami, FL. Requires Bachelor's Degree or U.S. equivalent in Computer Science or Management Information Systems and 4 years experience in the job offered or related occupation of any combination of Software Developer and/or Software Engineer. Design, develop and implement medium to complex client Server applications. Support and maintain existing applications in a Client Server environment. Use and adhere to a Software Development Life Cycle Process. Interact with business clients to produce meaningful business requirements. Develop and maintain detailed project plans and resource estimate for projects. Excellent programming skills in anyone of the following: Powerbuilder, Visual Basic, Oracle Developer and working knowledge of Oracle, SQL Server databases. Send resume to maria.ferrante-wilson@coulter.com at Beckman Coulter, Inc. An EOE.

Software Engineer. Analyze s/ware dvlpmt project reqmts; dsgn objects & algorithms; implmt s/ware dvlpmt project solutions; write test cases for quality assurance testing of s/ware. Req: BS in Engg, Comp Sci or related field + 2yrs exp in job offd or as S/ware Dvlpr or similar duties under a different job title. 2 yrs exp w/CAE s/ware dvlpmt, C++ lang & object-oriented modeling, MS Dvlpmt Studio, Windows NT OS. Exp w/modeling real world engg systems w/simulation s/ware. Demonstrated knowl of data architecture & dsgn in engg s/ware systms, incl Comp Aided S/ware Systms. 40hrs/wk, $80K/yr. Must have proof of legal auth to work in US. Send your resume to IA Workforce Center, 1700 S 1st Ave., Iowa City, IA 52244-2360. Please refer to JO# IA1101696. Employer paid ad.

Software Test Engineer to work under supervision to conduct performance tests on risk assessment software using object oriented technologies including C++ and Apache Ant. Apply knowledge of statistical and probability mathematics and programming to test and/or modify risk assessment algorithms. Requires a Bachelor's degree in Computer Science and 2 years experience. Oakland, CA job location. Contact L. Phillips, ABS and Affiliated Companies, 16855 Northchase Dr., Houston, TX 77060. Refer to job HC-QAE.

SOFTWARE ENGINEER: duties include design, build, maintain, and enhance a desktop system using Microsoft technologies including VB 6.0, SQL, and MS Access which will track and administer executive deferrals in a non-qualified 401(K) plan; work with Web Application Developers in the web-enablement of this product; design and ensure database integrity; improve system optimization on a variety of platforms; work in conjunction with software quality analysts to define testing parameters and enhance system performance. SE will also design, build and maintain an internet-based financial application integrating financial products of multiple carriers. Involves load balancing and systems optimization. Min req'ts: BS/BA (foreign equivalent accepted) in CS, IT, Engineering or related and 18 mths of exper. in the job offered or 18 mths exper. in related occup. as an Analyst, Engineer, Programmer or any related occup. 18 mths of exper. may be pre or post BS/BA. PLUS, must have working experience with VB, C, C++ and MS Windows Operating Systems. Must have experience with document tracking functionality of multinational financial modules. Basic pay is $56,763 per year for full-time employment (Mon.-Fri., 9-5) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2001154410, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114.

Principal Consultant Software Engineer/Developer to serve as a lead technical consultant responsible for analysis, design, development, and implementation of Web applications for both Internet and Intranet. Will work with team of developers using Java and C/C++ under Windows and Unix to develop, test, and debug client/server applications in development environments, including Symantec Cafe, Visual J++, or Visual C++. Will perform all graphical user interface (GUI) and database development for various systems. Will establish and monitor project plans, working directly with user community for project definition. Will provide technical evaluation estimates on initiatives and maintain user-external group relationships. Requires Bachelor's degree in Computer Science, Engineering, Mathematics, or Physics and six (6) years experience in job offered OR six (6) years experience in developing client/server applications OR, in the alternative, Master's degree in Computer Science, Engineering, Mathematics, or Physics and four (4) years experience in job offered OR four (4) years experience in developing client/server applications. Candidates must also possess demonstrated expertise developing applications in Java and C++, as well as demonstrated expertise in OO design and analysis. Salary $97,500/yr. Mon-Fri 8:00AM-5:00PM. Submit two copies of resume to Case # 2001118237, Labor Exchange Office, 19 Stamford St., 1st fl., Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Programmer Analysts for IT company in Harrisburg, PA to research, design, test & develop computer software systems & applications using ASP, HTML, DHTML, Perl, IIS, I-planet, Webserver, Oracle, CRM tools & apply principles & techniques of computer science. Use operating system Win NT. Bachelors or equivalent in Computer Science/Science/Engineering or equivalent plus 2 years experience in job offered. Will accept any equiv combin of edu, training &/or experience that meets the minimum requirements. Resume to: Sysallies, Inc-a division of Advanced Data Systems at 3963 Union Depot Road, Harrisburg, PA 17109. Email: a@adsincorp.com. ,fax: 717-561-4283.

SDG Corporation

Seeks software professionals to work in West Chester, Ohio with experience in any six of the following technologies: Oracle, LDAP, Unix, MS SQL server, Java,Web Logic, Rational Rose, Apache and Planet Server, Oracle Application DBA; (Norwalk, CT). required experience in team leadership, designing and administering Oracle, EAP, and distributed database architecture solutions under Windows NT, and Unix. Relocation within USA possible.

Security Architect: (Norwalk CT.) required experience in designing, implementing and managing networks based on NT, Unix and Novell including design and implementation of network security systems. Relocation within USA possible.

Oracle Applications DBA - Norwalk, CT Require experience in team leadership and designing and administering Oracle ERP and distributed database architecture solutions under Windows NT and Unix. Relocation within USA Possible. Attractive compensation package

Software Engineer (QA) - Norwalk Ct Job entails and requires experience in development and testing of applications using DHTML, Oracle, Unix, SQL Server and Visual Basic. Require Bachelors and 1 year experience.

Attractive compensation package Send resume to Catherine Ferrucchi @ SDG Corp., 85 Water Street Norwalk, Ct 06854

TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has a position for a software professional whose duties will involve gathering requirements, doing business analysis and proposing solutions for IT needs of healthcare and pharmaceutical industry. The individual will build and lead a team to develop solutions for software dealing with clinical trials for the pharmaceutical industry.

Job Requirements: Bachelors degree with a concentration in computer science or equivalent with additional coursework in Medicine or pharmacology. Should have knowledge of clinical trials along with a minimum of 3 years experience in software programming. Analysis and three years experience in business development.

TechNation provides onsite consulting services to clients across the United States and hence a key requirement for this position is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Rana Trejo, 300 N Dakota Ave Suite #506B, Sioux Falls, SD 57104 or email rtrejo@tnsdinc.com

Senior Network Engineer Naperville, IL Research, design, development, testing, implementation and configuration of LAN's, WAN's and related equipment and components. Work with Cisco networks, Cisco IP Telephony, and information systems security. Required: Bachelor's degree in computer science/engineering/mathematics/related, and all of the following certifications: Cisco Certified Internetwork Expert (CCIE), Cisco IP Telephony Support Specialist (CPT), and Certified Information Systems Security Professional (CISSP). Employer will accept US or foreign equivalent of Bachelor's degree in computer science/engineering/mathematics/related. NO PHONE CALLS. Forward resumes to: CDS Office Technologies, Mr. Michael Peterson, 612 South Dirksen Parkway, Springfield, IL 62703.

PRINCIPAL EMBEDDED SOFTWARE ENGINEER: Duties include: As the technical leader of the development team, PESE is responsible for developing specifications, architectures, design, implementation, unit testing, integration, and maintenance of embedded software on a DSP platform. Daily duties include: writing the functional specifications, decomposing the functional specifications into component requirements and estimating the time-to-complete based on the requirements and preliminary design information; leading architecture development efforts, maintenance of existing DSP firmware to support existing and future software releases; and mentoring junior engineers. Daily work with the TRxStream series product line, which consists of PCI and cPCI voice, IP telephony, fax, and telephony hardware, embedded software (firmware), device drivers, and APIs. Min. Reqts: BS/BA (foreign equivalent accepted) in CS, IT, EE or related field of study AND 8 years of experience in the job offered OR 8 years in any occupation with experience with development of real-time embedded systems. PLUS, must have demonstrated experience and working knowledge of the following: (1) Programming skills: C/C++ expert, TI DSP assembly language program, and real-time embedded systems program (ie real-time speech compression, digital filtering & tone detection); and (2) Voice over IP and PSTN telephony technologies and protocols. Basic pay range is $80,000 to $110,000 year for FT (9-5) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2001 16454, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114.

Lead Web Applications Developer for Montgomery AL office, to develop & maintain large-scale internet/intranet applications. Assist in site architecture creation & develop linkages between enterprise/legacy system & online sites & services using knowledge of client-server architecture & relational database systems & applications. Migrate & integrate Customer Relationship Management (CRM) Tools with Genesys CTI. Work with advanced web development & maintenance tools such as HTML, JavaScript, SQL, Photoshop, ASP, XML, CGI, etc. Evaluate & recommend third party vendor technologies & develop growth plans. Required: M S C S & 2yrs exp. M-F 40/week. Frequent relocation within the U.S. may be necessary. Send resume to J. Zurich, HR, AB1E, AC Technologies, Inc., 2751 Prosperity Avenue, Suite 500, Fairfax, VA 22031.

SAP Information Systems Consultant Analyze design, develop & implement complex IT projects using SAP ABAP-4 for production planning & materials & warehouse mgmt. Design customer specific programs using EDI & ALE. Map interfaces from legacy systems. Provide technical alternatives & expertise to ensure effective IT implementation & quality control. May train Analysts. Investigate emerging IT & suggest improvements. Write technical papers. Consult with levels of IT organization & external IT personnel. Must be willing to travel to project sites throughout US 20-25% of time. Must have BS in Comp Sci, Engineering, Business or related field + 3 yrs exp in job offered or SAP Programmer/Analyst. 8:30am-5pm, M-F OT as needed. $101,845/Yr. Reply to Job Order #WEB313991, Manager, Beaver County Tech PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3987.

NETWORK ADMINISTRATOR: Duties include: Maintain company's internal network systems, workstations and infrastructure, including routers, firewalls, and switches. Diagnose, research, tests, and analyze data to recommend communications hardware and software. Install communications hardware and software. Troubleshoot and identify areas of operation, which need upgraded equipment, such as modems, fiber optic cables, and telephone wires. Develop and write procedures for installation, use, and solving problems of communications hardware and software. Monitor system performance and efficiency. Train users in use of equipment and software. Maintenance of Cisco 7200 & 2800 Routers and Checkpoint IP400 & IP110 series Firewalls. Min. Reqts: BS/BA (foreign equivalent accepted) in CS, IT, EE or related AND 2 yrs exp. in the job offered OR 2 yrs exp. in related occup. as systems analyst, systems engineer or related occup. PLUS, must have demonstrated knowledge of: (1) Implementing, administering and configuring Windows NT 4.0 Server, NT Workstation, and UNIX Network Systems, (2) Installing and maintaining network systems, including routers, firewalls, switches and email accounts; and (3) Installing and maintaining Cisco 7200 & 2800 routers, Checkpoint IP400 & IP110 series firewalls, and PIX firewalls. Basic pay RANGE is $47,000 to $65,000 per year for full-time employment (Mon-Fri., 9-5) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2001 14886, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114.

Technical Project Manager – Manage direction & control of software development for credit & debit cards, visa & master cards. Define project plans for personnel, finances & equipment. test & implement software for credit & debit cards, coordinate stages of dev for credit cards, works w/ design & specs of different systems models for collections of delinquent acct, authentication, works w/ data design & implementation using oracle, works w/ MS project, MS word, MS excel, Outlook & Power Point, design & develop improvements of systems production, define & manage implementation of upgrades, maint Electronically System Manuals Tech Specs, Users & Operation Manuals, update & document the working chronograms of assigned projects. 40 hrs per wk M-F 9AM-6PM. BS in System Engineering & 2 yrs exp. in job offered. Send resume to Technicard, Inc. Attn: Oscar Galvez/Carlos Ballesteros 3191 Coral Way Suite 600, Miami Florida 33145.

Computer Support Specialist. Analyze user requirements and business procedures and problems to automate processing & improve systems, design and integrate systems to facilitate business strategy. Bach. plus exper. required. Competitive salary. Send resumes to MSI, 800 N.E. 195th St. North Miami Beach, Florida 33179.

Senior Programmer Analyst. Duties include: Under general direction, the SAPA formulates and defines systems scope and objectives in order to design, develop and or modify information systems. Working independently with little direct supervision will assist Project Leader in the development of detailed system specifications for major system installations. Duties include: define business systems requirements; perform feasibility studies to analyze cost/benefit trade-off of system solutions; initiate systems design specifications and documentation, code programs, generate program test data and troubleshoot programs, and provide technical guidance to less experienced Programmer/Analysts. Demonstrated aptitude towards problem identification, resolution and comprehension and interpretation of technical procedures. Min Qual: BS/BA (foreign equivalent accepted) in CS, IT EE or related AND 2 yrs of exp. In the job offered OR 2 yrs exp. in related occupation in programming or systems analyst or related occupation. PLUS, must have: (1) demonstrated experience and knowledge with all processes involved in systems analysis and programming including design factors, HW and SW requirements system facilities, and job control procedures. (2) Technical proficiency in the development, implementation, and maintenance of systems gained through exposure to at least one major systems installation; and (3) Demonstrated experience with the following computer languages/systems: Cobol Fusion, Java, JavaScript, and MS SQL server Basic pay range $60,000 to 68,000 per year, full time 40 hrs/wk company benefits. EEO. Submit 2 resumes and respond to Case No. 2001159001, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114.

Multiple openings at Norcross, GA and Imperial, PA for ProgSys Analysts, DBA's, SAP Engineers to design/develop S/W appls using some of the following: COGNOS, datawarehousing; Cobol, CICS, DB2, Java, PB, HTML, XML, C++, VB, Oracle, Dev 2000, wireless, web, OO technologies, SAP, ABAP/4; Oracle/Sybase/Informix database admin; Unix/NT system admin. BS/MS or foreign equiv in CS, Engg, Science, Math, Business or related field and relevant exp. High salaries, F/T. Travel involved. Indicate office location desired. Respond to: HR, Smartsoft International, Inc., 4696 South Old Peachtree Road, Ste 300, Norcross, GA 30071.

Gambro, Inc. seeks applicants for position as Sr. Software Developer to work in Lakewood, CO to be responsible for full life-cycle software development in C++ and Oracle database management systems for information systems and business applications in blood bank technology. Position requires a bachelor's degree in computer science or electrical or electronic engineering and 2 yrs as a software developer using C++ and RDBMS and developing user interfaces and business applications including 1 yr exp working on blood banking info technology. Also requires working knowledge of Oracle 8i, PL/SQL, ADO and Object-oriented analysis and design. Respond by resume to Mark Gamberger, Gambro Inc., 10811 W Collins Ave., Lakewood, CO 80215.

BEA Systems, Inc. currently has opportunities available for the following positions (various levels/types) for locations throughout the U.S., including CA (San Jose & San Francisco); CO (Boulder, Denver, Colorado Springs); WA (Seattle & Kirkland); MA (Burlington); and NJ (Liberty Corner)

Software Engineers*
Systems Analysts
Database / Systems Administrators
Product / Project / Technical Manager
***Travel may be required**

Please reference CW403 when you apply. Send resume to BEA Systems, Inc., Attn: HR-Staffing, 2315 North First Street, San Jose, CA 95131. Fax: (408) 570-8858. E-mail: Refer to career section of www.bea.com. Principals only. EOE.

bea

SAP CONSULTANTS Develop & implem functional modules such as FI/CO, MM, SD, PP. ABAP Progr.

PROGR ANALYSTS & DESIGN ENGINEERS Design, develop, implem, data migration, testing of Bus Applin, PDM systems-Metaphase/ Windchill/ Enovia, Auto Components. Skills such as C, C++, Java, Oracle RDBMS, SAP, Unix,CATIA,Pro Engineer, CAD/CAM req'd. ICAD & other KBE OO sys devel need CAD/CAM/CAE exp.

BS, MS or equiv in CS, Mech, EE, Bus Adm, Finance or related field; & 1-5 yrs exp in the req'd area.

Positions available in Detroit, MI & at client sites throughout US. Pls mail resume to HR, 33533 West 12Mile Rd, #131, Farmington Hills, MI 48331

DATABASE ADMINISTRATOR

Database Administrator to do logical and physical design of Oracle 11i database. Code test and implement Oracle scripts applying knowledge of Database Management Systems. Calculate optimum values for Oracle database parameters, performance tune Oracle databases. Model Oracle database security, manage backup and recovery of Oracle databases; make changes to Oracle database applications using knowledge of Oracle Applications 11i, Discoverer 4i, VHDL, Jinitiator and NLS/MLS. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a Database Administrator, expertise in Oracle database administration which includes logical design, physical design, performance tuning, backup and recovery, coding of scripts, knowledge of Oracle Applications 11i, Discoverer 4i, VHDL, Jinitiator and NLS/MLS. Salary: $85,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and relocation. Apply: Fayette County Team PA CareerLink, Attn: JS Supervisor, 32 Iowa St, Uniontown, PA 15401. Job No. WEB314978.

COMSYS is an established IT consulting firm that serves leading corporations including 174 of the Fortune 500. With COMSYS, you get: Extensive Benefits, Additional Compensation for referrals, and Professional Challenges with training and assignments to keep you at the forefront of technology. With 30 offices, we need the services of experienced consultants across the US!

- Computer Programmers
- Programmer Analysts
- Systems Analyst
- Software Engineers
- User Support Specialists
- BA's
- Business Analysts
- Project Leaders

Submit resume to COMSYS, 3030 LBJ Freeway, Suite 905, Dallas, TX 75234, www.comsys.com, Fax: 972-960-0914, EOE/M/F/D/V

COMSYS

COMPUTER/IT

Operations Info Systems Eng Req Bach deg or equiv foreign edu in Comp Eng, Comp Sci or Info Systems & 4 yrs of exp in the job offered or 4 yrs of exp in systems analysis. All of exp must incl info systems & software analysis, maintenance, implementation & reporting. Must also have exp managing integrat info syst projects, incl coord activities of other related depts, incl sales, production & accounting depts. Must have worked w/business reporting systems. Must be fluent in Spanish & English. Exercise resp for the operation of key info syst & software analysis, maintenance, modific., implem & reporting activities & produce standard monthly info syst activity & status reports for mgmt. Utilize knowl of HFC tech, assist in analysis & negotiations for fiber optic comm systems. 40 hrs/wk. Send resume to The Pedilo Companies Ltd., Attn: HR Dept, P.O Box 67, Tucker, GA 30085 and/or resume@ecelero.com.

Blue Star Infotech is hiring all levels of Software Engineers, Prog/Analysts, Bus Analysts (technical), Business Dev. Heads, General & Operations Managers, Project Managers & Database Administrators. Send resumes to Neerja Prashad, Blue Star Infotech, 550 Valley Way, Milpitas, CA 95035. May be placed at client sites nationwide.

Analysis programmer I & II positions available for pharmaceutical research company PRA International at Lenexa, KS. Requirements include B.S. in computer science, software engineering or information technology and related experience in analyses, programming, statistical data analysis and clinical database programming in either a medical or pharmaceutical setting. Send resume to Hilary Reed, 16400 College Blvd, Lenexa, KS 66219.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analyses, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science /Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B, or 2 of A and 1 of B, or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm. $67,984 - $78,000 per year. Qualified applicants should contact or send resume to Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order # WEB 312058.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analyses, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science /Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B, or 2 of A and 1 of B, or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm. $67,984 - $78,000 per year. Qualified applicants should contact or send resume to Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order # WEB 312021.

SYSTEMS ANALYST to analyze, design, develop and maintain web-based business critical credit card application software systems using Java, Servlets, JSP, XML, JDBC, Oracle, C++ and Weblogic under UNIX and Windows NT operating systems. Require: B.S. degree (or equivalent work experience) in Computer Science/Engineering, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst or Programmer. Competitive salary offered. Send resume to: Sandra A. Ricks, Citibank, Universal Card Services, 8787 Baypine Road, Jacksonville, FL 32256. Attn: Job RS.

COMPUTER/IT

Senior Programmer Analyst (White Plains, New York) - Requires Bachelor's degree (or equiv foreign educ.) in Computer Science, Computer Engineering, or Electronic Engineering & 2 years' exp. in the job offered or 2 years' exp. in use of Powerbuilder, PFC (Powerbuilder Foundation Class Library), Sybase & Perl to develop software for investment mgmt & brokerage operations. Stated exp. must include one year's exp. utilizing each of the following: NOMAD on a VM/CMS operating system; ADP's Brokerage and PSR systems; & object-oriented methodology to develop client/server applications. (Exp. may, but need not, be concurrent.) Utilize Powerbuilder, PFC, Sybase, & Perl to develop software for investment mgmt. & brokerage ops. 40 hrs./wk. 8:30 a.m. - 5:30 p.m. Apply with resume to: Alliance Capital Management L.P., Attn: Karen Mooney, 1345 Avenue of the Americas, 46th Floor, New York, New York 10105.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Powerbuilder, Java, UML, PowerDesigner, Jaguar, Oracle, Sybase and SQL Server. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer. Knowledge of Powerbuilder, Java, UML, PowerDesigner, Jaguar, Oracle, Sybase and SQL Server. Salary: $74,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Dr, Suite 101, Butler, PA 16001. Job No. WEB314988.

SOFTWARE ENGINEER to design, develop, test, implement and maintain web-based application software in a client/server environment using Object Oriented programming, Rapid Application Development, GUI tools, Visual Interdev, Front Page, RDBMS, SQL Server, Oracle, ASP, Visual Basic, VB Script, Java Script, Visual Source Safe, Crystal Reports, IIS, Cold Fusion, Java, Java Beans, J2EE, Java Applets/Servlets, Websphere and Weblogic on Windows NT/98/2000 operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with four years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Uma Bodepal, Softcon USA, Inc., 2604 E. Dempster St. Ste. 209, Park Ridge, IL 60068; Attn: Job RM.

International Programming & Systems, Inc. has employment opportunities for Systems Analysts with any of the following skills: COGEN; SAPIENS; TERADATA, VB. Developers exp in STRATUS, UNIX, UNIX Systems Admin and Network admin. Positions are available throughout the US inc. Hamilton & W Trenton NJ, Philadelphia, PA, Seattle, WA. IPS also has openings for Sales and Recruiting staff in our San Francisco office. Electronic responses are encouraged, clarel@ipsamerica.com or mail resume to IPS, 1875 So. Grant Street, #300, San Mateo, CA 94402 (Fax) 650-573-8879. Principals only please.

SOFTWARE ENGINEER, SPECIALIST

Design, implement and maintain software tools for manipulating 3D CAD data for both PC and UNIX. Design and implement infrastructure for quality/regression testing of such software tools and toolkits. Support the use of such software tools and toolkits. Using C++, tcsh, csh scripting, perl, xml and other computer language technologies in the creation of software products. Utilize various source configuration management systems to control code incorporated into software products. Requires a Bachelor's degree in Computer Science, Electrical or Electronic Engineering and 3 years experience in the job offered or 3 years in design/development or research of software algorithms for processing image data. Related occupation experience to include 1 year experience or research in software development of 3D graphics using C++ and Visualization toolkit in Windows environment. 40 hours per week, 8AM to 5PM, Monday through Friday. Salary $56,870 per year. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 122 Kellogg Avenue, Ames, Iowa 50010-0410. Please refer to Job Order IA1101708. Employer paid advertisement.

Programmer Analyst (Ann Arbor, Michigan): Assist in development of software applications & data distribution tools used to predict trends & pricing in the energy industry. Plan, develop & test computer applications for analysis of energy data, applying knowledge of SQL & C Shell on UNIX platforms. Structure energy data utilizing similar techniques to those applied in structuring financial data. Utilize C Shell scripting language to solve technical problems encountered in delivery mechanism. Must have Bach. degree in Bus. Admin, Mngmt, Comp. Sci. or related field & 1 year exp. in job or in related job of Global Data Analyst. Related exp. must include data structuring for financial markets, C Shell, UNIX, & SQL. Fax resume to 734-332-4440.

PROGRAMMER/ANALYST

Research, design and develop computer software systems for pharmaceutical systems by applying principles/techniques of computer science, engineering and mathematical analysis. Analyzes software requirements to determine feasibility of design within time and cost constraints. Consults with production support engineers. Computer systems used are VAX/VMS, SunOS/Solaris and Windows NT. Tools used are: RDB, Oracle, SQLMOD, C/C++, Java and runs on variety of applications servers including Weblogic. 40 hours/week, 8:00 a.m. to 5:00 p.m., $85,000/year. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 360 Iowa Street, Dubuque, IA 52004-0757. Please refer to Job Order #IA1101701. Employer paid advertisement.

SR. SOFTWARE CONSULTANT

Design, development, testing and integration of software applications and interfaces, implementation, deployment of the product and resolve production problems. Skills required: Unix, C/C++, Sybase, CTLib, Oracle, PL/SQL, Pro*C, TCP/IP, HL7, PowerBuilder, PowerJ, VisualAge for C/C++ and Crystal Reports. Knowledge in HIPAA, SNMP, Java, OODS, SQLServer, DBLib, XML, WebSphere, and Free-mail is a plus. Working knowledge of RDBMS, OOPS, SDLC, Shell Script required. 40 hours per week, 8:00 a.m. to 5:00 p.m., $80,000/year. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, P.O. Box 757, Dubuque, Iowa 52004-0757. Please refer to Job Order IA1101708.

COMPUTER/IT

Business Applications Specialist. Engage in support & mainframe relational database design & dvlpmnt. for Essbase OLAP multidimensional applications used for sales volume budgeting, forecasting & reporting & for financial budgeting, forecasting & reporting using Visual Basic & SQL programming. Design & develop OLAP applications. Req. Bach.'s degree (or foreign equiv.) in Computer Science or Computer Engineering, & 3 yrs.' exp. in the job offered or 3 yrs. of IT exp. in client server Visual Basic design & dvlpmnt. using multi-tiered architectures. Stated exp. must incl. 2 years in each of the following: mainframe relational database design & dvlpmnt.; SDLC quality assurance techniques; Use Case methodology; & primary technical liaison interactions with co. business unit. (Exp. may, but need not be, concurrent.) Must be available to provide weekend & night applications support. Email resumes to greatjobs@purina.com, Attn: job # LCERTBAS, or mail to Nestle Purina PetCare Company, Checkerboard Square- 1A Attn: Staffing, St. Louis, MO 63164-0001

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Mainframers

skills in conjunction with Poughkeepsie, N.Y.-based Marist College and developing a best-practice knowledge base to which data center managers can contribute their expertise.

"We believe it's a very important issue," said Brian Koma, vice president of marketing at Orange, Calif.-based AFCOM (the Association for Computer Operations Management). He said the organization hopes the initiative will prompt IT managers "to take some early action" to plan for retirements "so they don't have to spend more money later."

In addition to offering hands-on training sessions at AFCOM's semiannual conferences, the initiative provides for undergraduate and certificate courses in data center technology.

Aging Mainframers

A study last year by Meta Group Inc. in Stamford, Conn., found that 55% of IT workers with mainframe experience are over 50 years old. Conference attendees, such as Gerald Tucker, data center operations manager at Foster Farms Inc., one of the largest poultry operations in the U.S., readily agreed with that finding. But he said he isn't sure what to do about it.

Tucker has two mainframe operators with more than 20 years of experience who plan to retire in about six years, and he said finding replacements could be a problem.

"The solution could be an outsourcing possibility at that time," he said.

The Livingston, Calif.-based company needs to find people with a rare set of characteristics: They must have good technical skills and be comfortable dealing with repetitive and mundane tasks, said Tucker. "They are usually one or the other," he said.

Getting IT professionals, especially young ones, interested in learning mainframe work isn't easy. But Ruben Trujillo, a technical specialist at U.S. Foodservice in Phoenix, said a company program seems to be helping.

New IT employees who may be destined to work in finance, for instance, can volunteer to tour the data center and be exposed to its operations. "It's opened up interest," he said.

One of the data center's selling points is its critical, round-the-clock nature, said Trujillo. "The pressure and importance of it are very high," he said, noting that that can be appealing to some prospective employees. Moreover, the work schedule — 12.5-hour shifts with alternate three- and four-day weeks — is attractive to some, said Trujillo. "I love it. It allows me to spend more time with my family," he said.

Training Costs Rise

IT managers said they're experiencing a rise in training costs. Mainframe skills aren't widely taught, which means companies typically have to pay a premium for travel and training that can be as high as $30,000 to $50,000 annually per employee. "Our training budgets are definitely going up," said Gary Rose, information services operations manager for Bexar County, Texas, in San Antonio.

At the same time, many companies are confronting the mainframe training issue in reverse, as they begin to phase out mainframe systems.

For example, Mattel Toys Inc. is training mainframe operators to work on Sun Microsystems Inc.'s Solaris operating system, among others.

Learning these new systems isn't easy for mainframe workers, said Lynn Hartman, data center manager at Mattel in Phoenix.

"For the older guys, it's a major leap," Hartman said. "But we made it clear it's a necessity, not an option."

Tight IT Budgets Boost Server And Data Center Consolidation

LAS VEGAS

The rush to consolidate servers and the data center is on. Many companies appear to be squeezing redundant hardware, software, maintenance and service costs out of their data centers — and the effort is quickly paying off, according to IT managers.

Bayer Corp. in Pittsburgh offers a dramatic example of how much money can be saved: The company last year consolidated 42 data centers into two and cut the number of servers from 1,335 to 615. Expected savings: $76 million over five years, according to Hobert Moore, an IT manager involved in the project.

The initiative was completed in July and delivered $10 million in savings last year alone, said Moore, who spoke about the consolidation at a data center conference held here last week by the data center professional association AFCOM.

"We showed that we aren't just out there providing services and that we can actually save the company money when it became necessary to do so," said Moore. "We came up with very solid ways of reducing cost without slashing services."

In fact, many IT managers at the conference said they are involved in data center or server consolidation projects.

Over the past two years, Williams-Sonoma Inc. has purchased five of IBM's high-end Regatta Unix servers at a cost of $1.5 million each. The San Francisco company is halfway through a yearlong plan to reduce 100 stand-alone servers to five. Those servers will be moved to a partitioned environment on the Regatta servers, because partitioned servers can run multiple applications on the same box.

> **"You spend a lot of money upfront. [But] it was either that or they were going to buy another 50 servers in the next year."**
>
> STEVE STEWART, DATA CENTER MANAGER, WILLIAMS-SONOMA INC.

"You spend a lot of money upfront," said Steve Stewart, the manager of the retailer's data center. But, he added, "it was either that or they were going to buy another 50 servers in the next year."

Stewart expects a return on investment in two or three years and foresees savings coming from just about every aspect of the data center's operation, including power, maintenance, personnel and licensing fees.

Eliminating one stand-alone server often allows companies to get rid of four more servers: the production server, the testing server, the fail-over server and a development server, said Marvin Hamann, director of operations at Supervalu Inc., an Eden Prairie, Minn.-based wholesaler and distributor of food and general merchandise to grocery and discount stores.

Hamann is reducing the number of stand-alone servers at his company from 120 to 60 by moving to partitioned servers. And that's not the end of the consolidation. "When we get to that goal, we will set a new goal," he said.

Consolidating data centers or servers isn't a new concept, and IT managers at the conference were clearly aware of the potential problems and costs of allowing business units to add server after server to host applications.

But the continuing economic downturn has put pressure on IT departments to cut back. And, as Moore put it, "costs were just getting out of control."

Mark Levin, an analyst at Meta Group Inc. in Stamford, Conn., called consolidation the "hottest thing" and said the most difficult aspect of the effort often is coming to terms with the inventory. Consolidating servers can lead to some management resistance, particularly if a business unit hosts a particular server. But as long as service delivery is unaffected, company buy-in is usually easy to get, IT managers said.

Michael McShane, manager of technical services and operations at Kraadale Food Inc., a White Plains, N.Y.-based food distributor, said getting cooperation from business units for consolidation projects is ultimately not a problem. "The dollars and cents of it convinces higher-ups, and it's a done deal," said McShane.

— *Patrick Thibodeau*

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Mainframers

skills in conjunction with Poughkeepsie, N.Y.-based Marist College and developing a best-practice knowledge base to which data center managers can contribute their expertise.

"We believe it's a very important issue," said Brian Koma, vice president of marketing at Orange, Calif.-based AFCOM (the Association for Computer Operations Management). He said the organization hopes the initiative will prompt IT managers "to take some early action" to plan for retirements "so they don't have to spend more money later."

In addition to offering hands-on training sessions at AFCOM's semiannual conferences, the initiative provides for undergraduate and certificate courses in data center technology.

Aging Mainframers

A study last year by Meta Group Inc. in Stamford, Conn., found that 59% of IT workers with mainframe experience are over 50 years old. Conference attendees, such as Gerald Tucker, data center operations manager at Foster Farms Inc., one of the largest poultry operations in the U.S., readily agreed with that finding. But he said he isn't sure what to do about it.

Tucker has two mainframe operators with more than 20 years of experience who plan to retire in about six years, and he said finding replacements could be a problem.

"The solution could be an outsourcing possibility at that time," he said.

The Livingston, Calif.-based company needs to find people with a rare set of characteristics: They must have good technical skills and be comfortable dealing with repetitive and mundane tasks, said Tucker. "They are usually one or the other," he said.

Getting IT professionals, especially young ones, interested in learning mainframe work isn't easy. But Ruben Trujillo, a technical specialist at U.S. Foodservice in Phoenix, said a company program seems to be helping.

New IT employees who may be destined to work in finance, for instance, can volunteer to tour the data center and be exposed to its operations. "It's opened up interest," he said.

One of the data center's selling points is its critical, round-the-clock nature, said Trujillo. "The pressure and importance of it are very high," he said, noting that that can be appealing to some prospective employees. Moreover, the work schedule — 12.5-hour shifts with alternate three- and four-day weeks — is attractive to some, said Trujillo. "I love it. It allows me to spend more time with my family," he said.

Training Costs Rise

IT managers said they're experiencing a rise in training costs. Mainframe skills aren't widely taught, which means companies typically have to pay a premium for travel and training that can be as high as $30,000 to $50,000 annually per employee. "Our training budgets are definitely going up," said Gary Rose, information services operations manager for Bexar County, Texas, in San Antonio.

At the same time, many companies are confronting the mainframe training issue in reverse, as they begin to phase out mainframe systems.

For example, Mattel Toys Inc. is training mainframe operators to work on Sun Microsystems Inc.'s Solaris operating system, among others.

Learning these new systems isn't easy for mainframe workers, said Lynn Hartman, data center manager at Mattel in Phoenix.

"For the older guys, it's a major leap," Hartman said. "But we made it clear it's a necessity, not an option." ■

Looking Ahead

There's no shortage of mainframe skills now, but AFCOM says three factors contribute to a potential shortage:

- Mainframes are a technology mainstay, and skills will continue to be needed in the long term.
- Few educational institutions currently teach the skills.
- Many mainframe workers are expected to retire in five to seven years.

Tight IT Budgets Boost Server And Data Center Consolidation

LAS VEGAS

The rush to consolidate servers and the data center is on. Many companies appear to be squeezing redundant hardware, software, maintenance and service costs out of their data centers — and the effort is quickly paying off, according to IT managers.

Bayer Corp. in Pittsburgh offers a dramatic example of how much money can be saved: The company last year consolidated 42 data centers into two and cut the number of servers from 1,335 to 615. Expected savings: $76 million over five years, according to Hobart Moore, an IT manager involved in the project.

The initiative was completed in July and delivered $10 million in savings last year alone, said Moore, who spoke about the consolidation at a data center conference held here last week by the data center professional association AFCOM.

"We showed that we aren't just out there providing services and that we can actually save the company money when it became necessary to do so," said Moore. "We came up with very solid ways of reducing cost without slashing services."

In fact, many IT managers at the conference said they are involved in data center or server consolidation projects.

Over the past two years, Williams-Sonoma Inc. has purchased five of IBM's high-end Regatta Unix servers at a cost of $1.5 million each. The San Francisco company is halfway through a yearlong plan to reduce 100 stand-alone servers to five. Those servers will be moved to a partitioned environment on the Regatta servers, because partitioned servers can run multiple applications on the same box.

> **"You spend a lot of money upfront. [But] it was either that or they were going to buy another 50 servers in the next year."**
>
> **STEVE STEWART,** DATA CENTER MANAGER, WILLIAMS-SONOMA INC.

"You spend a lot of money upfront," said Steve Stewart, the manager of the retailer's data center. But, he added, "it was either that or they were going to buy another 50 servers in the next year."

Stewart expects a return on investment in two or three years and foresees savings coming from just about every aspect of the data center's operation, including power, maintenance, personnel and licensing fees.

Eliminating one stand-alone server often allows companies to get rid of four more servers: the production server, the testing server, the fail-over server and a development server, said Marvin Hamann, director of operations at Supervalu Inc., an Eden Prairie, Minn.-based wholesaler and distributor of food and general merchandise to grocery and discount stores.

Hamann is reducing the number of stand-alone servers at his company from 120 to 60 by moving to partitioned servers. And that's not the end of the consolidation. "When we get to that goal, we will set a new goal," he said.

Consolidating data centers or servers isn't a new concept, and IT managers at the conference were clearly aware of the potential problems and costs of allowing business units to add server after server to host applications.

But the continuing economic downturn has put pressure on IT departments to cut back. And, as Moore put it, "costs were just getting out of control."

Mark Levin, an analyst at Meta Group Inc. in Stamford, Conn., called consolidation the "hottest thing" and said the most difficult aspect of the effort often is coming to terms with the inventory. Consolidating servers can lead to some management resistance, particularly if a business unit hosts a particular server. But as long as service delivery is unaffected, company buy-in is usually easy to get, IT managers said.

Michael McShane, manager of technical services and operations at Krasdale Food Inc., a White Plains, N.Y.-based food distributor, said getting cooperation from business units for consolidation projects is ultimately not a problem. "The dollars and cents of it convinces higher-ups, and it's a done deal," said McShane.

– Patrick Thibodeau

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FRANK HAYES ■ FRANKLY SPEAKING

Missing Mainframers

SUPPOSE THERE'S A SHORTAGE of a particular IT skill set. We all know what happens, don't we? Those skills become hot. Training courses spring up. Salaries go through the roof. And the one thing that surely *won't* happen is that people with expertise in that skill set will be retrained to do something else, thus making the shortage worse — right?

Except when it comes to mainframes. Crazy, huh?

As *Computerworld*'s Patrick Thibodeau reports this week (see story, page 1), mainframers are in such short supply that one professional group for data center managers is setting up its own college-level online courses for potential mainframers. But at the same time, IT shops that are phasing out mainframes are actually retraining experienced mainframers to do nonmainframe IT work.

Insane as that sounds, it *does* make sense when you remember that 55% of mainframers are in their 50s or 60s. These aren't kids who are ready to jump to another company at the drop of a hat. These people are fully vested in their pension plans. They'd rather struggle to learn new technologies than start over at another company that needs their mainframe skills for the few years before they retire.

Meanwhile, young IT people aren't jumping into mainframe work. They were never taught mainframe skills. After all, pundits and analysts and other industry blowhards have been saying mainframes are dead, or at least dying, for a decade now. Why learn something that's dying?

But mainframes aren't dead at many IT shops. And they show no signs of dying soon. Unix didn't kill them. PC networks didn't kill them. Y2k was supposed to kill them when all that mainframe code stopped running on Jan. 1, 2000. But instead we spent billions of dollars fixing that code — and now we have to earn out that investment.

That's not the only reason mainframes refuse to die. Mainframes work. They still set the standards for security and reliability and availability in IT. And mainframe MIPS have kept getting cheaper in the 10 years since IBM realized it could no longer survive by soaking its mainframe customers.

So mainframes aren't going away. But mainframers are. And they're not being replaced.

What do you do if you're looking at a staff of highly experienced mainframers who will be retiring in a few years? You can outsource, but that limits your flexibility — and it hands the management of your most critical data to someone for whom it's just another job. You can migrate off those mainframes, and if that's your plan, now's the time to start — it'll take years to re-create or transform the business processes embedded in that mainframe code. (That's why it was worth making all those Y2k fixes instead of rewriting the code, remember?)

Or, since you won't be able to hire the mainframe talent you need, you could start creating it yourself.

You could make it part of your shop's primary career path. That means everyone learns the basics. Not everyone will have the right mix of skills and temperament for mainframe work, but a few probably will.

And if those few people with the right aptitude pull the average age of your mainframers down in a few years from, say, 55 to 40, your mainframe skills crisis is over.

Besides, if your mainframes aren't going away, they're a key piece of your IT infrastructure. Like the Internet and security, the mainframe is something everyone in your shop needs to understand. And for that, there's no replacement for hands-on experience.

So you have options: outsourcing, migration or building your own mainframers. But whatever you're going to do about your mainframe skills problem, start working on it now.

Because if your mainframers are gone before you've got something or someone to replace them with, you'll find out just how crazy a skills shortage can be. ◗

SHARK TANK

Unclear on the Concept

Air Force pilot Ish reports that he can't log into his e-mail. "Send us an e-mail detailing the problem," help desk tech tells him. I can't, says Ish – because I can't log into my e-mail. Can't you take the trouble ticket over the phone? Tech: "No, to confirm your identity, it has to come from your e-mail account. Can you use someone else's e-mail?" Ish: How will that confirm my identity? Tech: "Just put your signature block on the bottom of the e-mail."

Efficiency

[illegible] pilot Ish takes a [illegible] job [illegible] computer [illegible] for Ish's [illegible] it [illegible] and [illegible] e-mail. Can he [illegible] and he'll [illegible] "Thanks Ish, for actually [illegible], my ID was [illegible] and my [illegible] on the [illegible]," groans Ish. "Management hadn't even taken my steps to [illegible]"

But What a Deal

For his new accounting system project, IT director sells a great deal on brand-name PCs. "He got such a shocking good deal on them that he left [illegible] of the rollout," says a pilot Ish on the scene. "Understandably, it was IT standing in all-nighters of the rollout. And when they came to deploy the PCs, the software had outgrown the systems," sighs Ish. "Bummer Ish."

Nobody's Perfect

After a major crash, company president gets a new laptop – but its users complain that the spell checker for the e-mail program is [illegible]. It doesn't take long for support pilot Ish to track down the problem: "Most of the entries the president had added to his custom dictionary were misspelled."

Doing It Right

To make sure a new sales report runs correctly, developer pilot Ish does a final test using the production database. Don't do that, says terrified VP of sales. It could hurt the company if that information got into the hands of competitors. Only use the test database, he tells Ish. But the test database is just a copy of the production data, Ish points out. "Print from the test database all you want," VP insists, "but if you print from the production database again, you're fired."

Just the Fax

"Once I turn off my computer, it won't receive faxes," user tells help desk pilot Ish. "I should still be able to receive faxes when my computer [illegible]

FEED THE SHARK! Send your true tale of IT life to [illegible]. You may a snazzy Shark shirt if we use it. And check out the daily feed, browse the Shark pics and and sign up for Shark Tank home delivery at [illegible].

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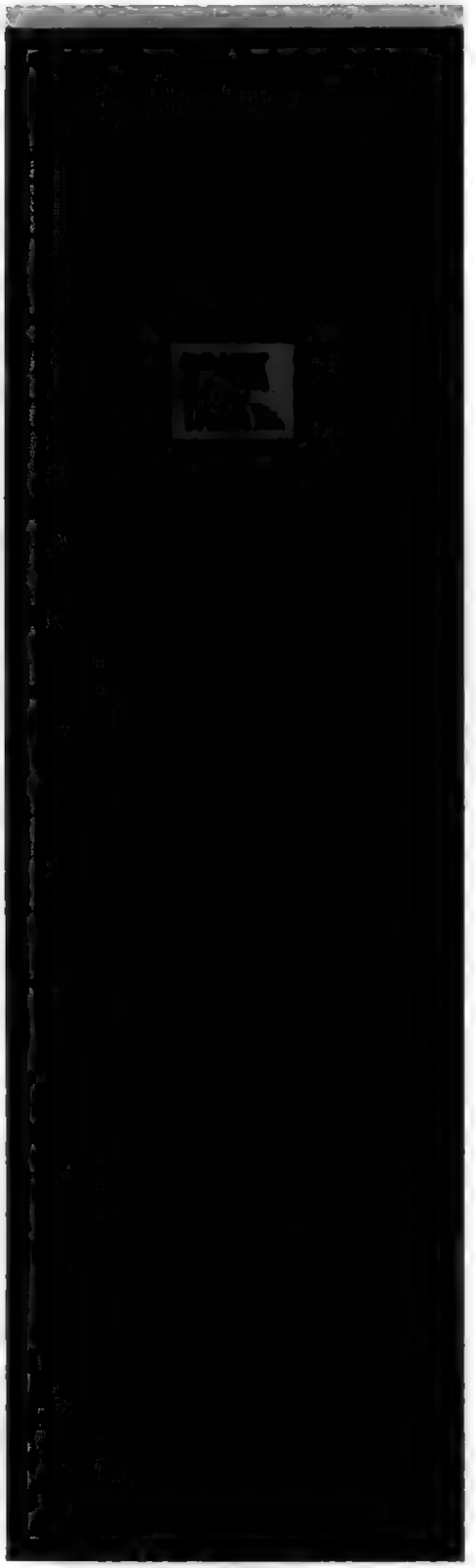

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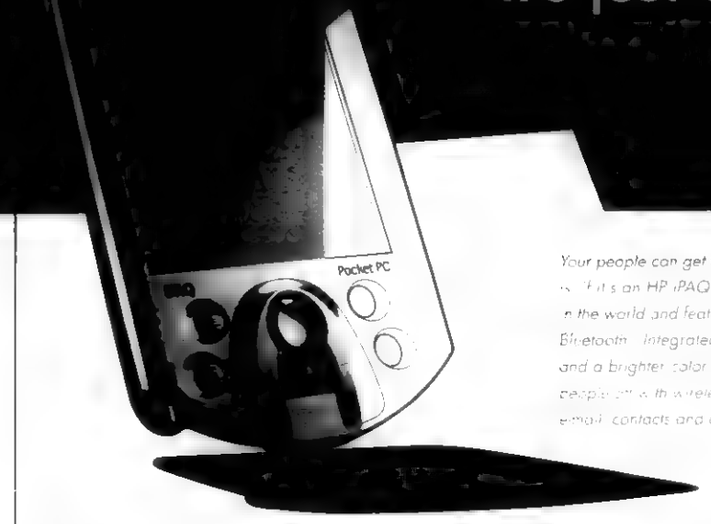

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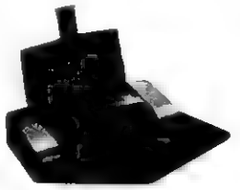

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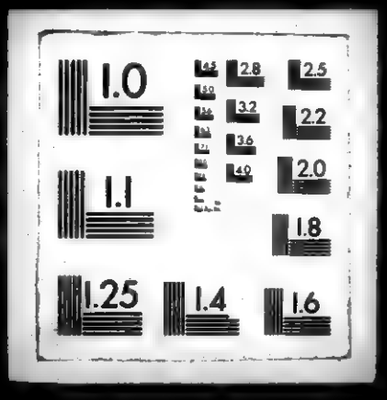
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The high price of Web site monitoring. IT turnaround yields a profit at Chicago exchange.

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Sun Launches Fresh Attack On Low-End Server Market

Price cuts and new hardware with bundled software mark strategy to compete against Intel

BY JAIKUMAR VIJAYAN

Sun Microsystems Inc. tomorrow will announce two low-end Solaris servers featuring integrated software stacks that it will position as lower-cost alternatives to Intel Corp. servers running Linux.

Sun will also introduce a new family of midrange storage products featuring its N1 virtualization and provisioning technologies, according to sources familiar with its plans.

The announcements are part of the quarterly technology refreshes that Sun promised earlier this year and will also include price cuts and several services-related plans, the sources said. Sun declined to comment in advance on the announcements.

Sun's new Sun Fire V210 and Sun Fire V240 servers mark a fresh assault on the low end, said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. The systems are based on Sun's UltraSparc IIIi Jalapeno chip, which is optimized for use in low-end servers.

The V210, which measures 1U (1.75 in. high), can support two processors, up to 4GB of memory, two drive bays and a PCI slot. Pricing will start at

Sun, page 49

i2 Beset by Restatements, SEC Probe

User group says it still backs reeling supply chain software vendor

BY MARC L. SONGINI

The fortunes of i2 Technologies Inc. took another turn for the worse last week, as the struggling supply chain software vendor disclosed that the Securities and Exchange Commission has launched a full-blown investigation of its accounting practices.

Dallas-based i2 also said it will likely have to make "material adjustments" to its financial results as far back as 1999. In addition, the company warned that it faces a possible delisting by Nasdaq Stock Market Inc. and that it may breach a financial covenant with its bondholders.

"I2 looks like they could be in serious financial trouble," said a user at a Fortune 500 company that runs i2's transportation management software. "We're evaluating our options and contingency plans." The user, who asked not to be identified, said he's concerned about what might happen if i2 goes under but added that he thinks another

i2 Technologies, page 12

Struggling Airlines Scrutinize IT Projects Amid Mounting Losses

Pressure is on to show significant ROI or to boost bottom line

BY DAN VERTON
WASHINGTON

As they struggle to survive an economic downturn that's being exacerbated by the war in Iraq, U.S. airlines are taking an increasingly demanding look at return on investment and "transformational" benefits before funding IT projects.

Already trying to recover from $18 billion in losses since the Sept. 11 attacks, the airlines now face the prospect of losing another $10 billion and tens of thousands more jobs if the war in Iraq lasts longer than expected, according to the International Air Transport Association. As a result, the pressure on airline IT departments to prove the ROI and cost-reduction benefits of new IT projects has never been greater, according to some industry executives.

For example, America West Airlines Inc. has always focused on ROI before funding new IT projects. But "the rigors, constraints and milestones that you have to meet to move forward with new programs have now become much more intense," said Joe Beery, CIO at America West in Tempe, Ariz. "We've constrained the projects to the highest ROI you can imagine."

America West has increased deployment of service kiosks and recently rolled out a wireless system for "roving gate agents" at Baltimore/Wash-

Airlines, page 49

BIORELO PALMISANO

In the LINUX Loop

ROBERT M. LEFKOWITZ, director of open-source strategy at Merrill Lynch, urges companies that rely on open-source software such as Linux to regularly share code patches, modifications and new implementations. The payoff is more stable and reliable software. "If we find a bug or a problem, we're interested in fixing that problem. We're also interested in not fixing it again in the next version," Lefkowitz says. **PAGE 37**

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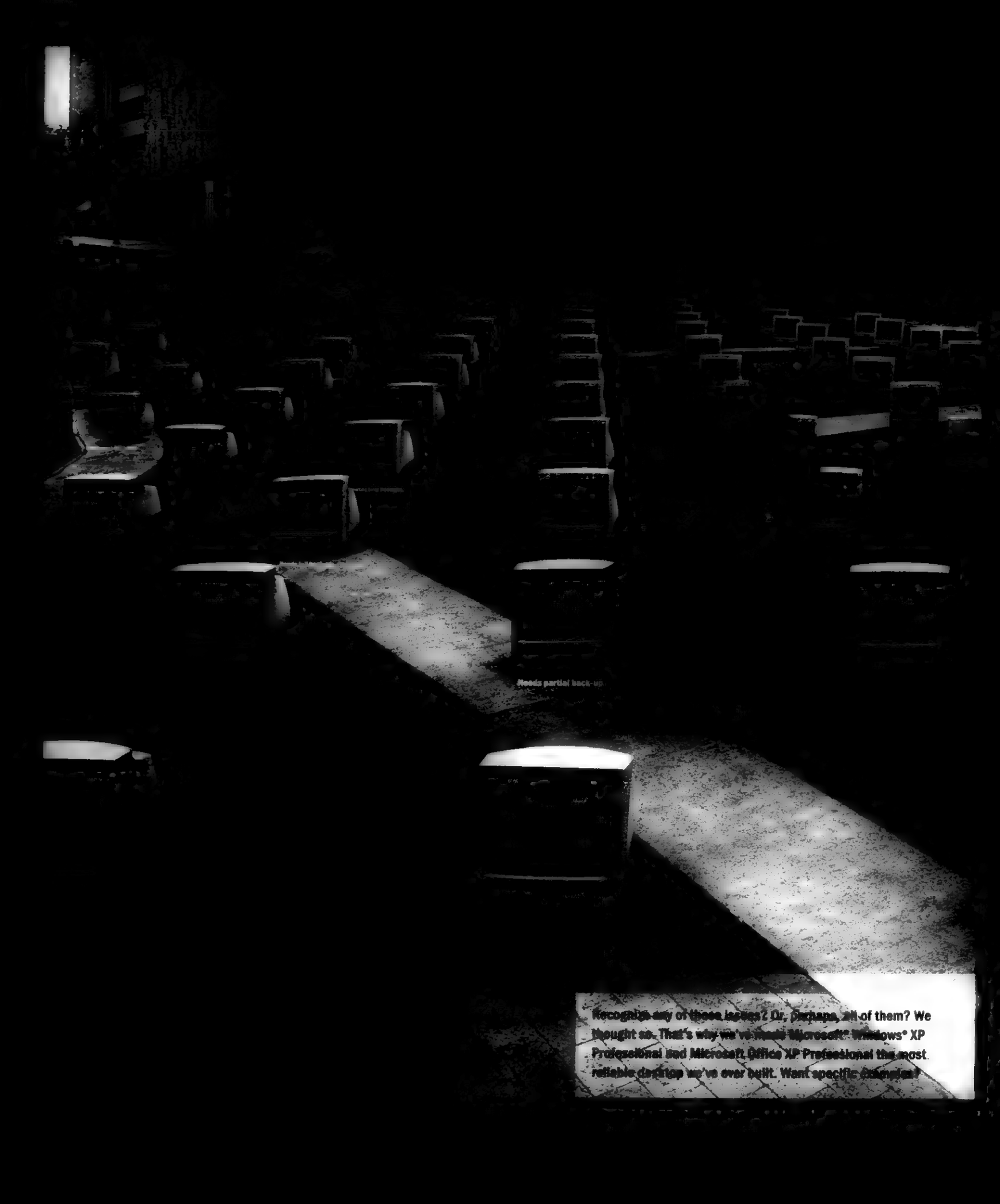

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04.07.03

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>
> ROLF HANSMANN, DIRECTOR OF GLOBAL E-MAIL AND COLLABORATION SERVICES, AVENTIS PHARMACEUTICALS INC.

E-mail Upgrade From the Ground Up

FIELD REPORT

Aventis Pharmaceuticals took three years to complete an upgrade of its e-mail system, which spans more than 50 countries and links 55,000 users. The project served as a catalyst for the company to redesign its entire server infrastructure. This step-by-step report on the upgrade offers up lessons that could be applicable to your next big project. **Page 25**

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Give Me a Test Hook – or Else

DEVELOPMENT: Is it ignorance, paranoia or pure laziness that keeps developers from tweaking their code to allow for successful automated testing? asks columnist Linda Hayes. **QuickLink 37501**

Database Security Breaches Are on the Rise

STORAGE: Insiders who commit database intrusions often have access codes and a precise idea of the valuable data they want to exploit, cautions *Storage Networking World Online*. What can you do to protect your company? **QuickLink 37429**

Running Windows Apps on Linux

OPERATING SYSTEMS: The SCO Group's Opinder Bawa offers advice on getting your Windows applications to run on Linux systems. **QuickLink 37525**

802.1x Authentication

MOBILE/WIRELESS: Reader Jim Burns explains how 802.1x authentication works and how it could help promote wider acceptance of wireless. **QuickLink 37533**

Third-Party Security: Who Can You Trust?

PRIVACY: It's a costly exercise to conduct formal reviews of your business partners' security practices, says privacy columnist Jay Cline. But the British have developed a standard to make the job easier. **QuickLink 37443**

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AT DEADLINE

HealthSouth CIO Fired Over Finances

HealthSouth Corp. in Birmingham, Ala., said it fired CIO Kenneth Livesay after he pleaded guilty to federal charges of falsifying financial information and conspiracy to commit wire and securities fraud. Livesay was one of five HealthSouth executives charged in connection with a scheme to artificially inflate the health care company's earnings and to file false financial statements with the government.

Microsoft to Alter XP's Start Menu

Microsoft Corp. said it will give a more prominent place in the Windows XP start menu to a program that helps users set products from other vendors as their default software. The company agreed to make the change as part of its antitrust settlement proceedings with the U.S. Department of Justice. The DOJ declined to comment, other than to say that it's working with Microsoft "to address issues that arise in this process."

Sybase, PeopleSoft Say Q1 Below Plan

Sybase Inc. in Dublin, Calif., and PeopleSoft Inc. in Pleasanton, Calif., both warned that their first-quarter financial results will be lower than expected. Sybase CEO John Chen said users deferred "numerous" planned software purchases because of economic concerns. PeopleSoft reported similar purchasing delays.

Network Associates Buying Two Vendors

Network Associates Inc. in Santa Clara, Calif., said it plans to buy two San Jose-based companies that sell intrusion-prevention technology. Network Associates will pay $120 million in cash to acquire Entercept Security Technologies Inc. and $100 million to buy IntruVert Networks Inc.

Microsoft Adds Wireless Security Support to XP

Free software replaces less secure WEP with new Wi-Fi Protected Access specs

BY BOB BREWIN

MICROSOFT CORP. last week added support for a new set of wireless LAN security specifications to Windows XP, and WLAN hardware that uses the same specs is expected from several vendors later this month.

Microsoft said software that complies with the Wi-Fi Protected Access (WPA) security mechanisms can be downloaded from its Web site for free. WPA, which was developed by Microsoft and other vendors under the auspices of the Wi-Fi Alliance trade group, will replace the older and less secure Wired Equivalent Privacy (WEP) security standard that XP now supports.

Sam Bhavnani, an analyst at ARS Inc. in La Jolla, Calif., said security remains corporate users' No. 1 concern about Wi-Fi technology. Microsoft's decision to build WPA support into Windows XP should help alleviate those concerns because it will provide enhanced security that end users "will not even have to think about," Bhavnani said.

Other Choices

But Dave Sankey, director of process technology development for the product repair service division at Sears, Roebuck and Co., said some Wi-Fi security tools already on the market are at least as good as the WPA-compliant ones. For example, Sears has deployed to its service technicians 10,000 notebook PCs that are equipped with Wi-Fi connections and use security middleware from IBM that Sankey called "as good as WPA."

WPA, which was announced in October, is an interim set of specifications that its backers hope can bridge the gap between WEP and a draft 802.11i WLAN standard that a working group within the Institute of Electrical and Electronics Engineers Inc. is expected to complete by next year.

The specifications prescribe the use of the Extensible Authentication Protocol to determine the identities of end users who try to access corporate Wi-Fi networks. WPA also replaces the static encryption keys in WEP with harder-to-crack dynamic keys based on the Temporal Key Integrity Protocol, which is part of the 802.11i proposal.

Wi-Fi Alliance officials said Microsoft's move dovetails with hardware announcements planned for this month's Networld+Interop conference. Brian Grimm, a spokesman for the trade group, declined to specify how many vendors plan to introduce WPA-certified hardware at N+I, but he said it would "be more than five."

Companies that previously said they plan to support WPA include Cisco Systems Inc., Hewlett-Packard Co. and Sunnyvale, Calif.-based Proxim Corp.

Bill Carney, a vice president at Texas Instruments Inc. and a member of the Wi-Fi Alliance's board, said that starting in August, the trade group won't put its certification stamp on any new Wi-Fi hardware that does not support WPA.

SECURE SWITCH

Nortel Networks announced a WLAN switch with built-in wireless security features.

QuickLink 37567
www.computerworld.com

CA to Hand Off More Users to Resellers

Changes sales strategy for three software lines

BY MARC L. SONGINI

Computer Associates International Inc. last week announced restructuring moves in its IT services and indirect sales organizations, including a plan to put more emphasis on using channel partners to sell some of its key products.

As part of the changes, which were disclosed at the start of CA's new fiscal year, the software vendor said it will lay off about 450 employees worldwide over the next few months. That's about 3% of its workforce of 16,000.

> "I prefer to deal with CA directly. . . . That relationship is important to us."
>
> ANDREW WINER, CIO, MYERS INDUSTRIES INC.

The products that will be more frequently handed off to resellers include CA's eTrust, BrightStor and AllFusion lines, which support security, storage and application lifecycle management, respectively. The company plans to share more sales leads with channel partners and let them take the lead in the selling process, said George Kafkarkou, senior vice president of CA's worldwide channel operations.

Customer Contact

The new approach is largely geared toward small and midsize businesses, Kafkarkou said, adding that company officials hope the increased focus on resellers will help CA take over the top spots in the storage and security management markets.

But Andrew Winer, CIO at Myers Industries Inc. in Akron, Ohio, said he wouldn't want to give up his existing relationship with CA's sales force. "I prefer to deal with CA directly," he said. "Our account team at CA, whether sales, service or customer satisfaction, all know us. That relationship is important to us."

Myers, which makes plastic and rubber goods, uses CA's CleverPath business intelligence software. For some products, it might not matter who the seller is, Winer said, but the contacts that Myers deals with at CA already know the company and its history. He said he's also not sure whether resellers would negotiate on price to the same extent that CA does.

Kafkarkou said that in some cases, users will be able to keep their accounts CA-only if they want to do so. However, he pointed out that some of CA's products, such as its ARCserve data protection software, are already sold by resellers only.

CA also said it's combining its presales technical support and professional services organizations into a single unit as part of a previously disclosed plan to narrow the focus of the company's IT services offerings to its own products. The new unit, CA Technology Services, will be responsible for the company's user training services as well.

CA said the services operation has about 2,500 employees and will work closely with the sales force in an effort to reduce the time it takes users to get returns on their investments in the company's software.

IBM, Oracle Take Shots at BEA

Try to lure users away from rival's application server

BY CAROL SLIWA

There is really no subtlety to the attacks that IBM and Oracle Corp. are hurling at rival BEA Systems Inc.

Oracle last week directed a "switch-and-save" migration program squarely at users of BEA's WebLogic application server. At no charge, BEA customers will be eligible to swap their WebLogic per-processor enterprise licenses on a one-for-one basis for per-processor licenses of Oracle's 9i Application Server Java Edition, which was introduced last week. Oracle experts will even help those BEA users with their migrations, the company said.

Meanwhile, this week at its developerWorks Live conference, IBM will release a free plug-in that will let users of its WebSphere Studio development environment test and deploy applications on the WebLogic application server.

An IBM spokesman acknowledged that the newly added support for WebLogic will make it "easier to migrate from WebLogic to WebSphere," in addition to making the tools available to a broader spectrum of developers.

Carl Sjogreen, senior product manager of WebLogic Workshop, welcomed support from other tool vendors to help developers build applications to run on the BEA platform. "[Users are] going to see the merits of our platform underneath," he said.

It's no secret that IBM and BEA have been embroiled in a heated battle for the lead in the application server market, with Oracle trailing in third place. But so far, BEA hasn't made a serious play in the tools market.

That will change this summer when BEA releases the second, more all-purpose version of its WebLogic Workshop, which will work across all of the company's products. The first release was only for building Web services.

Craig Roth, an analyst at Meta Group Inc. in Stamford, Conn., said he doesn't think IBM will find many takers to develop in WebSphere and deploy on WebLogic. Roth said he would consider "the shot from IBM . . . to be a compliment to BEA and WebLogic Workshop."

Oracle, which doesn't have much of a presence in the application server market, likely sees BEA as a more vulnerable target than IBM, Roth added. "With BEA, you feel you are attacking an architecture group or an infrastructure group that you may have a chance of actually swaying," he said. "You can't sway a CEO with a switch-and-save offer, and IBM often makes handshake deals at that level."

But Mike Gilpin, an analyst at Forrester Research Inc. in Cambridge, Mass., said BEA generally takes good care of its customers. "Most of their customers that I run into are quite happy and loyal," he said.

Gilpin said that although Oracle's application server has improved significantly, the product generally has held appeal only for Oracle's database and application customers.

Lightening Up

That's exactly the grounds on which Oracle is hoping to sway BEA customers. If they're already using Oracle's database server, they may want to get their application server from the same vendor, said John Magee, Oracle's vice president of product marketing.

Oracle sells a standard edition of its application server, at $10,000 per processor, that includes portal and content management capabilities. Its enterprise edition, priced at $20,000 per processor, includes features such as a directory infrastructure, security, caching and wireless capabilities.

The new, lighter Java Edition, which sells for $5,000 per CPU, features support for core Java 2 Enterprise Edition technology, an HTTP server, five seats of the company's JDeveloper tool and the TopLink object-to-relational persistence software that Oracle acquired last year from WebGain Inc.

Magee said Oracle's new Java Edition has more capabilities than the Express products from BEA and IBM. He said Oracle can give away the Java Edition to BEA customers because its long-term business model is based on the "extended middleware functionality," such as portal, integration and business intelligence, in its higher-end versions.

Erik Stahl, BEA's director of product marketing, said he "almost never" sees Oracle in the sales cycle. He added that he has witnessed similar Oracle campaigns in the past. "It's an acknowledgment of our leadership in the space," he said.

BEA last week announced the availability of WebLogic Server 8.1 and its JRockit 8.1 server-side Java virtual machine that's optimized to run on the Intel Corp. architecture.

Lighter Side

Application server vendors put out several versions of their products. Low-end versions include the following:

- BEA WebLogic Express
- Oracle Edition: Includes Servlet engine, tools, security framework. Cost: $400 per CPU.
- Premium Edition: Adds clustering capabilities. Cost: $4,000 per CPU.
- IBM WebSphere Application Server – Express
- Includes application server, tools, support and maintenance.
- Cost: $20 per browser user, $2,000 per processor for unlimited users.
- Oracle9i Application Server: Java Edition
- Includes Containers for J2EE, JDeveloper tool, advanced clustering, TopLink object-to-relational persistence software.
- Cost: $5,000 per processor.

DEVELOPERWORKS LIVE

IBM will announce at the show new self-healing capabilities in the Tivoli line

QuickLink 37578

IBM will hold a coming-out party for its newly acquired tool line from Rational

QuickLink 37564
www.computerworld.com

Unisys ES7000 Features New Design, Entry Price

BY PATRICK THIBODEAU
MALVERN, PA

Unisys Corp. today will announce a variation of its Windows-based 32-way enterprise server that has a price and design configuration intended to attract midrange users.

At its data center lab here, Unisys last week previewed part of its ES7000/500 "Dylan" line to show off a new design configuration. The processors are built in modules, which the company says will let users quickly assemble large systems in building-block fashion in a matter of hours.

The ES7000, which can scale up to 32 processors, was previously available with a minimum of eight processors, starting at about $80,000. Unisys is now offering a four-way version with a starting price of $35,000. The company is calling it a "pay-as-you-grow" approach.

The move may be attractive to IT managers who are interested in having a symmetrical multiprocessing server environment but have been scared off by the price, said Jean Bozman, an analyst at IDC. According to the research firm, worldwide server revenue has fallen from $60 billion in 2000 to $44 billion in 2002 as a result of the economic downturn.

Unisys also has upgraded its Server Sentinel management tools with features that include self-healing functions.

ONE ON ONE

To read an interview with Unisys' George Gazerwitz, visit our Web site:

QuickLink 37567
www.computerworld.com

Microsoft Reveals Office Packaging Options

BY CAROL SLIWA

Microsoft Corp. last week unveiled the packaging options that will be available for its Office System 2003 family of applications, which is due this summer.

Simon Marks, a product manager at Microsoft, said he expects that the majority of corporate customers will get the Office Professional 2003 Enterprise Edition, which comes with their volume licenses.

The Enterprise Edition includes familiar applications like Word, Excel, Outlook, PowerPoint and Access. But it will also include InfoPath, a new product that allows users to create and complete XML-based forms and submit them to XML-enabled systems; Business Contact Manager; the desktop Publisher tool; support for customer-defined XML schema; and support for Information Rights Management content creation and authoring capabilities.

The Office Professional 2003 version that will be available through hardware makers and retail and academic sales channels will include everything in the Enterprise Edition except InfoPath.

Another new Microsoft product, the OneNote digital note-taking application that can be used on laptops, desktops and Tablet PCs, will be sold as a stand-alone product.

Pricing for the Office family of products has yet to be announced. However, Marks said prices won't change significantly from past versions.

BRIEFS

Dell Stands by Q1 Growth Goals

Despite the war in Iraq and continuing economic uncertainty, Dell Computer Corp. said it expects to meet targets of double-digit growth in revenue, unit shipments and earnings during its first quarter. Dell reaffirmed its prediction that revenue will increase 19% year over year in the first quarter, which will end April 30. The company expects a 35% jump in earnings per share.

Peregrine Amends Bankruptcy Course

Peregrine Systems Inc., an asset management software vendor in San Diego, filed a revised reorganization plan with the U.S. Bankruptcy Court in Delaware after talks with its creditors. Some of the creditors now support the plan, Peregrine said, but the official committee of unsecured creditors still opposes it, and the judge overseeing the case ordered more negotiations.

Sprint Plans IP Network for Feds

Sprint Corp. announced plans to launch a private IP network for use as an intranet by security-conscious U.S. government agencies. The company said the government network, which is due to be ready by midyear, will offer most of the same functionality as its SprintLink corporate IP backbone but won't include gateways to the public Internet.

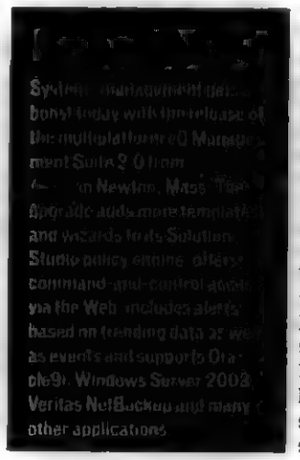
Short Takes

HEWLETT-PACKARD CO. cut the prices of its midrange Unix servers by about 20% and said it will offer users free in-factory configuration services, including the setup of system partitions. . . . SUSE LINUX AG in Nuremburg, Germany, said it has delayed its shipment of an enterprise desktop version of Linux from the first quarter to June.

MARK HALL ■ ON THE MARK

Sun, Apple Ignite New Desktop Skirmish . . .

. . . with Microsoft Corp. While it's doubtful that either company will be able to unseat Windows' monopoly status in the PC market, you've got to admire their pluck. Sun Microsystems Inc.'s attack on Microsoft's desktop fortress is called Project Mad Hatter [QuickLink 36292] and uses Linux combined with StarOffice and other open-source goodies. Although most of the attention has been given to Sun's embrace of Linux and open source, **the real story is about hardware.** John Loaicano, vice president of Sun's operating platforms group, says, "The advantage of Linux is its low-cost hardware." Translated: Intel Corp. hardware will always be cheaper than UltraSparc systems. After all, Sun could have pushed Linux on its own microprocessor, since there are numerous versions running on it (see *www.ultralinux.org*), but Sun **opted for Intel IA-32 chips.** Sun's Intel hardware story gets more interesting. According to Loaicano, Sun will stop its "Lucy-and-the-football approach with Solaris on x86." While the effect of Solaris running on Intel hardware may not dent the Windows desktop monopoly, it may slow Linux's incursion into Sun's territory. Thomas Cunningham, CEO of Baltimore-based Alabanza Corp., says he'd consider returning to Solaris "if the hardware were less expensive." His company uses 1,000 Intel-based Linux servers in its Web hosting center, which he ran for three years on Sun systems until the costs got out of hand. Cunningham **prefers Solaris because the performance is better.** So he might be pleased to hear Loaicano say that Sun's price for Solaris or Linux on IA-32 systems "will be the same." ■ Apple Computer Inc. has long been the only serious alternative to Microsoft's approach to the desktop. In large measure that's because Macintosh has been the only other platform that can run the Microsoft Office Suite natively. It has also meant that **Apple has been captive to Microsoft's commitment** to the Mac, which seems to be in constant jeopardy because Office for the Mac contributes so little to Redmond's overflowing coffers. For years, Macs have come bundled with AppleWorks, a usable Office alternative, but the suite has lacked an equivalent to PowerPoint. This has left Mac-loving marketers without their essential tool, so many have switched to Windows.



With the arrival of a $99 package called Keynote, **Apple has a solid alternative** for those Mac lovers who want to create presentations. Keynote is fast and easy to use, but more important, it reads in and exports out PowerPoint files flawlessly. It's so good, it may make Microsoft wonder why it needs to continue supporting the Mac. ■ Another **interesting conflict is brewing among the companies battling** to take the lead in Web services management. Ed Horst, vice president of marketing at AmberPoint Inc. in Oakland, Calif., claims that enterprise application designers using Web services will want to use products like AmberPoint's Management Foundation to control content with business logic as well as oversee the health of the Web services themselves. That strikes John Hanger, senior vice president of sales and marketing at competitor Flamenco Networks Inc. in Alpharetta, Ga., as a mistake. Although he says Flamenco WSM Enterprise Edition can also manage content, Web services management "is the wrong place to put business rules." He compares products like his and AmberPoint's with OpenView and Tivoli, which manage networks, not the data running on the networks. Horst dismisses the point. **Getting business managers involved in Web services** is what will make them a success, he says. Stay tuned. ■ Data encryption is one of the best ways to protect your information. But it has always caused **a major performance penalty.** The folks at cipherOptics Inc. in Raleigh, N.C., claim that their Security Gateway appliance licks that problem. It does triple-DES encryption and coarse packet filtering and handles endpoint authentication of systems while humming along with two 1Gbit/sec. ports. In June, the appliance will sport an option for the Advanced Encryption Standard and a global policy configuration manager, adding ease of use to its speediness. ◗

Cisco Upgrades Catalyst 6500 Switch Line

BY MATT HAMBLEN

Cisco Systems Inc. last week unveiled six modules and other technology upgrades for its Catalyst 6500 Series switches, including a new processing engine that the company said will nearly triple the performance of its existing switches.

Cisco already controls about 70% of the worldwide switch market with the Catalyst line, according to Joel Conover, an analyst at Current Analysis Inc. in Sterling, Va. The new offerings stand to solidify the company's market prominence, he said.

The upgrades should also help spur migrations to devices that support up to Gigabit Ethernet transmission rates in wiring closets and 10 Gigabit Ethernet in core networks, Conover said. Cisco has created a "well laid-out migration path," he said. "These announcements give [users] some of the best performance in the industry."

Conover added that Cisco's pricing could also boost 10 Gigabit Ethernet, which is now confined largely to research and supercomputing centers. For example, Cisco announced a four-port 10 Gigabit Ethernet module that costs $20,000, the same price as a device with four Gigabit Ethernet ports.

However, the Catalyst line "is still very expensive," Conover said. He noted that a 6500 chassis configured to support 10 Gigabit Ethernet can cost as much as $300,000.

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Other additions to the 6500 line include a 16-port Gigabit Ethernet module for data centers and a carrier-class 10 Gigabit Ethernet module with two ports, Cisco said. ◗

War, Economic Woes Put Drag on IT Hires

Report says fourth-quarter hiring was down compared with earlier quarters

BY THOMAS HOFFMAN

WEAK BUSINESS conditions and fears about the potential impact of a war with Iraq led many U.S. companies to hold back on hiring IT employees during last year's fourth quarter, according to a report released last week.

The report by Dice Inc. and the Information Technology Association of America (ITAA), which conduct quarterly surveys of more than 300 hiring managers, says companies added fewer technology workers from October to December than they did in each of the previous three quarters. A total of 265,000 IT workers were hired in the fourth quarter, while 168,000 were let go — a net gain of 97,000 jobs.

The job market isn't expected to change much for the better this year, according to the report. Dice and the Arlington, Va.-based ITAA predicted that companies will hire a total of about 874,000 IT workers this year.

"January was very strong for recruiting, [but] hiring has pulled back since then, largely driven by the economy and the situation in Iraq," said Scot Melland, president and CEO of Dice, a New York-based provider of online recruiting services for IT professionals.

No Recovery Yet

Some IT executives said the findings jibe with their current workforce strategies. "Our hiring plans have decreased," said Malcolm Fields, CIO at HON Industries Inc. The Muscatine, Iowa-based maker of office furniture and fireplaces was anticipating an economic recovery "that hasn't come," Fields said. As a result, all hiring within HON's IT department has been put on hold, with the exception of a few replacement workers.

Diane Morello, an analyst at Stamford, Conn.-based Gartner Inc., said she expects IT hiring in the U.S. this year to be even weaker than what Dice and the ITAA are forecasting. They "subtly assume that demand will be filled by permanent hires in the U.S.," Morello said, characterizing that as a false assumption.

The increasing shift of IT work offshore "shows how companies are filling demand — at considerably lower [compensation] rates" than they would have to pay U.S. workers, Morello said. She added that many IT managers are increasing their reliance on contract labor and supplemental staffers as part of their efforts to control variable costs.

Tom Pohlmann, an analyst at Forrester Research Inc. in Cambridge, Mass., said he expects IT staffing levels to remain flat overall on a year-to-year basis. Even if the clamps are taken off of technology budgets, IT departments "will still be pressed over the medium term to deliver more with less," he said.

It's also far from certain that companies will free up their spending on IT this year. Framingham, Mass.-based IDC last week said it is now forecasting a growth rate of 2.3% for worldwide IT spending in 2003, down from an earlier prediction of 3.7% growth.

Losses Drop

Although fewer IT workers were hired during the fourth quarter than in previous periods, there were also fewer job losses, according to Dice and the ITAA. By comparison to the 168,000 IT workers who were let go in the fourth quarter, 211,000 were dismissed during the third quarter, and about 350,000 were pared during both the first and second quarters, they said.

At year's end, there were about 10.2 million IT workers in the U.S., Dice and the ITAA said. That's a 3.3% rise from the number at the start of 2002.

Dell, Oracle Team on Non-Unix Clustering

Duo wants users to migrate servers

BY PATRICK THIBODEAU
NEW YORK

Dell Computer Corp. CEO Michael Dell and Oracle Corp. CEO Larry Ellison sat shoulder to shoulder last week to detail a growing alliance built around selling clustered server systems to enterprises. Their message: RISC/Unix systems are being relegated to niche status.

"There is no question that standardization is increasingly taking hold in an increasingly large portion of the enterprise opportunity," said Dell.

Dell's strategy is to sell servers primarily using two to four processors that can be combined, or clustered, to boost processing power. A key component of that strategy is Oracle9i's ability to run on such clustered systems.

The Dell/Oracle partnership is aimed at easing the migration from RISC/Unix systems to Windows and Linux. Prices will depend on project requirements, but a migration to Oracle9i that takes 10 days would cost about $35,000.

Dell is already a major reseller of Oracle databases on its servers, but the two companies hope their migration services, coupled with a price that begins at about $18,000 for the cluster, will draw even more customers.

Broadening User Options

Oracle, which depends heavily on revenue from Unix users, said the strategy is intended to give users more choices. "The Linux strategy does not supercede what we are doing with Unix," a spokesperson said.

Charlie Garry, an analyst at Meta Group Inc. in Stamford, Conn., said the risk of Oracle alienating its Unix users is low because Oracle "already owns that market, and all the major Unix vendors are jumping on the Linux bandwagon as well."

While users at the launch supported the approach, Dell's goal to replace RISC/Unix vendors in the enterprise could raise costs, said Steve Randich, CIO of Nasdaq Stock Market Inc. in Washington. Nasdaq needs the very top tier of reliability, but commodity vendors aren't going to try to fill that niche because they don't have the economic incentive to do so, he said.

Randich is a heavy Dell user, but he said he fears that if vendors of high-performance systems are pushed out of the mainstream, "they are going to have to drive up the price for that [highly reliable system] in order to maintain a reasonable profit." If that happens, he said, it "will compel firms like ours to use standard solutions in order to meet the cost and economic requirement, but then customize our applications to close that reliability gap."

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> ANDY MILLER, DIRECTOR OF NETWORK OPERATIONS, WYNDHAM INTERNATIONAL

Andy Miller, director of network operations at Dallas-based hotel and resort operator Wyndham International Inc., is running a variety of operating systems, including IBM's AIX and Sun Microsystems Inc.'s Solaris.

Solaris is a prime candidate for replacement with a combination of Dell hardware and Linux because of price, Miller said. A proprietary Unix system "locks me in as the consumer of those products into very specific, regulated growth models," said Miller. "The more open source, the more open-standards-based it is, the more flexibility I have, the more choices I have. And that to me is a huge benefit."

Ed Wojciechowski, CIO of Menasha Corp., a Neenah, Wis.-based maker of packaging and other products, said he welcomed the move.

"Our model is Linux, Dell and Oracle," Wojciechowski said. "So anything that brings those closer together we think is a benefit and fits our business model."

BRIEFS

Dell Stands by Q1 Growth Goals

Despite the war in Iraq and continuing economic uncertainty, Dell Computer Corp. said it expects to meet targets of double-digit growth in revenue, unit shipments and earnings during its first quarter. Dell reaffirmed its prediction that revenue will increase 18% year over year in the first quarter, which will end April 30. The company expects a 35% jump in earnings per share.

Peregrine Amends Bankruptcy Course

Peregrine Systems Inc., an asset management software vendor in San Diego, filed a revised reorganization plan with the U.S. Bankruptcy Court in Delaware after talks with its creditors. Some of the creditors now support the plan, Peregrine said, but the official committee of unsecured creditors still opposes it, and the judge overseeing the case ordered more negotiations.

Sprint Plans IP Network for Feds

Sprint Corp. announced plans to launch a private IP network for use as an intranet by security-conscious U.S. government agencies. The company said the government network, which is due to be ready by midyear, will offer most of the same functionality as its SprintLink corporate IP backbone but won't include gateways to the public Internet.

Short Takes

HEWLETT-PACKARD CO. cut the prices of its midrange Unix servers by about 20% and said it will offer users free in-factory configuration services, including the setup of system partitions. . . . SUSE LINUX AG in Nuremburg, Germany, said it has delayed its shipment of an enterprise desktop version of Linux from the first quarter to June.

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Systems management gets a boost today with the release of the multiplatform eQ Management Suite [illegible] from Heroix Corp. in Newton, Mass. The upgrade adds more templates and wizards to its Solution Studio policy engine, offers command-and-control access via the Web, includes alerts based on trending data as well as events and supports Oracle9i, Windows Server 2003, Veritas NetBackup and many other applications.

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Key results from the Dice/ITAA quarterly IT workforce study

- Hiring by non-IT companies outpaced the number of jobs added by technology vendors by a ratio of 10-to-1.
- Technical support workers represented 58% of all the IT hires during the fourth quarter.
- Database developers saw the largest employment growth for last year as a whole, with jobs increasing 6.2%.
- The most in-demand IT skills continue to be Java, SQL, C, C++, Oracle and Windows NT.

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BY PATRICK THIBODEAU
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BRIEFS

Judge Dismisses GTE's Y2k Suit

A U.S. District Court judge in New Jersey has dismissed a $381 million lawsuit that the former GTE Corp. filed four years ago in a bid to recoup its year 2000 remediation costs from five insurers. The judge ruled that the insurance policies didn't cover the cost of fixing flaws in IT systems. New York-based Verizon Communications, which now owns GTE's operations, said it's reviewing its options in the case.

Deloitte Decides To Keep IT Unit

New York-based Deloitte Touche Tohmatsu said it's dropping plans to spin off its IT consulting unit. The company announced in February 2002 that it would separate Deloitte Consulting from its accounting business to avoid potential conflicts of interest. But it has canceled those plans because of the tight credit market and sluggish economy.

Web Services Group To Take on Security

The Web Services Interoperability Organization (WS-I) in Palo Alto, Calif., said it has set up a working group to develop proposed security specifications for Web services applications. It will examine interoperability-related issues such as the security of data transports and Simple Object Access Protocol messages. The WS-I said a development timeline is due within a month.

Short Takes

MICROSOFT CORP. later this year plans to release versions of its Great Plains, Navision and Solomon business applications with unified pricing and packaging for companies with up to 100 employees. . . . Poway, Calif.-based GATEWAY INC. said it will reduce the revenue it reported for 2000 and 2001 by a combined total of $470 million.

3Com Software-based IP Switch Being Tested

Company hopes high-end product will help its re-entry into enterprise market

BY MATT HAMBLEN

A HIGH-END, software-based IP switch from 3Com Corp. is being tested by four large companies for general release in August as part of the network device maker's efforts to re-establish itself in the enterprise marketplace.

Last week, 3Com CEO Bruce Claflin said the switch will scale to hundreds of thousands of users, compared with the hundreds supported by the company's existing NBX line. The software switch, or "softswitch," should help Santa Clara, Calif.-based 3Com woo back enterprise customers that were abandoned three years ago, Claflin said (see story below). 3Com declined to identify the companies testing the switch.

The softswitch will handle more than voice traffic, including "applications and services that an IP infrastructure can allow you to deliver that are not possible or practical in a traditional telephone environment," Claflin said.

"If you try to sell VOIP to an enterprise today and justify it on the value-add features, you are unlikely to be successful, because the CEO is saying 'hard-dollar payback,' " he added. "And the way you get the hard-dollar payback is to displace the basic telephone services cost inside your business."

Claflin said the softswitch supports both IP and public switched telephone network standards, and he claimed that it offers the same 99.999% level of reliability of traditional private branch exchanges. It will also provide emergency 911 support for locating a user based on his desktop phone instead of the nearest wiring closet, Claflin said.

He said that 3Com itself is one of the beta sites for the switch and that the company expects to reduce its annual voice costs by 70%, partly by eliminating long-distance phone charges. In addition, the company would save on the expense of adding and removing users and by axing conference call costs, which would mean a 13-month payback, Claflin claimed.

The development of a highly scalable IP softswitch impressed two 3Com customers who nonetheless said their operations are probably too small to deploy it.

"We'd probably benefit from the technology enhancements they'd make in developing it," said Debbi Pryor, CIO at MountainBank in Hendersonville, N.C. MountainBank has saved $3,000 per month in long-distance charges and thousands of dollars more in IT management costs with 3Com's NBX technology and LAN switches, Pryor said.

Jim Maass, director of technology for the Tahoe Truckee Unified School District in Truckee, Calif., has installed 3Com voice-over-IP gear in 12 buildings that house 4,500 students, but he said his operation is still too small for the softswitch. "I am a real 3Com advocate," he said, adding that he hopes the focus on larger customers "doesn't mean that 3Com forgets about us smaller clients."

The softswitch is based on intellectual property developed within 3Com's CommWorks division, which is being sold to UTStarcom Inc. in Alameda, Calif., for $100 million. The sale lets 3Com focus more on enterprises, since CommWorks targeted network carriers, Claflin explained. To deal with what promises to be an "ugly" economy for two to three more years, he added, 3Com will need to capture market share from other big switch. ▶

3Com CEO Explains Renewed Bid for Corporate Business

3Com CEO Bruce Claflin says his fingerprints are among those on the company's decision three years ago to exit the enterprise networking market. Claflin spoke with *Computerworld*'s Dan Tennant last week about that decision and about 3Com's latest steps to try to get the high-end corporate business back. Excerpts from the interview follow:

Your recent announcement of a joint venture with Chiaro's Huawei Technologies is another step back into the enterprise business [Quick Link 37186]. How much of a credibility problem do you have with enterprise customers, some of whom told us that they felt betrayed and abandoned? There clearly were a few customers who felt that way, but let's make sure we put it in perspective. Our total installed base at the time was 4% of the market, so that means there's 96% who didn't have experience with us. And of that 4% – now fast-forward three years – the vast majority kept their 3Com equipment.

We lived up to every obligation we had, and they are one of the customer bases we want to go back to first, because there are quite a few of them who feel very good about their products. All of them? Absolutely not. Are there some who were mad at us? You bet. But I think today, particularly given the fact that almost every competitor now has retrenched to some degree, the actions we took then don't look particularly unusual.

Did you support the decision to exit the enterprise business? Yes.

So in hindsight, you don't think it was a good? That's a different answer. With the benefit of hindsight, I think that directionally we had to make those changes. I think we had very little chance to succeed on the course we were on at the time.

If I had it to do over, though, I would do it differently. First of all, I would have probably exited some of the losing protocols, like [Asynchronous Transfer Mode], and I would have moved to an Ethernet-only strategy. And I think for those products we did get out, we should have had a much longer horizon for customers to make their decisions than we did.

Do you think Cisco Systems CEO John Chambers is worried about Huawei? Absolutely. He should be. As the industry becomes more standardized, people can come in with a better cost structure and put his business model at risk. Frankly, I think he's right to be worried. This is a part of our strategy: to attack him from a business-model as well as a product-competency front.

MORE ONLINE

To read the complete interview with Claflin, visit our Web site.

Quick Link 37186
www.computerworld.com

EMC Joins Brocade in Push for Storage Virtualization Technology

Vendors sign deal to put EMC's storage management software on SAN switches

BY LUCAS MEARIAN

EMC Corp. last week said it plans to develop storage management software for a new line of Brocade Communications Systems Inc. switches that support network-based storage virtualization.

EMC is the second major storage vendor to embrace the SilkWorm Fabric Application Platform switch technology, which San Jose-based Brocade obtained as part of its January acquisition of Rhapsody Networks Inc. Brocade and Hewlett-Packard Co. announced a similar agreement in January [QuickLink 35826].

IT managers will be able to use the switches, which Brocade plans to sell through storage vendors like HP and EMC, to manage the devices on multivendor storage-area networks (SAN) as if they were a single entity, a process known as virtualization.

Brocade, the largest maker of SAN switches, acknowledged that the new hardware won't be of any practical use until at least the end of this year, when HP, EMC and a group of seven smaller vendors are due to start making their storage management applications available on the devices.

But some IT managers are already saying that intelligent switches like Brocade's are a step in the right direction.

Mark Deck, director of infrastructure technology at National Medical Health Card Systems Inc., a medical benefits management company in Port Washington, N.Y., plans to use HP's VersaStor storage virtualization software to help manage his 5.6TB SAN.

But Deck said he has run into an I/O bottleneck between HP's Continuous Access Storage Appliance and its higher-speed Surestore xp256 disk array. Once HP puts VersaStor on Brocade's switches, Deck said, he should be able to use the SAN's full 1Gbit/sec. bandwidth to transfer data between the different storage devices, thereby eliminating the bottleneck.

Bob Siravo, manager of enterprise storage at drug maker Wyeth in Madison, N.J., is rolling out the latest version of EMC's ControlCenter software to help manage a 50TB SAN that includes HP and EMC arrays. Siravo said he thinks the SAN is where storage management intelligence belongs, because it would let him divvy up storage capacity like an energy utility distributes electricity.

But the Brocade/EMC announcement won't preclude Siravo from installing ControlCenter, on individual disk arrays and servers. Wyeth has "an immediate need to have as much of a common tool to manage the environment as possible," he said.

John Webster, an analyst at Data Mobility Group Inc. in Nashua, N.H., said network-based storage virtualization technology has been available for a couple of years, mainly from start-ups such as DataCore Software Corp. in Fort Lauderdale, Fla., and FalconStor Software Inc. in Melville, N.Y. But Brocade's entry lends credibility to the technology, he added.

Officials at Hopkinton, Mass.-based EMC said the company initially plans to support virtualization, dynamic data routing and data classification capabilities on the Brocade switches.

APPLIANCE UPGRADE

HP upgraded its Continuous Access Storage Appliance, a hardware/software bundle for replicating and migrating data

QuickLink 37561
www.computerworld.com

Financial Firms Seek Revision Of WORM Archiving Rule

Industry group asks SEC to allow adoption of newer storage technology

BY LUCAS MEARIAN

Brokerages are lining up against a 12-year-old regulation that requires them to store electronic documents on unchangeable optical media, saying the archival method is too expensive and cumbersome to manage and doesn't necessarily safeguard information.

The Securities Industry Association (SIA) in late February sent the U.S. Securities and Exchange Commission a letter asking the agency to remove the technology-specific language from its rule on the retention of electronic records. The rule currently dictates that brokerages store electronic records on WORM devices. The New York-based SIA last week said it wants the SEC to instead focus on the creation of policies and procedures to ensure that important data won't be modified.

WORM, which stands for "write-once, read-many," is an optical storage technology that lets users write data to a disk or tape just once in order to create a permanent, unalterable set of records.

But Scott Kursman, associate general counsel at the SIA, said the use of WORM devices doesn't prevent brokers from changing documents before they get archived. "If you have controls and procedures around things like access and the archiving environment, that gets you to a place that would result in a more robust rule than what we have today," Kursman said. He added that brokerages would much rather use technology like EMC Corp.'s Centera fixed-data disk array or inexpensive, high-capacity magnetic tapes.

Working on WORM Time

Financial services firms are finding that it can be an "hours-long procedure" to retrieve documents from WORM disks, Kursman said.

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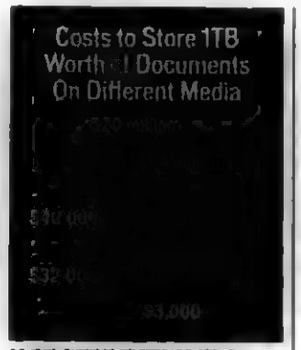

SOURCE: ENTERPRISE STORAGE GROUP, MILFORD, MASS.

In comparison, documents archived on newer storage devices are instantly identifiable from indexing, he said.

An SEC spokesman said the agency has yet to respond to the SIA's request and added that there is no timetable in which it would have to do so.

The WORM storage requirement dates back to 1991, when brokerages were looking to move away from storing records on paper and microfiche. Ironically, the SEC chose WORM technology in response to a petition from the SIA for a rule that would allow electronic forms of data storage.

But Patrick C. Gordon, an analyst at Milford, Mass.-based Enterprise Storage Group, said very few vendors sell WORM devices now, which has left many brokerages to run systems that are no longer supported.

Because of the ubiquitous use of e-mail by brokers, and new federal regulations such as the Sarbanes-Oxley Act, complying with e-mail retention requirements will be one of the most important IT-related issues for financial services firms during the next two years, Gordon said.

In recent months, the SEC has been closely scrutinizing the archiving of communications between brokers and their customers, particularly e-mail transmissions.

For example, the agency in December fined five brokerages a total of $8.25 million for violating its e-mail record-keeping requirements [QuickLink 34912].

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Brocade's SilkWorm Fabric Application Platform Technology

Users will be able to

- Run storage management applications on storage switches instead of individual arrays.
- View from a single console the storage capacity on all the arrays and servers tied to a switch.
- Set up policy-based management approaches on their SANs.
- Manage storage at the logical unit number, providing them with more granular control.

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QuickLink 37551
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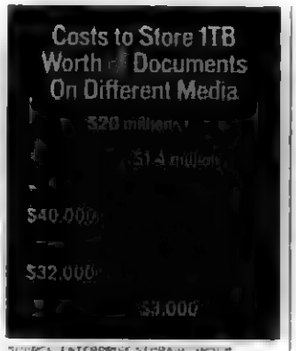

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Handle Corporate Security As Single Entity, Users Say

Stress that IT security can't be divorced from physical, personnel security plans

BY JAIKUMAR VIJAYAN
CHICAGO

COMPANIES can improve their ability to detect and respond to both cyber and physical threats by tying their IT security to other aspects of corporate security.

But the cultural and business-process changes involved in implementing such a holistic view of security can be daunting for most corporations, users said here last week at a conference organized by ASIS International, an Alexandria, Va.-based organization of security professionals.

"The benefits of integrating corporate security with IT security can be tremendous," said Lew Wagner, chief information security officer at the MD Anderson Cancer Center at the University of Texas in Houston.

Coordinating IT security functions with areas such as physical protection, facilities management, human resources and legal and audit functions has helped enhance overall threat-detection and incident-response capabilities at the hospital, Wagner said.

"It streamlines corporate investigations. Whenever somebody runs afoul of the policies of the institution, you don't have a bunch of people doing stovepipe things," he said.

A holistic view of enterprise security can help plug gaps that might otherwise be missed, said James Litchko, president of Litchko & Associates Inc., a security consultancy in Kensington, Md.

Outside Factors

For instance, the majority of IT-related security threats still stem from procedural and process flaws — such as failure to secure access to crucial systems, inadequate backups and lack of auditing — rather than from technology glitches, Litchko said. Consequently, it's important to factor in physical and personnel security when implementing IT security, he added.

"To some degree, this is happening naturally as IT becomes intertwined in almost all aspects of corporate life," said David Rymal, director of technology at Everett, Wash.-based Providence Health System.

"Even physical security is tied to IT, as all of our electronic access controls feed databases," Rymal said.

In the case of the health care industry, regulations such as the Health Insurance Portability and Accountability Act are driving such collaboration further in order to protect patients' privacy, Rymal said.

As more computing devices become mobile, "we must guard against not only theft of the devices but [also] protection of the data on those devices," he said.

Integration of security functions can also lead to better operational efficiency, said Steve Hunt, an analyst at Forrester Research Inc. in Cambridge, Mass.

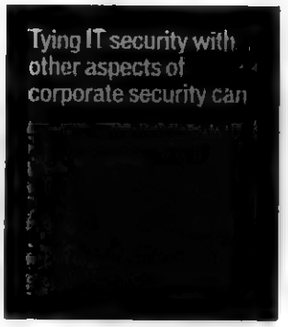
"The greatest sin of all for a CEO is to have different business units with the same mission so everyone is feeling some pressure to justify what they are doing," Hunt said.

Even so, few corporations are embarking on such a venture, he said. That's because implementing an enterprise-wide security and risk management program can be a cultural and business-process challenge, given the silos that security-related functions are relegated to within many corporations, users said.

For instance, IT functions may report to a CIO, while facilities management is handled by finance and risk management and business continuity are handled by yet another group.

Connecting these silos can lead to "better identification and mitigation" of risks, said Robert Gerden, director of corporate and systems security at Brampton, Ontario-based Nortel Networks Ltd. during a presentation at the conference.

But it can be "very hard to quantify the ROI" on the benefits gained from such integration, Gerden said.



MORE ON SECURITY
The Department of Homeland Security tackles enterprise architecture:
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Correction

A STORY THAT RAN in the March 31 News section ("Oracle Modifies Pricing, Bundling of Applications") reported that Oracle Corp. had renamed its business applications E-Business Suite 2003. That is the name of a new software licensing model that Oracle announced for the applications; the software itself is still called E-Business Suite 11i.

Continued from page 1

i2 Technologies

vendor would take over and support its products.

Gene Hunt, chairman of the Atlanta-based i2 User Group, said in a statement that the SEC investigation and the other developments will likely "spark a ripple of concern" among the company's users. Nevertheless, Hunt, a member of the technical staff at Texas Instruments Inc. in Plano, Texas, said the user group still supports i2's executives.

Hunt said the management team has been working to refocus i2 on improving customer satisfaction. The SEC investigation shouldn't affect the quality of the company's products or ongoing installations of its software, he said.

On the other hand, Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said i2 is in a "tailspin" that will be tough to pull out of. "The financial difficulties are bad enough, but customer flight is the real problem," he said. "It's hard to justify spending more on i2 technology when the company is looking so shaky."

I2, which has reported five straight quarterly losses, said it will continue to cooperate fully with the SEC. The formal investigation follows an informal inquiry into the company's revenue recognition and financial reporting practices that the SEC's staff began in January [QuickLink 36004].

At that time, i2 CEO Sanjiv Sidhu said he had "basic comfort" about the accuracy of the $12.4 million loss the company reported on a preliminary basis for the fourth quarter. But Sidhu acknowledged that a planned reauditing of its books by Deloitte & Touche LLP could lead to adjustments of i2's financial results.

Last week, i2 said the reaudit had been expanded to include 1999, and it disavowed all the numbers it had previously reported for that year through the end of 2002. The company added that it hopes to complete the reaudit by early June, but it said it won't be able to file its Form 10-K financial statement for last year in time to satisfy the rules of either the SEC or Nasdaq.

The stock market, which had previously withdrawn a delisting notice to i2, halted trading of the company's stock until i2 responds fully to a request for more information about its financial status.

Another looming issue is i2's potential breach of the covenant with bondholders. If it doesn't finish the reaudit process by June, the company will be in violation of provisions that require it to provide timely financial information to bond trustees. As a result, i2 could be forced to pay $350 million to the bondholders.

An i2 spokeswoman said the various issues dogging the software vendor won't affect its intellectual property or cash position. Company officials "are totally focused on meeting the June deadline" for finishing the new audits, the spokeswoman said.

i2's List of Woes

- Five straight unprofitable quarters, including a $12.4M fourth-quarter loss that could be widened as a result of its reaudit
- A formal investigation of its financial practices by the SEC
- The potential breach of a covenant with its bondholders that could force the company to repay $350M
- A halt in the trading of its stock by Nasdaq and a possible delisting by the stock market
- A class-action lawsuit filed on behalf of i2 investors by a Little Rock, Ark.-based law firm

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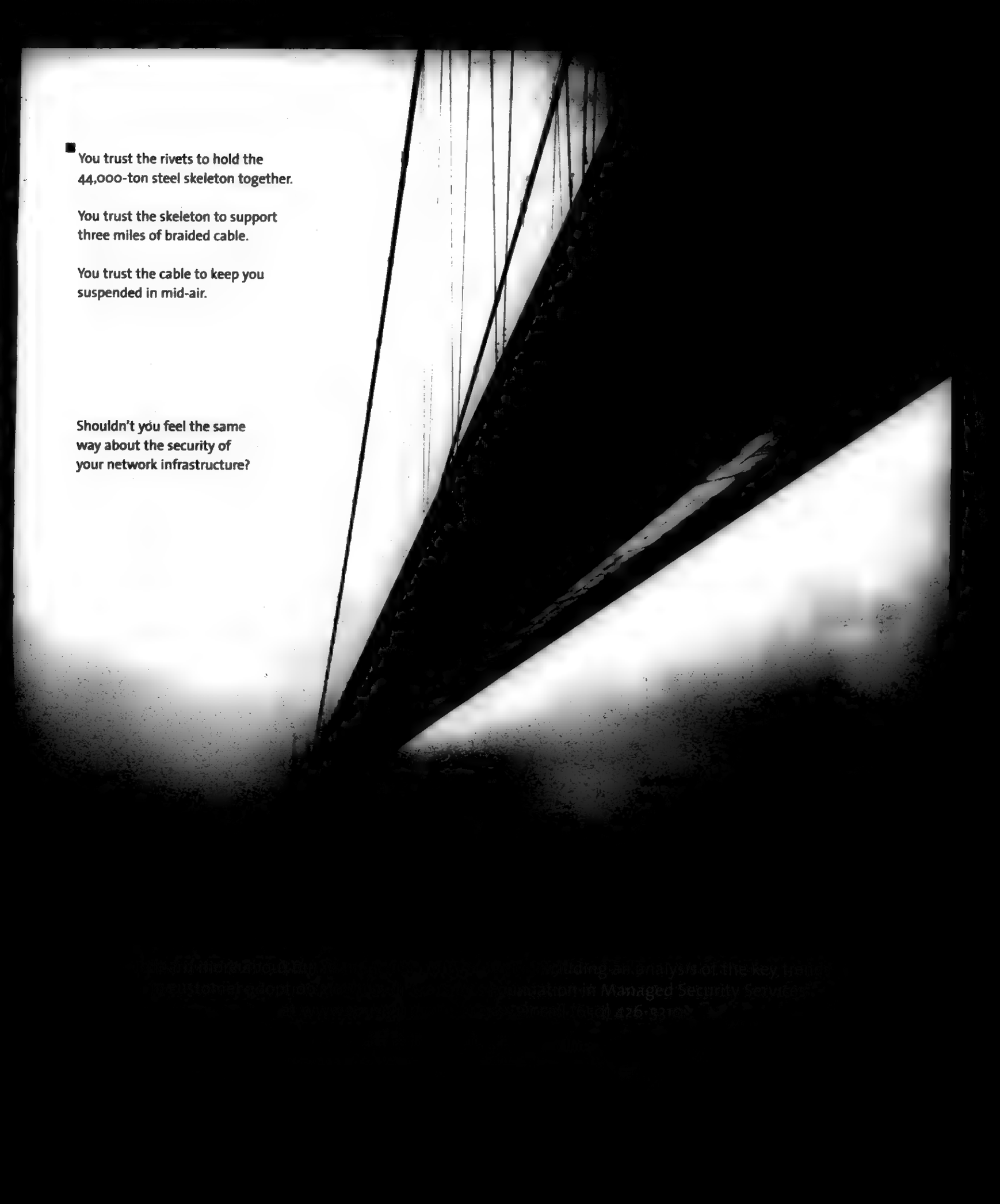


You trust the rivets to hold the 44,000-ton steel skeleton together.

You trust the skeleton to support three miles of braided cable.

You trust the cable to keep you suspended in mid-air.

Shouldn't you feel the same way about the security of your network infrastructure?

SAS Tries to Broaden Its Software's Appeal

BY MARC L. SONGINI

SAS Institute Inc. last week announced plans for an upgrade of its data analysis software that will expand a 10-month-old effort to simplify the technology so it can be used more widely within companies.

The promised ease-of-use improvements got a thumbs up from some attendees at the SAS Users Group International annual conference in Seattle.

But users will have to be patient. SAS officials said the 9.1 upgrade is in the hands of some early adopters but won't be shipped until a phased release starting Aug. 31. Full availability is expected by year's end.

SAS 9.1 will include a pair of user interfaces tailored for different kinds of end users, based on their specific jobs and IT skill levels. The addition of the Report Studio and Web Report Studio interfaces is an attempt to reach out to "decision-makers who have experience and strengths in what they do, but not in computing," said Eleanor Taylor, manager of business intelligence strategy at the Cary, N.C.-based company.

SAS is embedding a metadata layer to filter out irrelevant data for end users, Taylor said. SAS is also building in business rules to help users conduct more detailed analyses of data, and it's tightly integrating the software with Microsoft Office so queries can be run from within applications such as Word, Excel and Outlook.

In addition, Report Studio and Web Report Studio will offer wizard technology to help users find information without having to write SQL queries. The same technology is part of a role-based user interface that SAS shipped in September for more IT-savvy users.

Irving Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa., said the Web Report Studio tool will let his company's business analysts and managers generate their own reports, freeing Quaker Chemical's IT staff from having to respond to many of the ad hoc reporting requests it gets now.

"Our goal is to give people access and let them put information in any format they like," Tyler said. He added that SAS 9.1 could also eliminate the need for Quaker Chemical's IT department to develop specialized data marts that combine information from different systems. "We can just give users raw data and metadata, and they can combine that themselves," he said.

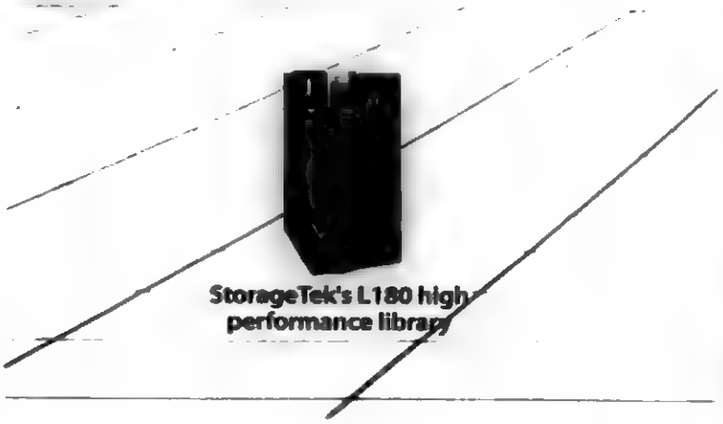
The user-friendly enhancements could open up SAS applications to end users who want to run online analytical processing queries but are intimidated by the software's complexity, said Randy Collica, a senior business analyst at Hewlett-Packard Co. HP uses a variety of SAS tools for tasks such as studying customer data.

The upgrade should also help dispel a lingering perception among some potential customers that SAS's products "can only be used by actuaries," said Mike Schiff, an analyst at Current Analysis Inc. in Sterling, Va. ◗

Gary H. Anthes contributed to this report.

Shorten backups.

Keep information available to users with a StorageTek high performance library and the new LTO Ultrium Generation 2 drive. With a capacity of 200GB and a blistering 30MB/second transfer rate, you can complete backups in no time. And it's fully read/write compatible with LTO Ultrium Generation 1 tape drives, so it seamlessly integrates with your existing StorageTek library. This kind of capacity, speed and affordability make the LTO Generation 2 drive right for any demanding IT environment. Like yours. For more information, visit www.storagetek.com.



StorageTek's L180 high performance library

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Save the Day.™

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CEO Says SAS Isn't Proprietary

BY MARC FERRANTI
NEW YORK

A few days before last week's conference started, Jim Goodnight, president and CEO of SAS, spoke with the IDG News Service. Excerpts follow.

Analysts have said your competitors position your software as a proprietary system, understandable only by accountants. This is precisely what companies are supposed to say about competitors. I heard the CEO of Business Objects do that, saying SAS is up here just servicing a couple of statisticians in each organization. That's how they position us. But certainly none of that is true. SAS adheres to almost all the different standards in the world, and we're no more proprietary than Microsoft or Oracle.

You offer a low entry price, but you charge a relatively high annual renewal fee. What do you tell users who might be concerned that they're locking themselves in to paying these fees? We've purposely kept our fees very reasonable. [But] our licensing model is a guarantee that we'll be delivering new functions year after year. We have not laid off anybody in the last two years. We were able to use the fact that we have continuing revenue to actually bring in additional talent to try to speed the software development process up.

Can a private company like SAS hire the outside talent you need? We can attract all the outside talent we want, I promise you that. If we had been a public company during the last two years, we would have been laying people off, trying to maintain the bottom line. With a private company, I'm able to take a contrarian approach.

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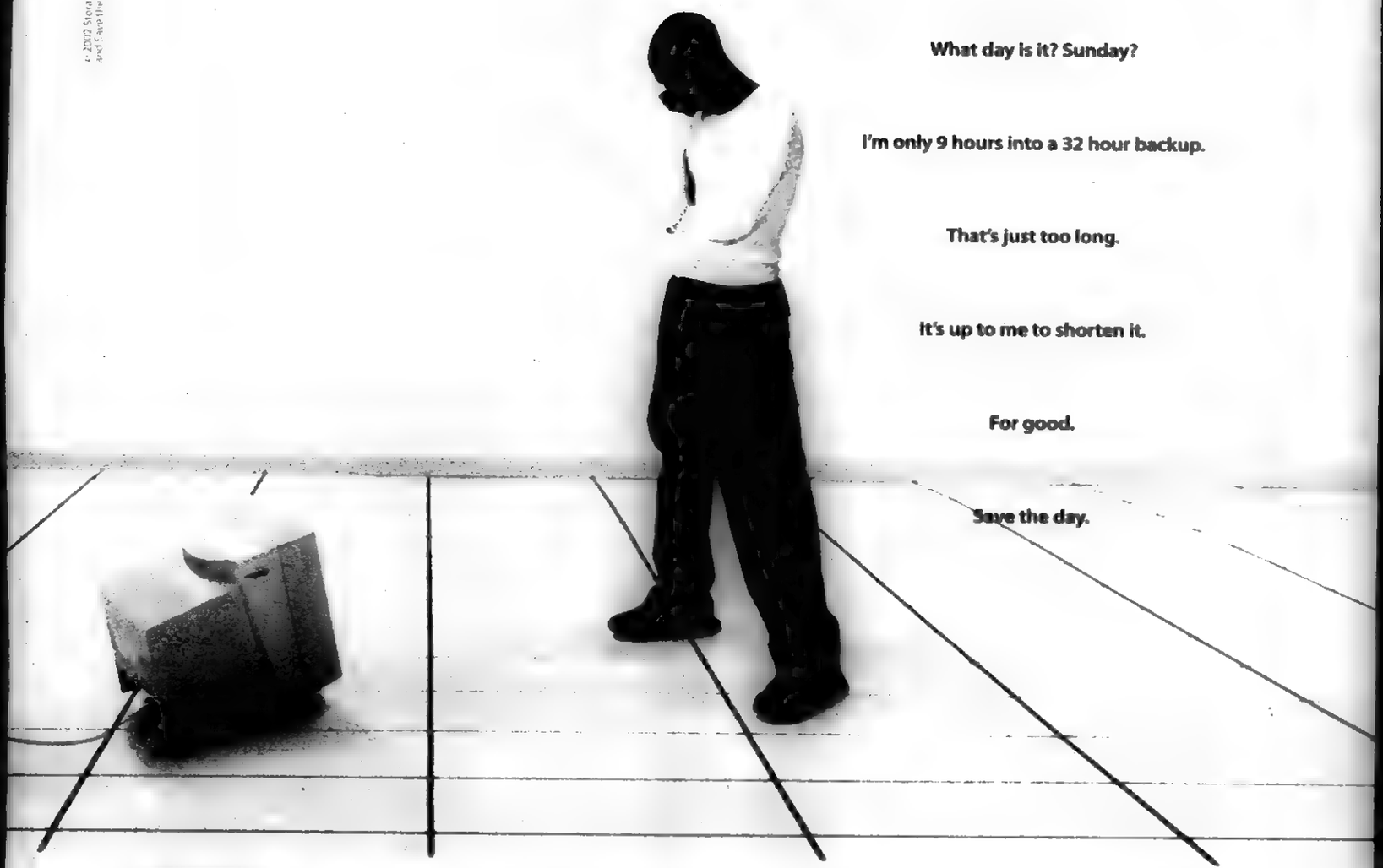

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Sun Bows to Users, Drops Its Own Linux

BY TODD R. WEISS

Sun Microsystems Inc. is ending a seven-month effort to establish its own Linux distribution, because of reluctance on the part of users to deal with yet another version of the open-source operating system.

Sun spokeswoman Ann O'Leary said marketing of the Sun Linux 5.0 software that the company announced last August is being curtailed in favor of developing partnerships with other Linux vendors. Sun had positioned its release as nothing but a slightly tweaked version of a standard Linux 2.4 kernel. But O'Leary acknowledged that the company felt pressure from users that weren't interested in having to install and manage multiple versions of Linux.

Mike Prince, CIO at Burlington Coat Factory Warehouse Corp., where Linux is a big part of the IT infrastructure, said Sun's decision is a wise one. "There's little Sun could add to its own release of Linux that can't be done by companies that are focusing on that," Prince said. "I don't think a custom Linux version was a value-add. I think it was a distraction."

The Burlington, N.J.-based clothing retailer uses Red Hat Linux on many of its systems and has a small amount of Sun hardware in place. Prince said he would be receptive to the idea of running the Red Hat software on Sun servers.

O'Leary wouldn't identify the Linux vendors that Sun is talking with about possible partnership deals. No deadline has been set for reaching any agreements, she said.

Uphill Battle

Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, said he wasn't surprised that Sun changed its direction on Linux so quickly.

"I thought they'd eventually have to do it," he said. "It was stupid to try to develop or support their own Sun Linux." Competing with vendors such as Red Hat Inc. and the UnitedLinux consortium would have been a tough task, Claybrook added.

Sun's plan made some sense at first because selling its own version of Linux would let the company more closely integrate its Sun Open Network Environment software with the operating system, said Al Gillen, an analyst at IDC in Framingham, Mass.

The problem, though, was that trying to get other vendors to port their applications to a new version of Linux was unlikely to be successful, according to Gillen. "That's an uphill battle," he said. "If Sun had a huge market share, it wouldn't be a problem. But they're starting from zero."

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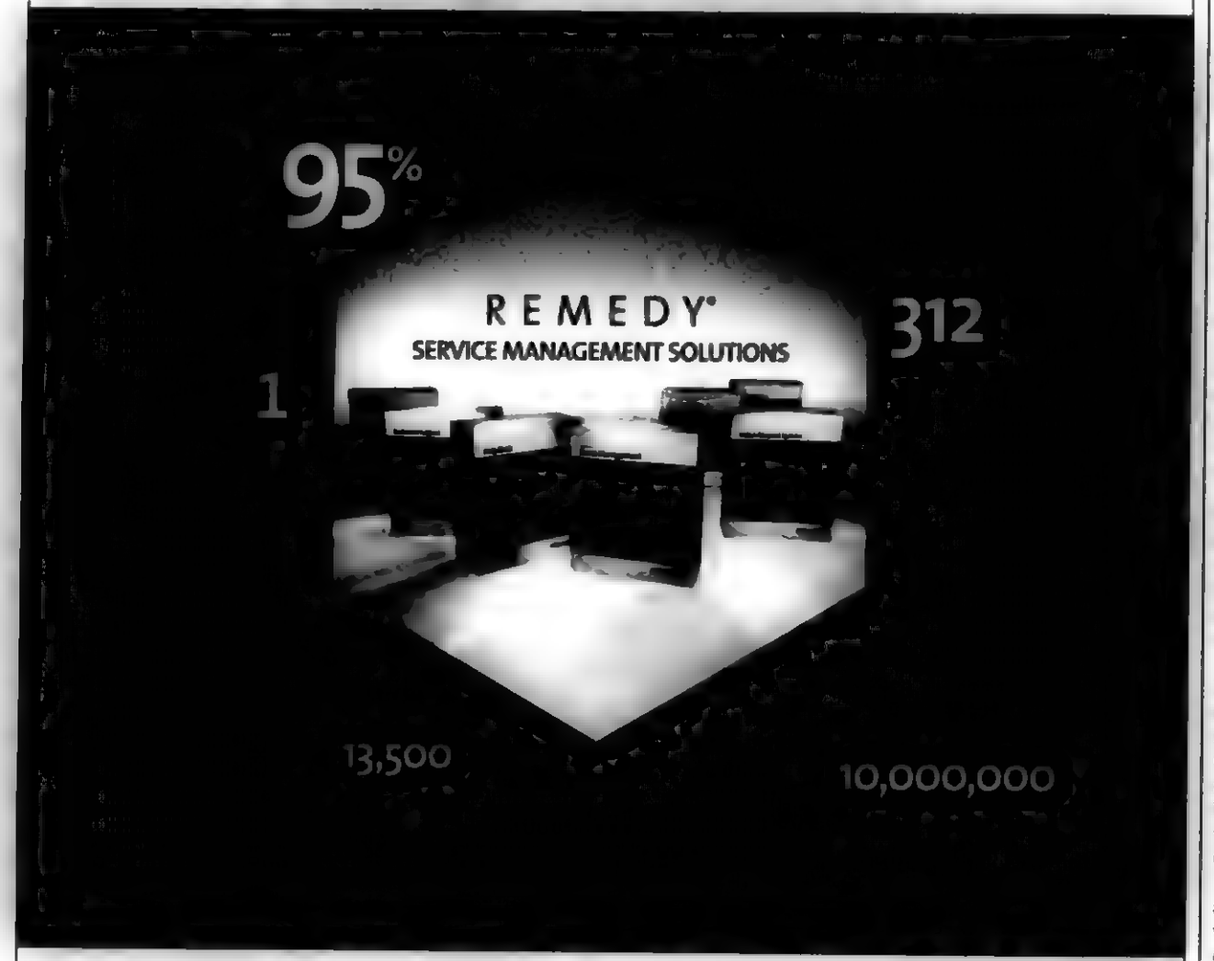

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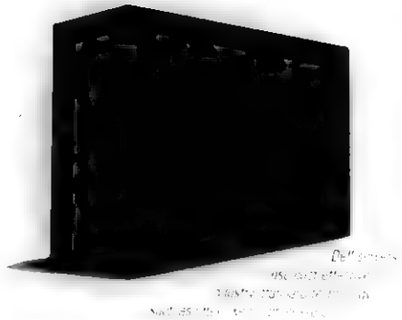

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Tests by Dell in January 2003 on baseball database. Dell configurations: Dell PowerEdge 6650 server with four 2.0 GHz Xeon MP processors, Red Hat Linux Advanced Server 2.1, 3 Year Gold Support. Price: $32,701 (www.dell.com, 1/20/03) and Dell PowerEdge 2650 server with two 2.8 GHz Xeon DP processors, 4GB memory, Windows 2000 Server, 3 Year Gold Support. Price: $9,324 (www.dell.com, 2/10/03). Sun configuration: Sun Fire V480 server with four 900 MHz UltraSPARC III processors, Solaris 9 (12/02 version). Price: $53,796 (www.sun.com, 3/17/03), 3 Year Gold Support. For details and results, see www.dell.com/migration.

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Web Services Are Coming Along, Says BEA Exec

BY CAROL BLIWA

Adam Bosworth *says he spends 50% of his time with corporate users in his role as chief architect and senior vice president of advanced development at BEA Systems Inc. in San Jose. Bosworth worked at Microsoft Corp. for 11 years before joining BEA when it acquired Crossgain Corp. in July 2001. He spoke with* Computerworld *last week about trends in the technology industry, such as the evolution of Web services. Excerpts follow.*

How much work still needs to be done in the area of Web services? There were two things that were missing from Web services. One was the model for reliable [message] delivery. We [now] get around this by using the reliable delivery mechanisms through the message bus technologies that are there, and BEA provides those as an alternative.

But if you're going to go B2B, when you can't really do that, you really need to have a standard in the Web services stack. Very recently, a standard came out. We signed, along with IBM and Microsoft, a proposal for Web services reliable messaging.

The other one you need is asynchrony. You need to be able to send a message to someone and, when they respond, be able to realize that this is a response to a message you sent out earlier. We do that today, but we do it using SOAP headers, which means the programmers on the other side have to be aware of it.

So the recently published standards for reliable delivery and asynchronous messaging are two of the most important ones, in your estimation? WS-Addressing and WS-Reliable Messaging were pretty profound, because these have the potential to effectively make messaging a standard protocol. And once you've done that, all the messaging layers no longer really have the lock-in they currently have.

I think those are seminal, as was WS-Security, because those three taken together give me secure, reliable messaging, and that's all I need. That's all Web services should do.

Users still express concerns about the security of Web services. How much more work needs to be done on that? I think people tend to worry more about security than they should now that WS-Security is out there, which is to say there is no perfect solution. Anytime you build software, there are always security risks to be managed and controlled. And the biggest risk is always people. It's not software.

What will be BEA's main focus going forward? Make it easy to manage and change systems. That's the next thing I hear about from every customer. Total cost of ownership is not just about development. It's about once the system is up and running, how do I manage it, maintain it, control it in the face of change and in the face of unpredictability? And that's a key, key thrust for the next big release from BEA.

Some of your customers have expressed concerns about the nonstandard Java technologies that BEA has introduced to achieve its goals. How strong is BEA's commitment to standardize those technologies? Fundamentally, we are going to do whatever it takes to make sure that these things that improve productivity for the Java community become standards, and that means more investment in the standards process. It means more investment in providing other ways to use these components. It means just more explanation to people about how this stuff works. It means more collaboration.

Do you worry that a competitor such as IBM might not adopt some of these standards and the Java community will become fractured? If IBM viewed them as proprietary lock-in, that would be a problem, and we would worry about it. IBM is in somewhat of the same boat we are. J2EE, in general, has a large competitor these days, and it's .Net.

If you're a J2EE vendor, one of your key focuses is making sure that you have the same developer productivity story [as], or better than, .Net. And at least on the enterprise, we think we're better. In order to deliver on that, though, you have to make that a pervasive part of the standard. And at that level, I think — as with Web services — you'd be surprised at how much agreement there is between otherwise very competitive companies.

Are you always watching what IBM is doing? I keep an eye on them, but I don't obsess. I think more products have failed by far because people were looking over their shoulders when they should have been looking at the customer.

I try and make sure that BEA is, No. 1, focused on the customer and, No. 2, looks at the competition. Our customers are very aware of what our competition does. And if they're doing anything good, [customers] tend to tell us anyway. ■

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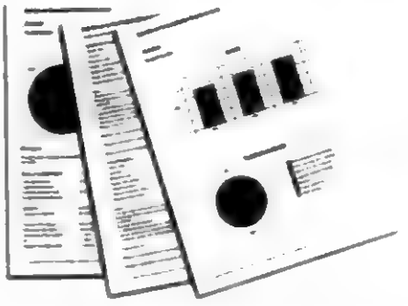

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PATRICIA KEEFE

Credibility Insurance

LIFE WOULD BE INFINITELY EASIER for IT if there were no such thing as an IT project. And in fact, there isn't. Any project worth doing has to serve a business need, which in effect makes it a business project. So where are the suits when it's time to sit down and justify, prioritize, evangelize and verify the value of these projects?

PATRICIA KEEFE is a Computerworld editor at large. You can contact her at patricia_keefe@computerworld.com.

Sitting safely off in the distance, that's where. For the most part, technology initiatives are still seen and positioned as only IT projects, no matter where the idea, request or money originates. This hasn't worked to IT's advantage and has instead contributed mightily to the credibility issues dogging IT departments today. It's a vicious cycle, and one that CIOs have got to get a handle on.

While it may not be your fault, it is your problem. As Network Services Co. CIO Michael H. Hugos observes, "We are still the propellerhead in the corner of the room with a target on our back. When things go south, who is the easiest person to blame?" But he also warns that "getting into a power struggle with more powerful people is a bad way to get what you want" [QuickLink 37307].

An ingenious way to put the business side's feet to the fire is to establish a joint committee composed of senior IT and business strategists charged with developing an integrated strategy designed to keep all projects on the straight and narrow to achieve their defined business goals. About 15% to 20% of Global 2,000 companies already have such committees in place, estimates Meta Group analyst Richard Buchanan. And they work.

The payoff can be big. Companies that manage their IT investments most successfully generate returns that are as much as 40% higher than those of their competitors, according to a November *Harvard Business Review* article by Jeanne W. Ross and Peter Weill.

These steering committees are "not just project management on steroids," says Buchanan. "It's determining which project we'll actually do, based on its strategic business value and what is the most efficient engineering sequence in which to do them."

The committees do this by developing a global view and an overall strategy for all major IT projects, laying out the expected technical and business benefits, enacting IT portfolio management, prioritizing projects based on business strategy, tracking projects under way, creating a shared vision of the future technical environment and safely rejecting projects that don't serve these goals. They have the added value of forcing a public commitment and support from the sponsoring business unit. And as these joint efforts succeed, they build trust between IT and business leaders.

A driving force behind these committees has been the failures of major initiatives such as ERP, CRM and supply chain applications. Buchanan says they fail because no one really knows what they were trying to achieve from a business standpoint. And he says it's usually the business people who are unwilling to take the time to do this work.

Making these committees successful is laborious, requiring discipline and the support of upper management. But as Meta analyst and CIO coach Doug Lynn told me, "When a CIO goes out the door, it's not that he didn't do the job; it's that he didn't communicate well. The business didn't know what was going on or why." Which is why these steering committees are a sure bet to keep you in your seat and the credibility monkey off your back.

PIMM FOX

ASP Redux: It's About Service

WHATEVER happened to all those application service providers?

When they first appeared about four years ago, ASPs were going to change the way companies buy and use software. In the process, they were going to make corporate data centers difficult to justify, if not obsolete. Back then, ASPs made outlandish claims that they could provide robust, enterprise-level software and services at a fraction of the typical maintenance and life cycle costs.

They were going to be fabulous, remember?

PIMM FOX is a freelance writer in San Francisco. Contact him at pimmfox@sbcglobal.net.

But stock market reality — and the sinking of marketing budgets — have muted the ASP message, forcing ASPs to become more focused on their capabilities and less defensive about the virtues of joint operations with a corporate IT center.

Yet, with many once-unassailable IT budgets under siege, there's reason to revisit the cost-saving benefits of employing an ASP. For example, if you're spending 80% of your IT budget maintaining existing systems, you can't invest heavily in projects that could generate new business. An ASP might be able to free up some of those maintenance dollars.

Good candidates for shifting to an ASP are human resources and payroll systems or a sales automation program. And given the current competitiveness among ASPs, your deal should include software management as well as hardware services. Many ASPs offer packages that include software from Oracle, Siebel, SAP and Ariba, and you can get specific service-level agreements that call for financial penalties and technical accountability when things go wrong.

ASPs have also dropped their anti-customization positions. They discov-

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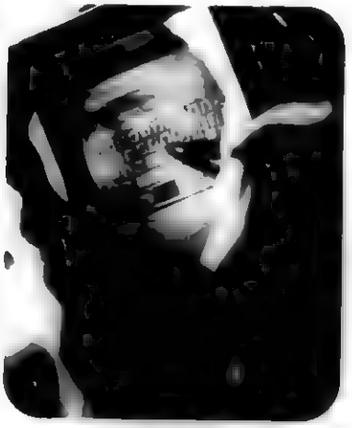

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Tony Scott
CTO
General Motors

Anthony (Tony) E. Scott is the Chief Technology Officer for GM's Information Systems and Services (IS&S) organization. Scott is responsible for defining the information technology computing and telecommunications architecture and standards across all of GM's business globally. He provides leadership in the areas of IT architecture and standards, and emerging technology. He joined GM from Bristol-Myers Squibb where he was Vice President, Information Management, responsible for the management of the global computing infrastructure.

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TUESDAY, MAY 6

1:00pm	Pre-Conference Golf Outing
2:00pm	Concurrent Workshops and Sessions: • Technology Workshops *Presented by Proxim, Motorola and AVAYA and other Workshops to be announced* • Industry Pipeline Sessions • Technology Productivity Training *Presented by Handheld Media Group*
7:00pm	Pre-Conference Networking Reception

WEDNESDAY, MAY 7

7:00am	Buffet Breakfast
8:00am	Welcome and Opening Remarks *Ron Milton, Executive Vice President, Computerworld*
8:15am	Opening Keynote Presentation *Nancy Victory, Assistant Secretary for Information & Communications, U.S. Department of Commerce, Administrator of the National Information & Communications Administration*
9:00am	Wireless Enterprise Panel *Panel Moderator: Bob Brewin, Mobile & Wireless Reporter, Computerworld* *Panel Members: Tom Dillon, Manager, Mobile & Wireless, Hilton Hotels; Joe Przepiora, CITS Manager, Cargill; Allan Thompson, President & CEO, Rappore Technologies (others to be announced)*
9:45am	User Case Study: Wireless Security - Risk Management *Ken Newman, Director of Information Security & Risk Management, Deutsche Bank*
10:15am	Break
10:30am	Industry Insights *Presented by IBM*
11:00am	Analyst Update: Mobile Goes Mainstream - What IT Needs To Know
11:30am	Sponsor Introduced End-User Case Studies (concurrent sessions)
Noon	Networking/Birds of a Feather Luncheon
1:30pm	Industry Innovations Panel *Moderator: Gerry Purdy, Ph.D., Principal Analyst, MobileTrax*
2:15pm	End-User Case Study: Effective Use of Wireless Networks *Mike Taylor, CIO, Todd Pacific Shipyards*
2:45pm	Industry Insights: The Future of Voice Data Converged Wireless Networks *Presented by Proxim, Motorola and AVAYA*
3:15pm	Break
3:30pm	Industry Insights *Presented by Symbian*
4:00pm	User Case Study: The CIO's Perspective of Integrating Mobile & Wireless Technology into Pacific University's Objectives - Lessons, Benefits and Red Flags *Lee Colaut, CIO, Pacific University*
4:30pm	Industry Insights *Presented by Toshiba*
5:00pm	Closing Remarks
5:30pm	Solutions Showcase & Expo with Buffet Dinner

THURSDAY, MAY 8

7:00am	Buffet Breakfast
8:00am	Opening Remarks
8:15am	Opening Keynote Presentation: The Wireless Future In The Automotive World *Tony Scott, CTO, General Motors*
9:00am	End-User Case Study *Steve Poppe, CIO, Roto-Rooter, and Todd Crauthremer, Senior Vice President, GearWorks*
9:30am	CTO Insights Panel
10:15am	Break
10:30am	Industry Insights *Presented by Hewlett-Packard*
11:00am	End-User Case Study: UPS Unplugged *Dave Salzman, Program Manager, United Parcel Service*
11:30am	Sponsor Introduced End-User Case Studies (concurrent sessions)
Noon	Solutions Showcase & Expo with Buffet Lunch
1:30pm	Industry Insights *Jacob Christfort, CTO, Oracle*
2:00pm	End-User Case Study *Ken Venner, CIO, Broadcom*
2:30pm	Industry Insights *Presented by IBM*
3:00pm	Break
3:15pm	Technology "Spotlight" - Innovation On Stage *Featuring demonstrations by EFI/PrintME, Credant, Synchrologic, NetMotion and others to be announced*
4:15pm	End-User Case Studies (concurrent sessions) Leveraging Advanced Technologies to Support Mobile Workers *Jim Leahe, Director of Business Strategy and Planning, Getronics* Wireless Locating Systems – The Technology for Large ROI *Tim Van de Merwe, Internal Logistics Manager, Associated Food Stores*
4:45pm	End-User Case Studies (concurrent sessions) Access to Corporate Data in Wireless Environments *Anthony King, Director of Software and Engineering Systems, Ventana Medical Systems* "Pumping" The Most Out of Your Database with Wireless *Eddie Hung, Manager, Advance Research and Technologies, City of Richmond, BC, Canada*
7:00pm	Gala Evening "Best Practices in Mobile & Wireless" Awards Ceremony

FRIDAY, MAY 9

8:00am	Buffet Breakfast
8:30am	Concurrent Workshops and Sessions: • Technology Workshops *Presented by IBM and other Workshops to be announced* • Industry Pipeline Sessions
Noon	Conference Concludes

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Mobile & Wireless World

Owned & Produced by: COMPUTERWORLD

May 6-9, 2003

JW Marriott Desert Springs Resort

Palm Desert, California

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Attendee Profile: (This section must be completed in order to process your application)

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- ❑ Mining / Oil / Gas
- ❑ Non-Profit / Trade Association
- ❑ Media / Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale / Retail (non computer)
- ❑ Computer Service Provider
- ❑ Advertising / Marketing / Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Food Industry
- ❑ Government / Military
- ❑ Healthcare / Medical Services
- ❑ Travel /Hospitality / Recreation
- ❑ Manufacturing (non-IT)
- ❑ Automobile
- ❑ Transportation / Utilities / Energy
- ❑ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ❑ Agriculture / Forestry / Fisheries
- ❑ Other

Your Primary Job Title / Function? (Check Only One)
- ❑ CIO, CTO
- ❑ Vice President of IT
- ❑ Director, Manager, Supervisor of IT
- ❑ Other IS / IT Manager
- ❑ Chairman, CEO, President, COO
- ❑ CFO, Controller, Treasurer
- ❑ GM, VP, Director
- ❑ Other Corporate / Business Manager
- ❑ Corporate / Business Staff
- ❑ Consultant

Your Personal IT/IS Spending Authority?
- ❑ $5 million+
- ❑ $1 million - $4.9 million
- ❑ $500,000 - $999,999
- ❑ $100,000 - $499,999
- ❑ Under $100,000
- ❑ None

Number of Employees (ALL Locations)?
- ❑ 5,000+
- ❑ 1,000-4,999
- ❑ 500 - 999
- ❑ Under 500

What is your Company IT/IS Budget?
- ❑ Over $1 billion
- ❑ $100 million - $999.9 million
- ❑ $10 million - $99.9 million
- ❑ $1 million - 9.9 million
- ❑ Less than $1 million
- ❑ None

What is Your Organization's Primary Vendor for Servers?
- ❑ Dell
- ❑ Hewlett-Packard / Compaq
- ❑ Hitachi
- ❑ IBM
- ❑ Sun
- ❑ Other

Your Organization's Enterprise Standard for Mobile Device Management Software?
- ❑ Aether Systems
- ❑ Ahris
- ❑ Computer Associates
- ❑ Extended Systems
- ❑ Hewlett-Packard / Compaq
- ❑ IBM Tivoli
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- ❑ Marimba
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- ❑ ON Technology
- ❑ Pumatech
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Olathe, Kan., ctcarroll14@msn.com

Open Source Is Just Another Tool

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Senior software engineer, Milpitas, Calif., dillonm@mcconnsoft.com

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Michael Gartenberg is research director for the Client Access and Technologies group at Jupiter Research in New York. Contact him at michael.gartenberg@jupiterresearch.com.

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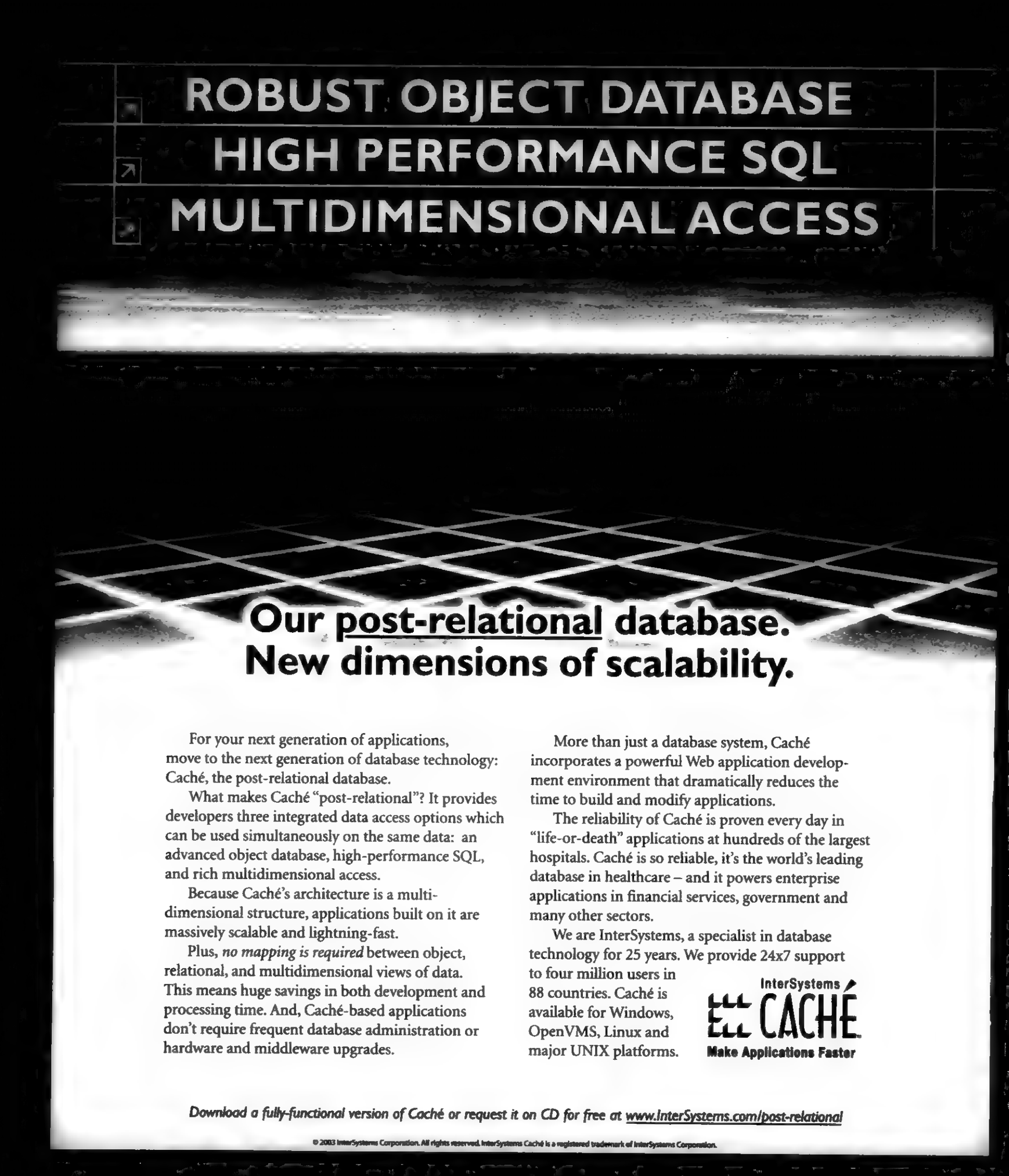

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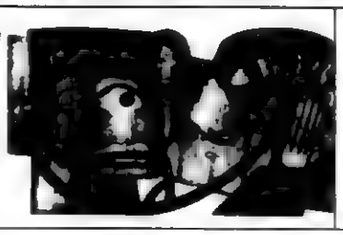

Web site tools can track performance from the customer-facing front end to the back-end supporting infrastructure. But the systems don't cover everything and are expensive and difficult to set up. **Page 30**

FUTURE WATCH

The Ins and Outs of IT

Information technologist and futurist John Parkinson predicts that major upheavals in IT are on the horizon in outsourcing and supply chains — and that operating systems may disappear altogether. **Page 33**

SECURITY MANAGER'S JOURNAL

Directory Glitch Trips Authentication Efforts

Interoperability issues thwart Mathias Thurman's efforts to use an LDAP-based directory server for implementing two-factor authentication in both Unix and Windows NT environments in his company. **Page 34**

E-mail Upgrade
FROM THE GROUND UP

FIELD REPORT

THREE YEARS after beginning a 55,000-user e-mail system upgrade that spans some 50 countries, Rolf Hansmann, director of global e-mail and collaboration services at Aventis Pharmaceuticals Inc., has reason to celebrate.

His eight-member global messaging group has upgraded more than 162 of the company's 214 Microsoft Exchange 5.5 servers to Exchange 2000 and has migrated more than 94% of all user accounts to Exchange 2000 servers. This spring, as the last user mailboxes finally migrate off Exchange 5.5, Aventis will have an entirely new messaging architecture that requires fewer servers while making e-mail delivery virtually instantaneous across the company, Hansmann says. The new system also introduced Exchange instant messaging and conferencing features, as well as Outlook Web Access for remote users, all of which are popular with users.

But getting there hasn't been easy. The project involved more than simply upgrading Exchange servers; it served as the catalyst for a massive redesign of the Bridgewater, N.J.-based company's Windows NT domain server infrastructure around Windows 2000 Server and Active Directory, which Exchange 2000 requires to store user account information.

The project began shortly after Hoechst Marion Roussel Inc. and Rhone-Poulenc SA merged to form Aventis SA and its Aventis Pharmaceuticals subsidiary in December 1999. The merged pharmaceutical business units both used Exchange 5.5 and Windows NT 4, but the combined company had 11 Windows account domains, 150 resource domains and two separate Exchange 5.5, Domain Name System (DNS) and Windows Internet Naming Service infrastructures. In stitching the two together, the Strasbourg, France-based company created an elaborate web of about 2,000 cross-domain trusts.

Hoechst had already been experimenting with Release Candidate 1 of Exchange 2000 as a Microsoft Joint Development Program partner. Aventis enlisted consultants from Microsoft Corp. and St. Louis-based Horizons Consulting Inc. to help with the infrastructure changes. "We wanted all Windows 2000 domain controllers and global catalogs set up before Exchange 2000 was installed," says Harjinder "Nij" Nijar, head of global Active Directory services at Aventis. The team began in-place upgrades of the NT 4 domain controllers in early 2000. Within two months, it had migrated all old account and resource domains into a new Active Directory structure.

Although a different group manages Windows servers, the global messaging group kept control of the Active Directory design and domain controller deployments. "Active Directory, [DNS] naming resolution and Exchange belong so close together that if you don't own that in one group, you will run into big problems," Nijar says.

To speed message delivery, Aventis used a three-tier e-mail server architecture consisting of dedicated, redundant "connector servers" routing messages and "user servers" handling local mailboxes. Both the Active Directory and Exchange server topology follow the corporate WAN topology. In that way, "you always know what your next hop is," says Horizon consultant Henry Creagh.

Hansmann says connector servers play another key role: "They ... provide language interfaces because we are providing Outlook in 42 languages."

Aventis Pharmaceuticals' 55,000-user Exchange Server upgrade forced a complete rebuilding of its global IT infrastructure that has taken three years to complete. By Robert L. Mitchell

BRIAN BAHAR

The messaging group also set up a testing lab with 22 servers that mirrored Aventis' messaging and domain controller topology, before beginning initial deployments.

Exchange Phases In

Aventis upgraded the connector servers before migrating user servers. The user server rollout involved installing new Windows 2000 machines with Exchange 5.5, moving the messaging databases over and then upgrading the system to Exchange 2000.

But first the messaging team used Exchange 2000's Active Directory Connector (ADC) utility to import information about user mailbox accounts and public folders from the 5.5 servers into Active Directory. The ADC also helps synchronize mailbox objects with legacy Exchange 5.5 servers. Aventis also had to set up the Site Replication Service (SRS), which emulates an Exchange 5.5 directory, to allow interoperability between the Exchange 2000 and Exchange 5.5 directories.

Unlike Exchange 5.5, Exchange 2000 requires a one-to-one mapping of mailbox and user accounts, and since ADC imports only the first mailbox it encounters, redundant accounts had to be eliminated beforehand, Creagh says. Rooting those out was a time-consuming process for administrators, he adds.

The first pilot, in Kansas City, Mo., consolidated 4,000 mailboxes on nine servers to four machines running Exchange 2000. Exchange's ability to support up to 20 message databases per server enabled the consolidation, as did installing more powerful server hardware and moving the message databases onto a Hewlett-Packard Co. SANworks storage-area network (SAN).

Local backup-and-restore time requirements and backup capabilities dictated the message database design at each site, Creagh says. "We size it to meet their SLA [service-level agreement]," he says. "If they have an old, junky tape drive, we size it for that." In a few larger sites with a SAN, faster serverless backup technologies can support larger databases, but most message databases don't exceed 20MB to 25MB, Creagh says.

FIELD REPORT

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Aventis also deployed an Exchange Conferencing Server in Frankfurt to coordinate online meetings. But getting multicast video support required the messaging group to work with the networking group to configure the routers worldwide — a process that took about a year to complete. Hansmann says both instant messaging and data conferencing are used often, but he laments that many users view the video option, with its tiny image windows, as more of a toy.

Also, he says the NetMeeting client software relies on Dynamic Link Libraries on his Windows 2000 workstations that don't support echo cancellation or background-noise reduction. Windows XP supports it, but not with Conferencing Server, according to Microsoft.

Examining the Trade-offs

Although Exchange 2000 is faster and more reliable, the benefits of the upgrade are mostly invisible to end users, Hansmann says. Administrators, however, have seen a big difference. Once the last Exchange 5.5 server cuts over, Exchange 2000 will run in peer mode, allowing more granular control. The global messaging group will take exclusive control of the connector server infrastructure and delegate user server chores to local administrators.

Hansmann says it will be a relief to do away with the ADC and SRS configurations. "You need to maintain 5.5 and 2000 simultaneously with ADC connectors and [SRS], which is not easy," he says. "Running these environments beside each other is costly, so it's better to upgrade fast."

User server administrators now must use two tools instead of one: Active Directory and a new version of Exchange System Manager (ESM), says Sigrid Vogel, a systems engineer in Frankfurt. She likes the new version of the ESM's Tracking Tool, which is much faster, but she says it lacks some search criteria that were available in the previous version. For example, it can't track messages coming in through one specific connector, she says. Ed Wu, Microsoft's product manager for Exchange, says you can track by sender, recipient message ID, time and server.

Vogel says Aventis also experienced problems with Exchange message transfer agents failing over Exchange 5.5 to 2000 connections during peak traffic loads. Now servers are monitored and restarted once memory usage reaches a certain threshold. "Microsoft has done work to mitigate this issue in Exchange 2003," says Wu, but a fix isn't available for Exchange 2000.

Maurene Grey, an analyst at Gartner Inc. in Stamford, Conn., pegs the cost of an Exchange 2000 migration at $150 to $200 per user, not including the Active Directory migration. But Hansmann says his costs fell far short of that. Server hardware upgrades were due anyway, he says, and by stretching out the migration timeline, he was able to complete part of the rollout using existing staff. He estimates that the total project cost, including incremental labor, will be $2 million to $3 million, or about $36 to $55 per seat.

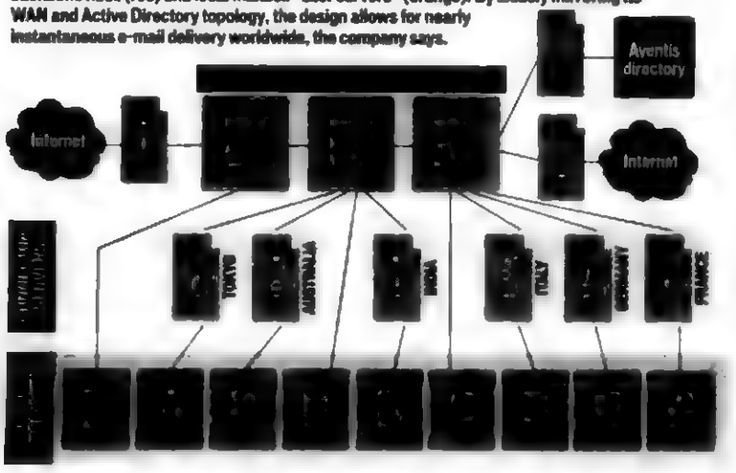
Hansmann measures the success of the consolidated system by its ability to handle extreme message-volume growth. In a 14-month period that ended in October 2002, monthly e-mail message volume doubled to 39 million, or 3.7TB of data. Aventis is already planning an Exchange Server 2003 upgrade to leverage that product's backup-snapshot capability and more efficient remote-access capabilities. "I need these kinds of improvements to stay ahead of my e-mail traffic," Hansmann says.

Migration Lessons

- **Clean the data.** Avoid importing Exchange 5.5 information until redundant and disabled accounts are removed.
- **Own Active Directory.** As the repository for Exchange 2000 user mailboxes, distribution lists and other information, the messaging group should be intimately involved in Active Directory design and deployment.
- **Train Exchange administrators.** Administrative tools directly manipulate Active Directory. Administrators need to understand the implications.
- **Move quickly.** Maintaining a mixed Exchange 5.5/2000 environment is complicated and costly.

AVENTIS' EXCHANGE 2000 SERVER TOPOLOGY

Aventis' three-tier Exchange server topology includes routing "connector server" hubs (gold), backbone hubs (red) and local mailbox "user servers" (orange). By closely mirroring its WAN and Active Directory topology, the design allows for nearly instantaneous e-mail delivery worldwide, the company says.



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The messaging group also set up a testing lab with 22 servers that mirrored Aventis' messaging and domain controller topology, before beginning initial deployments.

Exchange Phases In

Aventis upgraded the connector servers before migrating user servers. The user server rollout involved installing new Windows 2000 machines with Exchange 5.5, moving the messaging databases over and then upgrading the system to Exchange 2000.

FIELD REPORT

But first the messaging team used Exchange 2000's Active Directory Connector (ADC) utility to import information about user mailbox accounts and public folders from the 5.5 servers into Active Directory. The ADC also helps synchronize mailbox objects with legacy Exchange 5.5 servers. Aventis also had to set up the Site Replication Service (SRS), which emulates an Exchange 5.5 directory, to allow interoperability between the Exchange 2000 and Exchange 5.5 directories.

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Web performance monitoring tools can track activity from end to end, but setup and management can be difficult and costly. By Gary H. Anthes

WEB SITES TAKE FULL MEASURE

IT WAS AN ONLINE retailer's worst nightmare. Most customers of the Louisville Slugger Museum's online gift shop arrived by way of Hillerich & Bradsby Co.'s home page for its famous bats, www.*slugger.com*. But last July, someone uploaded the wrong file to the company's Web site, and for six weeks, all attempts to go to the gift shop from the Louisville Slugger home page were redirected to another company's Web site.

The glitch occurred in mid-July. End-of-month reports showed a reduced activity level, but the company attributed that to other causes. Another month passed before it became clear that the online shop was getting no home-page referrals. "When we ran the August reports in September, we realized that *www.slugger.com* didn't send us any referrals," says Christopher Caudhill, a developer at Hillerich & Bradsby. "We knew we had a problem then."

Caudhill needed something that would alert him to problems faster and eventually decided to use IntegriTea from TeaLeaf Technology Inc. in San Francisco. The software tracks Web site activity and sends an e-mail alert when traffic falls below a set threshold. It also captures and logs end-user sessions, compares them to established norms for response times and other criteria, and reports system errors and user errors such as log-in failures.

IntegriTea is part of a growing family of tools that help Web site managers, systems administrators, application developers, help desks and database administrators design, develop, test, monitor, troubleshoot and tune Web-based systems. And Hillerich & Bradsby isn't the only company that sees a need. According to a study last year by research firm Newport Group Inc. in South Yarmouth, Mass., the number of companies that continuously monitor systems performance rose from just 6% in 1999 to 53% last year (see chart).

Performance monitoring and tuning software originated in the mainframe world decades ago. More recently, tools have sprung up specifically for today's multitier, highly distributed e-commerce systems. The most comprehensive of these monitor performance and information flows at three levels: the Web server front end, the midtier application server and the database back end.

Some also go outside the firewall, using geographically distributed software agents on remote client machines to look through the eyes of end users and report problems with local Internet service providers and third parties such as credit card authorization systems. These can be set up either to simply monitor page-access times or to run elaborate scripts to see, for example, how long it takes to rent a car online.

Users such as Caudhill praise these tools for their ability to quickly identify — and to some extent diagnose — problems, from slow responses and system crashes to network outages and

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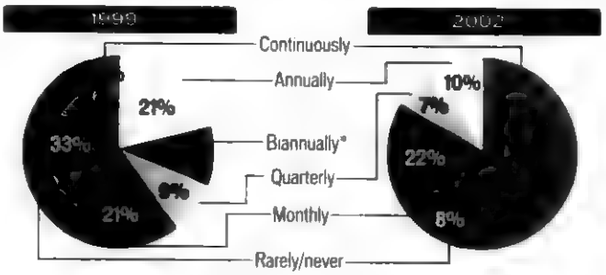

SOURCE: SURVEY OF 1,037 PROFESSIONALS DIRECTLY INVOLVED WITH APPLICATION PERFORMANCE AND INTEGRITY TOOLS AND PRACTICES, NEWPORT GROUP INC., JULY 2002. *RESPONSE ONLY IN 1999

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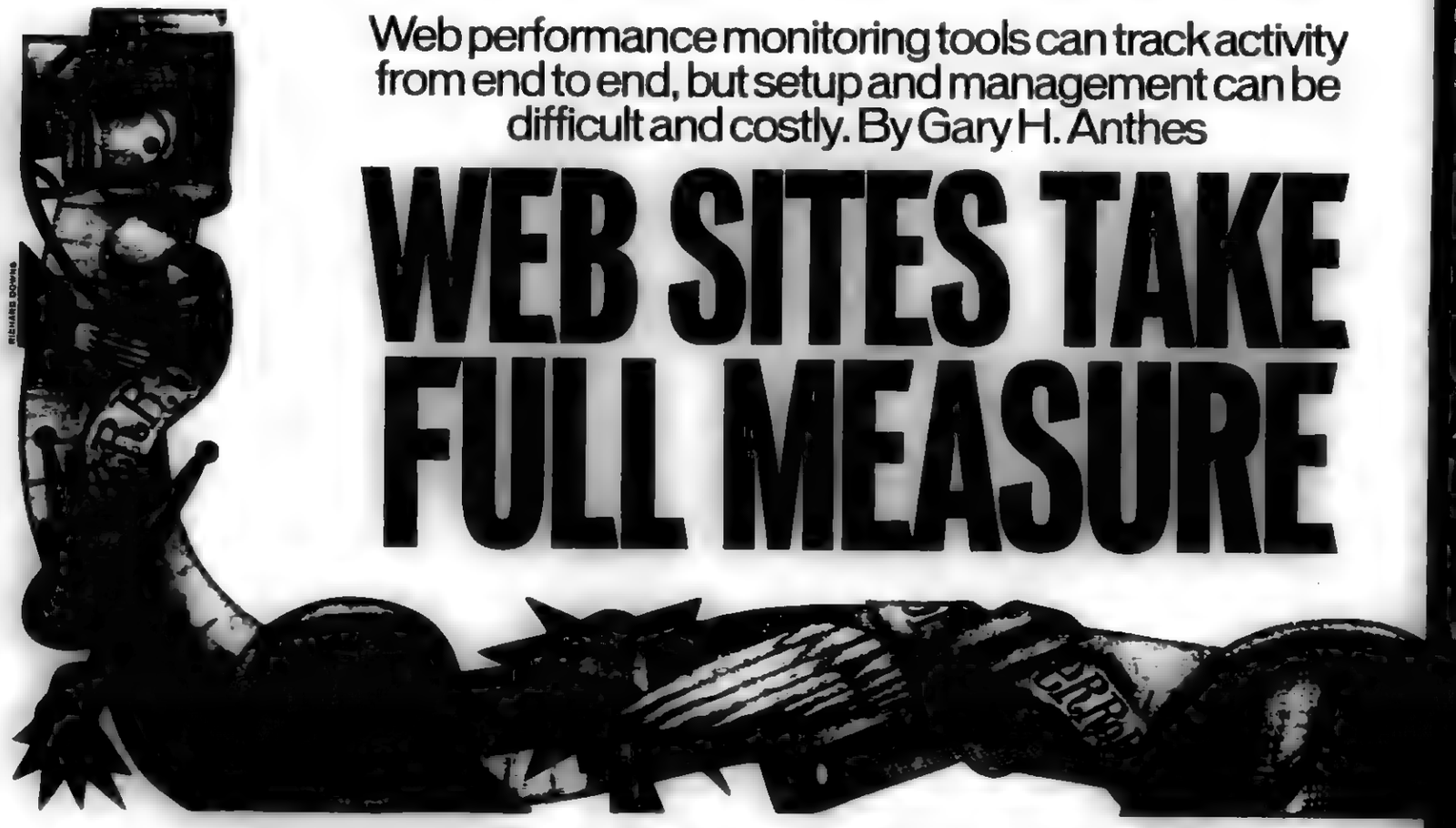

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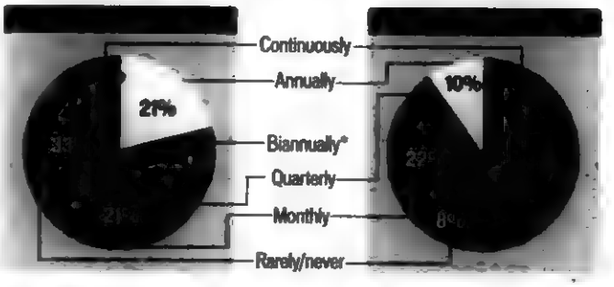

SOURCE: SURVEY OF 300 IT PROFESSIONALS DIRECTLY INVOLVED WITH APPLICATION PERFORMANCE AND INTEGRITY TOOLS AND PRACTICES, NEWPORT GROUP INC., JULY 2002 (*RESPONSE ONLY IN 1999.)

user errors. But they caution that the software generally isn't cheap or easy to use and is no substitute for having experienced systems people on staff.

Agents Are Watching

Lastminute.com PLC's Web sites receive some 50 million page views per month. The London-based seller of discount travel and entertainment tickets uses subscription services from Gomez Inc. in Waltham, Mass., to watch the performance of its three-tier architecture in two U.K. data centers. Gomez also monitors the telecommunications services that bring in Lastminute.com users from around the world and the third-party services, such as flight reservation systems, for which Lastminute.com acts as a portal.

Gomez has software agents on PCs in the 12 countries where Lastminute.com does business. At specified intervals — every 15 minutes, say — agents at 20 locations poll a half-dozen or so Lastminute.com Web addresses to test for end-to-end response time.

Lastminute.com also uses a "transactional service" from Gomez that automatically executes a script that mirrors an entire user session. For example, it runs through a hotel booking once per hour, says Brendon Cowell, global technical operations manager at Lastminute.com.

"With the reports you get back from Gomez, you can drill down and isolate faults — at the network level, application level or whatever," he says. "Without something like this, identifying the source of the problem would be very, very tricky."

Every 2.5 minutes, software agents maintained by Keynote Systems Inc. go shopping at REI.com and REI-outlet.com, the online stores for Recreational Equipment Inc. in Kent, Wash. Located around the country, the agents execute a five-page script that includes searching for a product, putting it in a shopping basket, entering address and credit card information and so on.

"If they get two failures in five minutes, it beeps me," says Rod Ketchum, system architect at REI. "And they record that and give us the statistics. That's really hard to duplicate with in-house scripts."

In addition to spotlighting problems, San Mateo, Calif.-based Keynote allows REI to do ad hoc performance testing. "I can put in a URL — any page at any site — and it will tell me exactly how long each part of the page takes," Ketchum says. In doing that, Keynote acts as a development tool, allowing REI to test the effects of Web page changes before they're put into production.

Getting All the Numbers

Ketchum points out that external, agent-based performance monitors may spotlight problems that aren't under the direct control of REI, such as an Internet provider whose service is down or slow. But the performance summaries can be useful when negotiating with Internet providers, he says.

"Having the backup numbers is very handy," Ketchum says. "It's like when you go to buy a car and you have all the prices printed out. You can say, 'You can't fool us anymore.' "

But the benefits go beyond simple performance summaries. Testing the response time of a Web page is useful,

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>
> TIM TALBOT, CIO, PHH ARVAL

but it's more important to have a monitoring tool that can simulate an entire user session, says Tim Talbot, CIO at PHH Arval. The Hunt Valley, Md.-based subsidiary of Cendant Corp. manages fleets of vehicles for corporate clients and has several Web sites, including one for customers. PHH uses the LoadRunner testing tool and the Topaz performance monitor from Mercury Interactive Corp. PHH worked with Sunnyvale, Calif.-based Mercury to write more than 50 scripts to capture "the user experience," Talbot says.

The performance goals used by these products must be carefully chosen to match the expectations of users as well as processing realities, Talbot says. "It might take one to two minutes to run a report," he explains, "but the same report used to take two to three weeks to receive. It might be going through millions of gas-receipt records, so a two-minute response may be very acceptable."

PHH supplements the Mercury products with more platform-specific tools that can drill down to a finer level of detail. For example, if Topaz says a Windows NT server is slow, PHH uses a product from NetIQ Corp. in San Jose to dig out the details. Talbot says PHH could have integrated all of its performance tools but decided that doing so wouldn't deliver enough value to justify the effort.

Despite the help they give, performance tools "are not simple, and they are not cheap," Talbot says. "You can't just say, 'Oh, a couple of weeks to write scripts and we are done.' You have to involve the business to understand what's truly important to them. We've been evolving this for years.

"There are other tools that are much simpler, and they are priced accordingly," Talbot adds. "But you get what you pay for." ◗

STATE OF THE TOOLS

Meta Group analyst Corey Ferengul assesses today's performance monitors.

QuickLink 37120
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MONITORING ON THE CHEAP

Patrick Killelea, technical director at a major brokerage house and author of the book *Web Performance Tuning*, 2nd Edition (O'Reilly & Associates, 2002), is blessedly short on commercial Web system administration tools, which he says are expensive, lock users into proprietary formats and don't adapt readily to environments that change frequently. Instead, he advises IT shops to roll out their own, using free software tools and languages such as Perl. "You can do almost everything the vendors do with free software," he claims.

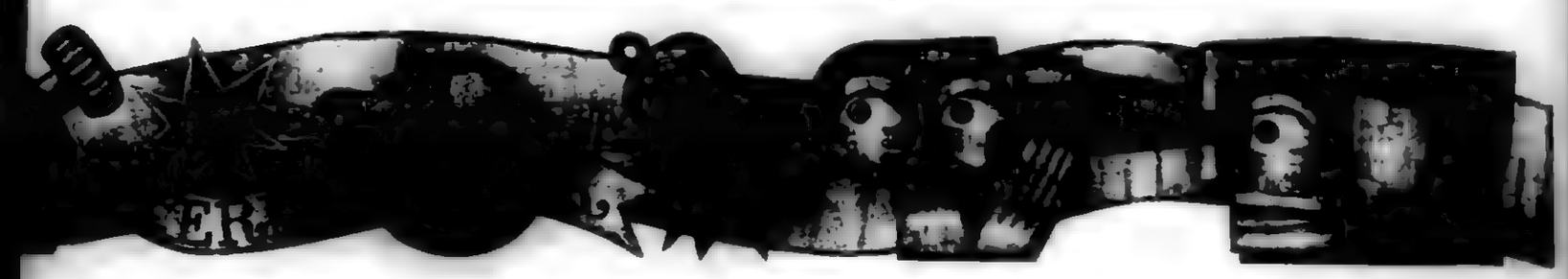
Killelea and his staff have used Perl and Expect, a free scripting program, to create monitors for the brokerage's online trading systems.

Killelea says companies that want to take this route will need 12 free programs to create their Web performance monitors, including Perl (www.perl.com) and the GNU Compiler Collection (www.gnu.org/software/gcc/gcc.html). He offers download links for Gnuplot and nine other programs needed to monitor Web pages with Perl at http://patrick.net/software.

Commercial tools are easier to use initially, Killelea concedes. "Open source is harder to get started with because you have to know more, but in the long run you have far more power because you can look at the source [code] and know exactly what's going on in the tool and change it to do what you want," he says.

"There is immaturity in the tools, and they can be difficult to work with," agrees Corey Ferengul, an analyst at Meta Group Inc. in Cambridge, Mass. But he cautions against creating homegrown management tools, which he says require an internal programming group to develop and support them. "There are not resources most companies have," he says.

—*Gary H. Anthes*



CRM With a Family Touch

MyFamily.com turns to RightNow for a self-service system that reduces staffing needs and waiting time for customers. By Linda Rosencrance

MYFAMILY.COM INC., an online genealogy service that connects families with their histories and one another, was beginning to feel the pinch of its own success last year. Providing top-notch customer service was becoming increasingly expensive because the number of subscribers to its Web sites had doubled each year since 1999, according to Jared Richards, call center manager at the Provo, Utah-based company. Launched in 1997, MyFamily.com is on track to finish this year with 1.6 million customers, he says.

The rising number of customers meant that the number of e-mail inquiries the company received would likely rise beyond the 2,000 to 5,000 already arriving daily — and that the costs associated with customer support would go up, says Richards.

"In order to handle that amount of e-mail within 48 hours, we had to employ 15 full-time equivalents just to answer e-mail," Richards says. And company officials knew they would need far more employees to handle the increased volume of e-mail.

To save money and improve customer service in the midst of such growth, MyFamily.com in August 2002 deployed eService Center, a self-service CRM application from RightNow Technologies Inc. in Bozeman, Mont.

Before MyFamily.com started using RightNow's technology, live customer support personnel handled queries via e-mail. But as the business grew, MyFamily.com, like other online companies, began to see the benefits of letting customers find immediate answers to their questions via the Web 24 hours a day, seven days a week. Those benefits include eliminating the need for customer service representatives to answer routine questions, freeing them to respond to higher-level inquiries.

RightNow's eService Center is an online CRM tool that allows companies to manage customer service problems with limited human interaction. It integrates a single self-learning knowledge base across all customer communication channels, including the Web, e-mail, chat and telephone.

EService Center also includes analytics and the ability to measure customer satisfaction through surveys, says Greg Gianforte, RightNow's CEO.

RightNow's eService Center makes it possible for customers to find answers to questions on their own because it uses technology that automatically brings the most requested and relevant information to the top of the knowledge base, says Gianforte. In MyFamily's case, the knowledge base includes more than 400 prewritten responses to common questions.

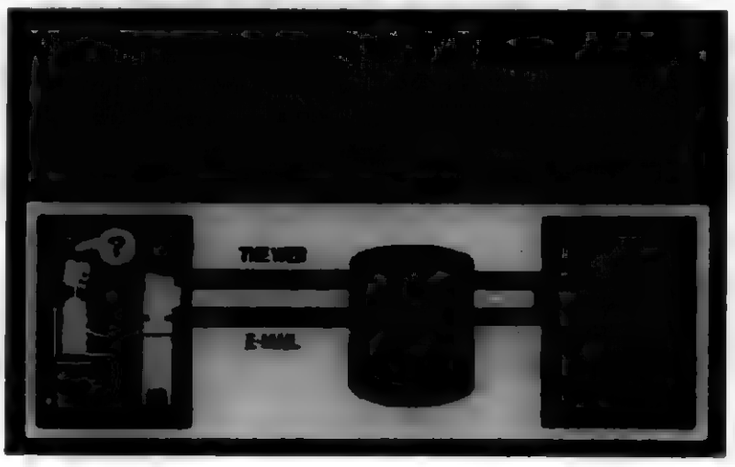
Although RightNow hosts eService Center on its own platform for 90% of its clients, including MyFamily.com, it does support Windows NT, SQL Server, Linux, Oracle and MySQL.

Richards says that while MyFamily.com primarily wanted to curb its costs, it also wanted to be able to answer customer e-mails faster; its goal was to respond to them in less than a day.

The results of using eService Center speak for themselves, says Richards. MyFamily.com now needs the equivalent of just five full-time staffers to respond to e-mail; and all customer questions are answered within 24 hours. Within 30 days after MyFamily.com implemented RightNow's system, the number of e-mails that employees had to answer personally fell 30%, says MyFamily.com spokeswoman Mary Kay Evans.

After adding up the salaries and benefits that would have been paid to customer service representatives and comparing that figure with the cost of the RightNow license, Richards says MyFamily.com experienced an ROI of 260% in nine months; the company has declined to release financial details.

A RightNow spokeswoman says customers typically purchase a two-year license, which can range from $35,000 to more than $100,000. However, large, multisite implementations cost well over $1 million, she says.



Knowledge Transfer

Before moving to eService Center, MyFamily.com used software from Menlo Park, Calif.-based Kana Inc. for e-mail management and had built its database of responses using Kana's system. But the process wasn't completely automated. "When someone e-mailed us a question, we would find an answer that matched their question and send it back to them," Richards says.

Richards says MyFamily.com wanted a less labor-intensive system — and one that would serve customers more effectively. Company officials liked eService Center because of the way it integrated existing content.

"My team and RightNow took the canned messages we had already created and ported them over into RightNow, and within 24 hours we had it switched over," Richards says. "With RightNow, the customer goes to the Web site and types in a question and is presented with an accurate answer online in a few seconds, so they don't have to wait for an e-mail."

Richards says MyFamily.com looked at other vendors' products before selecting RightNow's offering, but he declined to name the other contenders. He says the company didn't even consider creating its own software because it wanted something it could put in place immediately.

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A visionary looks to new technology models.

By Gary H. Anthes

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How will this utility model work? The drive will be to outsourced shared instances — where there is one copy of the software but 20 companies on it. The vendors have figured out that one-instance company licensing is over because companies won't pay that kind of money anymore. So you take what SAP does and break it into a series of services, then each company simply pays for the services it consumes. All the big guys are moving their product architectures in that direction, and it will take one to three years to complete that transition.

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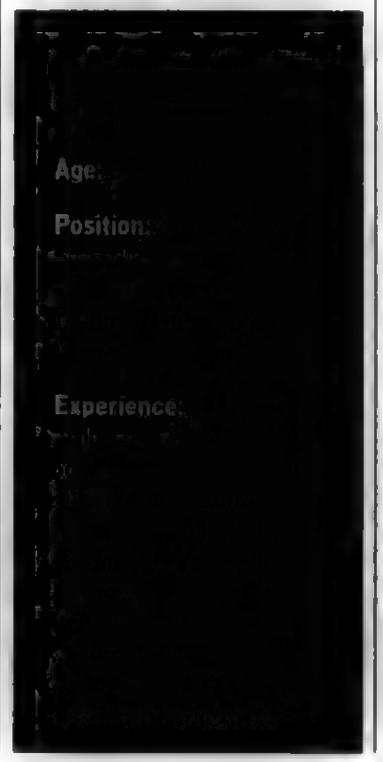

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What will the arrival of ultradense, very cheap data storage mean? We are within three to five years of having a [portable] device that could hold everything that you'd ever want. Then you don't need centralized storage. You could have all business data basically portable, walking around in a huge, billion-node peer-to-peer network.

There's a strategy called LOCKSS [lots of copies keep stuff safe] for doing backups. The theory is, if there are enough copies in the network, you can always re-create what you want if you lose it. With a billion nodes, and every node storing a couple of terabytes, it would be relatively easy to do away with those specialized data management architectures that we have today.

What's coming in data mining and analytics? With federated [distributed] data management, we stop needing data warehouses. We have instead embedded analytics, so applications simply use transaction data on the fly. Over the next two or three years, we'll see a lot of emphasis away from conventional data warehousing and toward the embedded analytics, toward on-demand business intelligence.

Will agent-based systems based on complexity theory become commonplace? Yes, within five or six years, because we are at the limit of what we can architect reliably in a large, complex enterprise. There are too many moving parts. If you try to design it deterministically, you discover you can't predict all its behavior. This will [make] obsolete almost all the architecture design knowledge now in use.

How will operating systems evolve? One scenario is they will go away, shrink and simply become the DNA of agents — much simplified and localized. The other scenario is the opposite — that they will subsume almost everything else and become the service-provisioning platform. The service-oriented guys are going for the latter, and complexity theory and agent guys are going for the former, so we will probably end up with a mixture.

What's coming in groupware/collaboration? We are a long way from having a worthwhile collaboration technology. The problem is, the technologies are attempting to make us work in patterns we wouldn't normally choose. The benchmark for utility is the telephone. After voice, e-mail gives you about 95% of the benefit of connection. And e-mail plus instant messaging gives you about 99%. The next piece is really hard. And the only reason we are even thinking about it is because we have so perverted e-mail and IM with noise that we are now convincing ourselves there must be a better way.

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CRM With a Family Touch

MyFamily.com turns to RightNow for a self-service system that reduces staffing needs and waiting time for customers. By Linda Rosencrance

MYFAMILY.COM INC., an online genealogy service that connects families with their histories and one another, was beginning to feel the pinch of its own success last year. Providing top-notch customer service was becoming increasingly expensive because the number of subscribers to its Web sites had doubled each year since 1999, according to Jared Richards, call center manager at the Provo, Utah-based company. Launched in 1997, MyFamily.com is on track to finish this year with 1.6 million customers, he says.

The rising number of customers meant that the number of e-mail inquiries the company received would likely rise beyond the 2,000 to 5,000 already arriving daily — and that the costs associated with customer support would go up, says Richards.

"In order to handle that amount of e-mail within 48 hours, we had to employ 15 full-time equivalents just to answer e-mail," Richards says. And company officials knew they would need far more employees to handle the increased volume of e-mail.

To save money and improve customer service in the midst of such growth, MyFamily.com in August 2002 deployed eService Center, a self-service CRM application from RightNow Technologies Inc. in Bozeman, Mont.

Before MyFamily.com started using RightNow's technology, live customer support personnel handled queries via e-mail. But as the business grew, MyFamily.com, like other online companies, began to see the benefits of letting customers find immediate answers to their questions via the Web 24 hours a day, seven days a week. Those benefits include eliminating the need for customer service representatives to answer routine questions, freeing them to respond to higher-level inquiries.

RightNow's eService Center is an online CRM tool that allows companies to manage customer service problems with limited human interaction. It integrates a single self-learning knowledge base across all customer communication channels, including the Web, e-mail, chat and telephone.

CHALLENGE MyFamily.com, an online genealogy service, needed a way to handle burgeoning customer e-mail to cut costs and improve customer service.

SOLUTION The company decided to use a self-service CRM app from RightNow Technologies that allows round-the-clock service to customers and incorporates MyFamily's existing knowledge base.

EService Center also includes analytics and the ability to measure customer satisfaction through surveys, says Greg Gianforte, RightNow's CEO.

RightNow's eService Center makes it possible for customers to find answers to questions on their own because it uses technology that automatically brings the most requested and relevant information to the top of the knowledge base, says Gianforte. In MyFamily's case, the knowledge base includes more than 400 prewritten responses to common questions.

Although RightNow hosts eService Center on its own platform for 90% of its clients, including MyFamily.com, it does support Windows NT, SQL Server, Linux, Oracle and MySQL.

Richards says that while MyFamily.com primarily wanted to curb its costs, it also wanted to be able to answer customer e-mails faster; its goal was to respond to them in less than a day.

The results of using eService Center speak for themselves, says Richards. MyFamily.com now needs the equivalent of just five full-time staffers to respond to e-mail; and all customer questions are answered within 24 hours. Within 30 days after MyFamily.com implemented RightNow's system, the number of e-mails that employees had to answer personally fell 30%, says MyFamily.com spokeswoman Mary Kay Evans.

After adding up the salaries and benefits that would have been paid to customer service representatives and comparing that figure with the cost of the RightNow license, Richards says MyFamily.com experienced an ROI of 260% in nine months; the company has declined to release financial details.

A RightNow spokeswoman says customers typically purchase a two-year license, which can range from $35,000 to more than $100,000. However, large, multisite implementations cost well over $1 million, she says.

Knowledge Transfer

Before moving to eService Center, MyFamily.com used software from Menlo Park, Calif.-based Kana Inc. for e-mail management and had built its database of responses using Kana's system. But the process wasn't completely automated. "When someone e-mailed us a question, we would find an answer that matched their question and send it back to them," Richards says.

Richards says MyFamily.com wanted a less labor-intensive system — and one that would serve customers more effectively. Company officials liked eService Center because of the way it integrated existing content.

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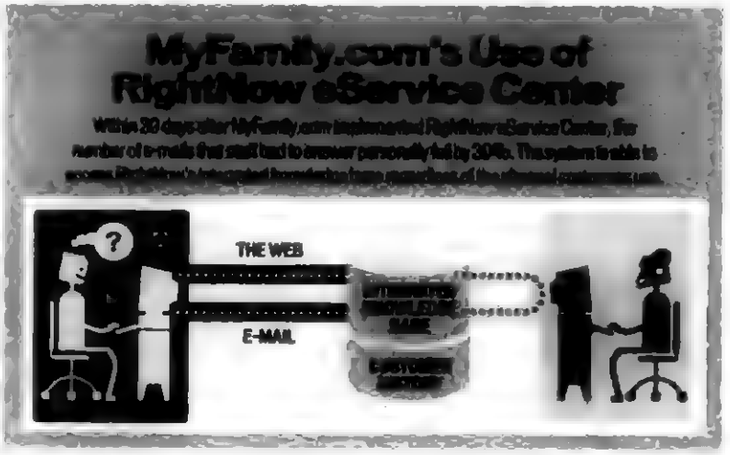

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Directory Glitch Trips Authentication Efforts

Interoperability issues derail an attempt to use an LDAP-based directory server for global authentication. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I HAVE HAD MIXED success with a project to provide two-factor authentication access to our critical Unix and Windows NT servers. We want to set up a system that requires employees to use SecurID tokens for administrative access to our production Solaris, Windows NT and Windows 2000 servers, but we have run into a few snags.

The first problem occurred on the Solaris side. Our company uses Novell Inc.'s eDirectory for our corporate directory services. It's based on the Lightweight Directory Access Protocol (LDAP). But as we learned, LDAP compliance doesn't guarantee interoperability.

We wanted to configure all of our Solaris servers to point to the eDirectory server for authentication credentials. We considered using special software called the Pluggable Authentication Module (PAM) from Melbourne, Australia-based PADL Software Pty. This set of open-source libraries enables LDAP communication between Solaris 2.8 and eDirectory. But because of a lack of support from PADL and concerns about compatibility with future patches and software updates, we decided to stick with a supported methodology. In retrospect, perhaps we should have taken the risk.

The Solaris distribution includes a native LDAP client that's supposed to work with other LDAP-compliant directory servers. In theory, when an administrator logs in, eDirectory should compare the log-in information against its database. If the account has the proper authorization, credentials and a valid SecurID token, the eDirectory server should grant the administrator access to the resource. This setup should work well, since it lets us avoid maintaining local accounts on every Solaris system. We also could have used Solaris' Network Information Service, but we steered away from it because of known vulnerabilities.

Since our company is using eDirectory, it made sense to use the same repository and add an authorization mechanism to provide centralized access control to our production environment, which consists of 300-plus Solaris servers. Right away, we ran into a problem with the Solaris 2.8 native LDAP client. Apparently, it has problems negotiating with eDirectory. We contacted the support folks at Novell, and they have confirmed that such problems exist. So much for standards!

This won't be a problem once we upgrade all of our servers to Solaris 9, since its native LDAP client works fine. But it's going to be at least eight months before we can even start that upgrade. Between now and then, we have few options. We could use Novell's dirXML, a bidirectional metadirectory data-sharing service that will supposedly let us use eDirectory to distribute new and updated directory information to our Solaris servers. But if we can't address the problem with Novell, we'll have to use a different LDAP server for this function.

Netscape Communications Corp.'s iPlanet directory server works well with the Solaris 2.8 LDAP client, but if we used that, we would have another directory server to administer. This isn't a big deal, however, since only about 30 administrators will need to be configured.

The big issue is political. The e-business group has set up its own iPlanet directory server, and the architecture group has been trying to get it to switch over to the corporate eDirectory standard. If we bring up another instance of iPlanet, it will give the e-business group justification to keep what it has. So, this week, we will attempt to use dirXML to address our problem.

> **In theory, when an administrator logs in, eDirectory should compare the log-in information against its database.**

Enter Active Directory

Another problem arose in our Windows environment. To provide centralized authentication within this environment, we use Microsoft's Active Directory, along with Terminal Services for remote administration. Now we want to add SecurID authentication for administrator access. Under this scenario, the administrator would launch a Terminal Services window to connect to a production Windows server. He would then submit his enterprise log-in credentials (vs. having a local account on the system) and must use a SecurID token before gaining access.

We store the administrator's credentials within Active Directory, not on the target server. We have over 300 Windows servers, including domain controllers, Exchange e-mail servers and other servers. Back in the NT 4.0 Server days, RSA Security Inc.'s Ace Agent worked flawlessly with this configuration. However, that same agent won't work with Windows 2000 and Active Directory. Instead, RSA produced a special client for Active Directory. We obtained a copy, and everything seemed to work fine as long as we were directly connected to the server at its console. But we use Terminal Services to access them remotely.

Initially, everything seemed to work fine. The Terminal Services client connected to the remote server, and up popped a log-on dialog box. We submitted our user names and passwords, pointing to the domain for authentication. At that point, a separate dialog box should have appeared, forcing us to enter our SecurID token credentials before letting the log-on process continue.

That didn't happen. Instead, the event logs showed a certificate mismatch error, and we were unable to authenticate to the server. RSA's support group confirmed that this was a problem and said it was "working on it." Until the problem is resolved, we have to disable two-factor authentication.

If this is still a problem in a few weeks, we'll have to look at alternative vendors. But perhaps this implementation can be saved. I'll let you know how everything turns out in my next column.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1580**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

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BRIEFS

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NICHOLAS PETRELEY

IBM Hires Perry Mason

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NICHOLAS PETRELEY, a computer consultant and writer in Asheville, N.C., is the founding editor of Vert.mux.org. Contact him at [redacted]

Mason (addressing witness): Do you swear to tell the truth, the whole truth and nothing but the truth, so help you Godzilla?

Witness: Um, I guess so.

Mason: Please state your full name.

Witness: SCO.

Mason: Your *full* name, including any aliases you may have used. And let me remind you, you are under oath.

SCO: The SCO Group, Santa Cruz Operations, Caldera International, Caldera Systems, Caldera Inc., Scoldera, Salt Lake City Operations and Sugarlips.

Mason: Isn't it true that you have so many aliases because you are a Capricorn, and all Capricorns have multiple personalities?

Boies: Objection! Goating the witness.

Judge: Sustained. You will refrain from issues of multiple personalities, Mr. Thorwald.

Mason: That's Mason, your honor. I'll rephrase the question, then. Which name were you using when you purchased the Unix intellectual property from SCO in 2001?

SCO: Caldera Systems.

Mason: So when did the SCO name re-emerge?

SCO: In 2002.

Mason: How is it that you were able to afford this rather extravagant purchase?

SCO: We made a good bit of money from our initial public offering.

Mason: Who made this offering?

SCO: Uh, I don't recall.

Mason: Isn't it true that it was the Caldera Systems IPO that enabled you to purchase SCO Unix?

SCO: I don't recall.

Mason: Tell me, what were you doing on the night in question in 1995?

SCO: I was purchasing the intellectual property rights to the Unix system source from Novell.

Mason: It was SCO that made this purchase, wasn't it? What were you doing as Caldera?

SCO: I don't recall. I think we were selling Linux to hobbyists.

Mason: Think hard, Mr. SCO. Isn't it true that you coined the phrase "Linux for business" on the very same night?

SCO: I don't know; it's possible. Yes, I think so.

Mason: But your complaint alleges that Linux was inappropriate for business use until IBM infused it with SCO intellectual property. Are you saying you lied to your customers?

SCO (nervous, beginning to perspire): Yes. No! We weren't lying. Exaggerating maybe. Besides, IBM violated its contract by donating its journaling file system to Linux. . . .

Mason: You are referring to IBM JFS, correct? Is there any SCO code in JFS?

SCO (perspiring more heavily): I don't know. I don't recall.

Mason: Why did JFS make Linux more appropriate for enterprise use than, say, ReiserFS, an open-source journaling file system already available?

SCO: I don't know. It just was. . . .

Mason: Isn't it true that Linux was already quite successful without the help of IBM?

SCO (panicking): No, nobody was making any money on Linux yet. . . .

Mason: Isn't it true that you made enough money to hire Nicholas Petreley to work on the nonprofit Linux Standard Base?

SCO: That's a clever way to work in a disclaimer, but. . . .

Mason: And isn't it also true that it was your contribution to the Linux market and the money you made on the business momentum that allowed you to purchase the SCO intellectual property in the first place? Shouldn't you be suing yourselves?

SCO (sobbing): Yes, yes, it's all true! We confess!

Judge: I rule in favor of the plaintiff, SCO, which has to pay itself $1 billion in damages.

Mason: Thank you, your honor. And now I'd like to call my first witness for the next case, *Rodan vs. Monster Zero.*

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Mason: Who made this offering?

SCO: Uh, I don't recall.

Mason: Isn't it true that it was the Caldera Systems IPO that enabled you to purchase SCO Unix?

SCO: I don't recall.

Mason: Tell me, what were you doing on the night in question in 1995?

SCO: I was purchasing the intellectual property rights to the Unix system source from Novell.

Mason: It was SCO that made this purchase, wasn't it? What were you doing as Caldera?

SCO: I don't recall. I think we were selling Linux to hobbyists.

Mason: Think hard, Mr. SCO. Isn't it true that you coined the phrase "Linux for business" on the very same night?

SCO: I don't know; it's possible. Yes, I think so.

Mason: But your complaint alleges that Linux was inappropriate for business use until IBM infused it with SCO intellectual property. Are you saying you lied to your customers?

SCO (nervous, beginning to perspire): Yes. No! We weren't lying. Exaggerating maybe. Besides, IBM violated its contract by donating its journaling file system to Linux. . . .

Mason: You are referring to IBM JFS, correct? Is there any SCO code in JFS?

SCO (perspiring more heavily): I don't know. I don't recall.

Mason: Why did JFS make Linux more appropriate for enterprise use than, say, ReiserFS, an open-source journaling file system already available?

SCO: I don't know. It just was. . . .

Mason: Isn't it true that Linux was already quite successful without the help of IBM?

SCO (panicking): No, nobody was making any money on Linux yet. . . .

Mason: Isn't it true that you made enough money to hire Nicholas Petreley to work on the nonprofit Linux Standard Base?

SCO: That's a clever way to work in a disclaimer, but. . . .

Mason: And isn't it also true that it was your contribution to the Linux market and the money you made on the business momentum that allowed you to purchase the SCO intellectual property in the first place? Shouldn't you be suing yourselves?

SCO (sobbing): Yes, yes, it's all true! We confess!

Judge: I rule in favor of the plaintiff, SCO, which has to pay itself $1 billion in damages.

Mason: Thank you, your honor. And now I'd like to call my first witness for the next case, *Rodan vs. Monster Zero.*

WANT OUR OPINION?

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Assume Nothing. Audit Instead
Columnist John Berry says fear, uncertainty and doubt about ROI falling short of its projections prevent IT managers from conducting postinvestment audits of their projects. **Page 43**

The Elevator Speech
Turn that 30-second elevator ride with the CEO into a great infomercial about what you and your IT department have done for business users. **Page 42**

QUOTE OF THE WEEK

"Tech jobs were called 'the golden hammock.' Once you got in, you could have a very easy, very, very long career in technology here."
– Bill Farrow, CIO, Chicago Board of Trade

In the LINUX Loop

Companies that regularly share code fixes and revisions benefit from more stable and reliable open-source software.

BY MINDA ZETLIN

USING OPEN-SOURCE software like Linux is a no-brainer for many companies. It's stable and can be fixed easily if bugs appear, and you can't beat the price. But some companies and government organizations are taking their commitment to open source a step further by actively participating in the open-source community.

The Linux operating system is only one example of the many pieces of open-source software currently in circulation. In each case, the software's license allows it to be freely copied and distributed by anyone, the source code is available along with a working version of the software, and anyone can modify or expand on the code. Most open-source software can be downloaded free from the Internet and is maintained and expanded by a community of developers who donate their patches and modifications.

These days, some corporate and government entities are getting into the act as well. When their developers write patches, modifications or new implementations of open-source software for in-house use, these organizations are releasing that new code back to the open-source community, thereby assisting in the software's ongoing development.

What's the payoff? It makes for better software. "If we find a bug or a problem, we're interested in fixing that problem. We're also interested in not fixing it again in the next version," explains Robert M. Lefkowitz, director of open-source strategy at Merrill Lynch & Co. in New York.

"If you download open-source software, then take it in-house and don't share your revised code, you wind up maintaining your own separate fork of the software for all time," says Eric Raymond, president of the Open Source Initiative (*www.opensource.org*), a Web-based nonprofit group that helps define and promote the open-source concept. "On the other hand, by participating in open-source projects, you make sure your corporate needs have a seat at the table when large-scale design decisions are being made."

This is why Merrill Lynch sent the fixes it made to open-source software during one of its projects back to the open-source community. "The way a typical open-source project works is that there is a core team in the community with direct access to modifying the code on its central Web site," Lefkowitz says. "People who want to contribute to that community submit their code, which is looked at by a core team and integrated if found appropriate."

Creative Archiving

Sharing can be especially helpful if your software needs are different from those of most organizations, notes Jim Willis, director of eGovernment at the Rhode Island Department of State.

His office used open-source software to design a repository for the vast library of content, which ranges from rules and regulations to the minutes of municipal meetings, that the State Department must keep on hand and make available to the general public. A colleague from the state of Hawaii heard about Willis' work and e-mailed to ask his advice about a similar project. That got Willis thinking that states could help one another by sharing the

open-source software they had modified for special state uses. "We're now trying to set up [an online] repository of which state agencies are using open source and for what projects," he says.

Although the details have yet to be ironed out, Willis plans for the states' open-source repository to be available to everyone, so the rest of the open-source community can benefit — and contribute. The plan is for Rhode Island and Hawaii to jointly create and maintain a Web site that will archive the documentation of the work each state has done on its open-source software. The hope is that in the future other states will also document their work.

"Documenting our practices with the intent to share them with others has threefold benefits," Willis notes. "We learn from the experience of other states, we share development resources with other states, and we have better internal documentation of our own practices. All this for the effort of articulating our practices and documenting our internally developed software such that it makes sense to others."

Best Practices

For companies that decide to join in the open-source community, there's a right way and a wrong way to go about it. Raymond advises that corporate contributions to any open-source directory should come from individual developers, rather than generically from the corporation. "In general, people in the open-source community don't want to deal with corporate entities. They want to deal with specific people whom they can reach by e-mail. So you need to allow in-house developers to grow individual reputations," he says.

Willis also advises against jumping in too soon. "Most developers aren't ready to start giving back the day they start using a piece of open-source software," he notes. "It takes a while to get to know the software well enough to make a contribution." How long this takes varies from developer to developer, he says. But he recommends waiting until you're quite comfortable with the software before contributing.

Lefkowitz says source code is only one of several types of donation your company or its developers can make. "A lot of open-source communities say they have all the coders they need," he says. "But they need documentation. They need that documentation translated into languages other than English, and they need graphic artists to design and contribute icons."

For all contributions, Lefkowitz emphasizes the importance of creating a corporate policy with help from the departments that could be affected by open-source involvement. At Merrill Lynch, an eight-member Open Source Review Board determines when contributing is appropriate. "We have representatives from security, legal, network, architecture, infrastructure support and purchasing," he says. "We work through the questions of where we want to have engagements and where we have concerns."

Having a policy in place is especially important for controlling when and how source code is released, which can have legal ramifications in terms of liability and licensing, says Tony Stanco, an attorney and associate director for Open Source and eGovernment at the Cyber Security Policy and Research Institute at George Washington University in Washington. For example, one large company created a separate foundation for releasing code for liability reasons. The rules for releasing code vary for different types of open-source software because they are governed by many different types of licenses. But even without a policy, there's a good chance that your company's programmers will share their open-source work — and it might not even occur to them to ask for permission.

"A lot of it goes on under the radar," Stanco says. "Developers spend a lot of time working on something, and it requires them to do modifications. Because they know it's open-source software, they'll put it out to the community as a matter of course." But, he adds, "that's why we have such great open-source software."

Zetlin is a business technology writer in Woodstock, N.Y., and author of Telecommuting for Dummies *(Wiley, 2001).*

The Leap to

How do you determine your training needs?

Many companies initially installed Linux for noncritical uses, but now the operating system is frequently being used to run core applications. To keep those applications running smoothly, IT managers must provide their staff with the necessary Linux expertise.

The challenge is determining what kind of training will work best in your IT culture. The following are questions each IT manager must consider when deciding how to establish a training program for Linux.

■ **Should IT staff attend formal training sessions?** The wide availability of online self-training courses in Linux allows many organizations to skip formal Linux courses and instead encourage staff to learn the system on their own. Other managers consider formal training to be essential.

"Four or five of our lead technologists are currently taking Linux courses," says Martin Armitage, senior vice president and head of the Global Infrastructure Organization at Unilever in London. "Those four or five will run workshops for their extended teams of 20 or 30 people." In this way, he says, Linux proficiency can "grow like mushrooms" throughout the organization. The consumer-goods giant plans to completely move its global IT infrastructure from Unix to Linux by 2006. By then, Armitage says, 200 people from his IT staff of 2,000 will be trained in Linux. As this work progresses, the company plans to use certification testing to make sure that everyone who's trained is up to speed. Because of the scale of the effort, he adds, "this is better than having people going out and self-teaching" (that is, learning on their own from books and online courses).

For Barry West, CIO at the National Weather Service (NWS) in Silver Spring, Md., the rationale for formal training is that the stakes riding on NWS systems lend a whole new meaning to the term *mission-critical*. "We're using Linux in an environment where time can make the difference between life and death, with the weather warnings we put out," he explains. "The more our staff can be trained, the better off we'll be." The NWS will need to train more than 120 IT workers in Linux.

■ **What about certification?** Many IT executives don't require certification – at least for those on staff. Working hands-on with Linux, the reasoning goes, is a better test of whether you know it than a certification exam. But for others, having staff get certified seems well worth the effort.

"You'll be exposed to topics you might not be otherwise," says Steve Evans, vice president of information services at PGA Tour Inc. in Ponte Vedra Beach, Fla. "It's also a good technique for evaluating people across their peer group, so that as we do compensation reviews, certification will help us determine where there's equity and inequity."

The PGA Tour's use of Linux is relatively new, and so far, the six staff members who work with it have been "picking it up in bits and pieces," Evans says. "As the project moves down the road, we will need to do formal education and certification."

Certification can also reveal what type of training each staff member needs, says Evan Leibovitch, president of the Linux Professional Institute in Brampton, Ontario. "Sometimes it boils down to the individual," he notes. "Some of your staff will need a class, while others do fine reading a book. Certification measures results: If someone studies on their own and then passes the test, they clearly didn't need the class."

■ **What does your staff already know?** "Going from Unix to Linux is like going from Windows 2000 to Windows NT," notes Robert M. Lefkowitz, director of open-source strategy at Merrill Lynch. "They're not the same, but the differences are much smaller than the similarities."

That transition is harder to undertake for those working on a mainframe, he notes. "There's more that's unfamiliar."

Even if IT workers don't know Unix, it helps if they are accustomed to a command-line environment, such as non-Windows DOS, says Dave Ennen, technical support manager at Winnebago Industries Inc. in Forest City, Iowa. "The people who are from a pre-GUI environment are learning it faster than those who've worked only in Windows," he says.

■ **Are they inspired to learn on their own?** One of the most powerful benefits of Linux is the innovation and enthusiasm that IT staff bring to it. At Winnebago, for instance, the move to Linux was initiated by a single staff member who had become expert at using the system and inspired his colleagues to learn it as well, Ennen says. In fact, they learned to use it on their own time, outside of business hours.

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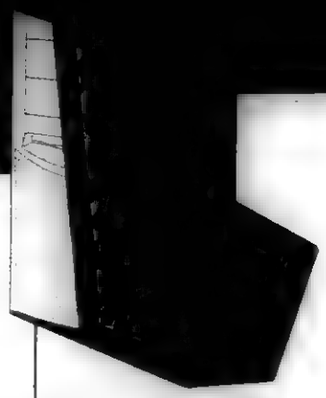

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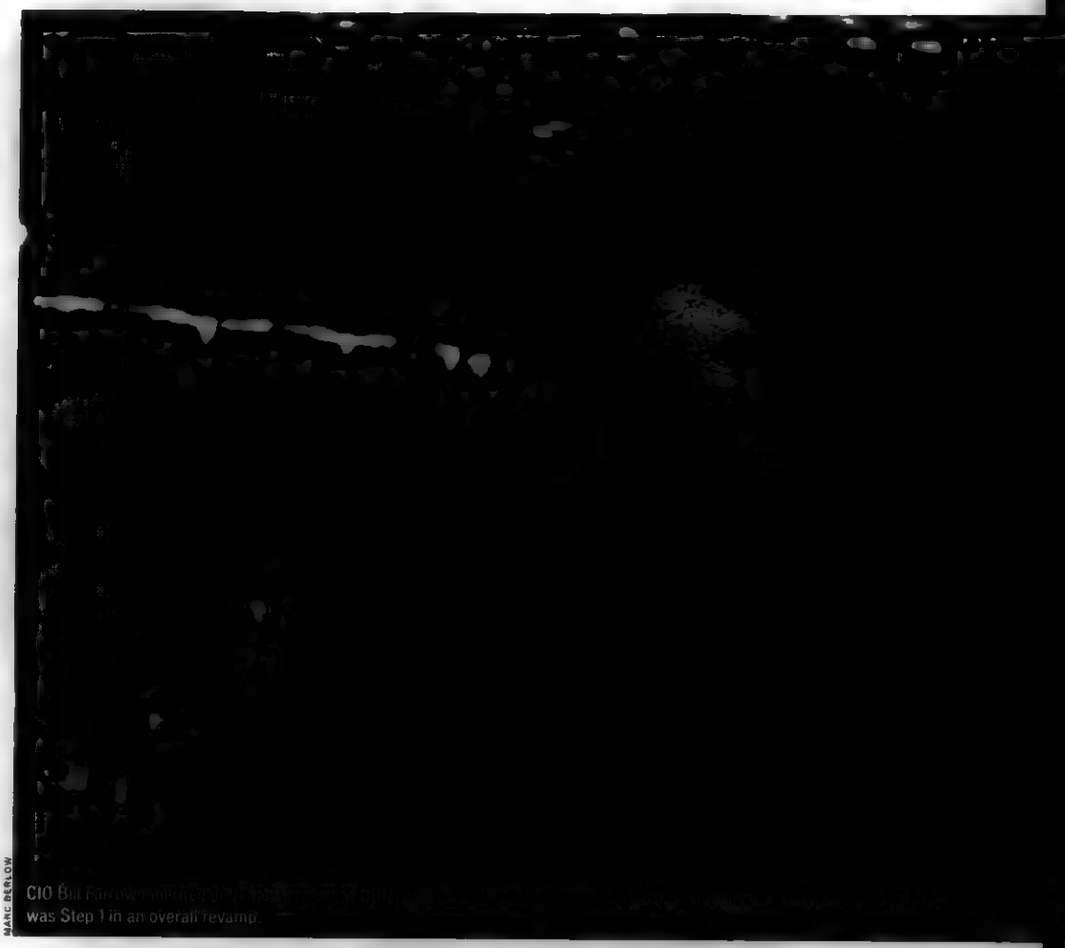
Chicago Board Of Trade

CASE STUDY

IT challenges: Restore leadership and build a new relationship with the business side; implement project, budget and quality controls; and replace outdated system with Sun Unix servers and Oracle databases.

The payoff: Completed 66 projects in 2002, compared with no completed projects during the previous four years, and automated the collection of all IT project data.

Lessons learned: By restoring IT's credibility, other departments (such as operations and real estate) see the benefit of breaking the silo mentality and fostering communication with IT.



MARC BERLOW

CIO Bill Farrow [illegible] was Step 1 in an overall revamp.

MARKET Rally

An IT turnaround has brought the world's oldest commodities exchange back to profitability. By Kathleen Melymuka

PICTURE 3,000 TRADERS in "the pit" waving their hands and screaming orders for stocks, bonds and commodities. Millions of dollars in investments are changing hands every minute. Suddenly, screens freeze; orders won't execute. Mayhem reigns as millions of dollars are lost with every tick of the clock.

"That's the worst thing that can happen," says Carol Burke, executive vice president and chief of staff at the Chicago Board of Trade (CBOT). But two years ago, trading-floor systems were crashing almost weekly because of a deteriorating infrastructure. Trading-floor systems capture the Buy and Sell orders, match them with Sell and Buy offers, route them to completion and send back acknowledgments. The crashes were costing the exchange and its members millions of dollars.

In July 2001, after two years of operating in the red, the board of directors brought in a new management team, including Executive Vice President and CIO Bill Farrow. A total IT revamp got the exchange back to in-house profitability. By 2002, its profit had risen to $25 million, trading-system crashes were virtually unheard of, and CBOT was bullish on technology.

Bear Market

CBOT, established in 1848, is the world's oldest futures exchange. There, more than 3,600 members, such as Cargill Inc. and J.P. Morgan Chase & Co., trade 47 products, including contracts on agricultural futures and options on U.S. Treasury bonds. The not-for-profit, nonstock corporation has about 600 employees, 200 of them in IT.

Farrow walked into an IT situation that was grim. "The chairman said, 'Bill, you have very small shoes to fill,' " he recalls. "That tells you a lot."

"IT was in disarray," agrees Burke, a 20-year CBOT veteran.

"There were a lot of good people in IT, but there was a real lack of leadership," says Chip Bennett,

senior vice president of technology solutions and Farrow's first hire at CBOT.

The infrastructure was ancient, unreliable and undocumented. "When I got here, 85% of it was end-of-life," Farrow says. "It was like owning a house and wondering which light bulb would burn out next."

For example, the phone system was 20 years old. "We literally had to put someone in a van and send him to Colorado to get parts for it," Farrow recalls. Desktops ran a version of Windows no longer supported by Microsoft Corp. Nearly every key process was routed through a group of old, midrange Tandem computers in an environment so complex that developing a new process took more than 90 steps.

Management, project and budget controls were lacking, and quality control was substandard. Trading-floor systems would crash repeatedly because they were patched but never permanently fixed. "[Staffers] were very adept at scrambling and fixing things on the fly," Farrow says. As a result, most documentation existed only in people's heads.

IT was full of silos and fiefdoms, so there were no economies of scale. Morale was low. There was a place called "the wall," where nearly 100 yellow sticky notes commemorated people who had gotten fed up and left.

But not everyone in IT was frustrated; some were complacent. "Tech jobs were called 'the golden hammock,'" Farrow says. "Once you got in, you could have a very easy, very, very long career in technology here."

That attitude made no friends on the business side. "We would go to IT and say, 'Help us,'" recalls Kevin Lennon, vice president of real estate operations. "The feeling we got was that we were taking them away from something more important."

Other than Y2k, IT hadn't completed a single project in four years. As a result, people had no experience in project management disciplines, and return on investment was a foreign concept. "No ROIs were done — ever," Farrow says. "Technology did not have to provide a return for investing the money in it."

There was such a lack of credibility between the business and IT sides that the business people had totally given up, Farrow says. "Their attitude was, 'Just keep the place going and leave us alone,'" he says.

The Turnaround

Farrow began by taking inventory of what he had. He documented systems and technical architecture, nailed down vendor relationships and service-level agreements, and evaluated security systems.

Simultaneously, he faced the bigger challenge of building new relationships with the skeptical business people. He assigned IT managers to counterparts on the business side to brainstorm regularly about how technology could support business goals.

Denise Schaller, director of technology and data products for floor support applications, who has 11 years' experience at CBOT, says her weekly meeting with the two vice presidents of exchange operations has changed everything. "If I have any business questions, issues, priorities — if I'm confused on what my team should be working on — they sort it out," she says. "Before, I would have to try to make those judgments myself."

Replacing the ancient Tandems with Sun Unix servers and Oracle databases, a process that Schaller thought would take two years, got done in half the time because her new partners in business helped with the analysis, legwork and scope.

"It's much more consultative," says Lennon. "[IT will] dive right in and try to understand our business needs and help us determine what kind of technology can help us."

Farrow boosted quality assurance with additional software testing and backed it up by putting IT troubleshooters on the trading floor every day when the market opens. "I'm on the spot, so I can see any problems and react immediately," says Schaller.

Even so, there were early setbacks. "We had to have a trading halt a time or two because of some really old issues," Bennett recalls. "That was frustrating, and there were times when I went home pretty low."

But the IT leaders kept the faith. Farrow established a project office to centralize the project portfolio and the IT skills pool. He chose enterprise change management software from Kintana Inc. in Sunnyvale, Calif., to automate processes and provide real-time status reports on projects.

The office provides a "single point of entry" for demands on IT, Farrow says — "No more backdoor requests or jumping the queue." It gives a broad view of how IT skills are needed and used across the exchange, enabling him to deploy human resources efficiently. It also helps the business people understand IT resources. "If they want additional staff hours, they can see that [it's] at the expense of something else," Farrow explains. "That's a very constructive dialog to have with business people."

Farrow also brought ROI to project agendas. "We [know] a lot more in terms of what projects will provide as return on investment," says Bryan Durkin, senior vice president of operations at CBOT.

Farrow used news of the turnaround to attract technology professionals with new skills, particularly in the areas of security and business analysis. But there were painful decisions as well, including letting 15 IT managers go. The permanent IT workforce shrank from 250 to fewer than 200, supplemented by temporary contract help as required by the project load.

The projects have made the business managers believers in IT. With IT consultation, Lennon enhanced and expanded security from just the trading floor to the whole building. "Now real estate and trading floor are interconnected," he says. "Before Bill got here, I frankly never would have tried that." Trading-floor and building security would have been separate systems, Lennon says. "But [IT] worked with us from beginning to end, and it's been a phenomenal success."

IT has also helped Lennon sort out telecommunications options for the building, which CBOT owns and leases to its tenants, and has even offered to explain the options to new tenants. "That makes the building more attractive to tenants because it's an easy move," he says.

Durkin is particularly happy with a new master-antenna system for the trading floor. "It gives us an immense amount of growth for wireless technology on the floor," he says. "There's been a phenomenal growth of activity."

In 2002, IT completed 66 projects. In February, CBOT handled 33 million contracts — 33% more than in the previous February, without a single system stutter. "We have a much more stable and robust environment with fail-over abilities," says Durkin. "If there were a problem in a primary system, it would fail over to a backup and be seamless to the marketplace."

Throughout the turnaround, IT has maintained a flat budget. "If you are wasting 35% of your money and you can make that 35% productive, that's a lot of money to put back into the technology to make it robust," Farrow says.

There is also a new IT spirit at CBOT. "I enjoy working for Chip and Bill," Schaller says. "They're very, very supportive. Now that we're accomplishing things, my team feels good about it."

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@yahoo.com.

FINANCIAL RIPPLES

How much money rides on a trading-floor system? It's hard to calculate, but you can get an idea of the impact if you think of business disruption as a set of concentric ripples. Because of the interplay of those various rings of interest, a market disruption is big news around the world.

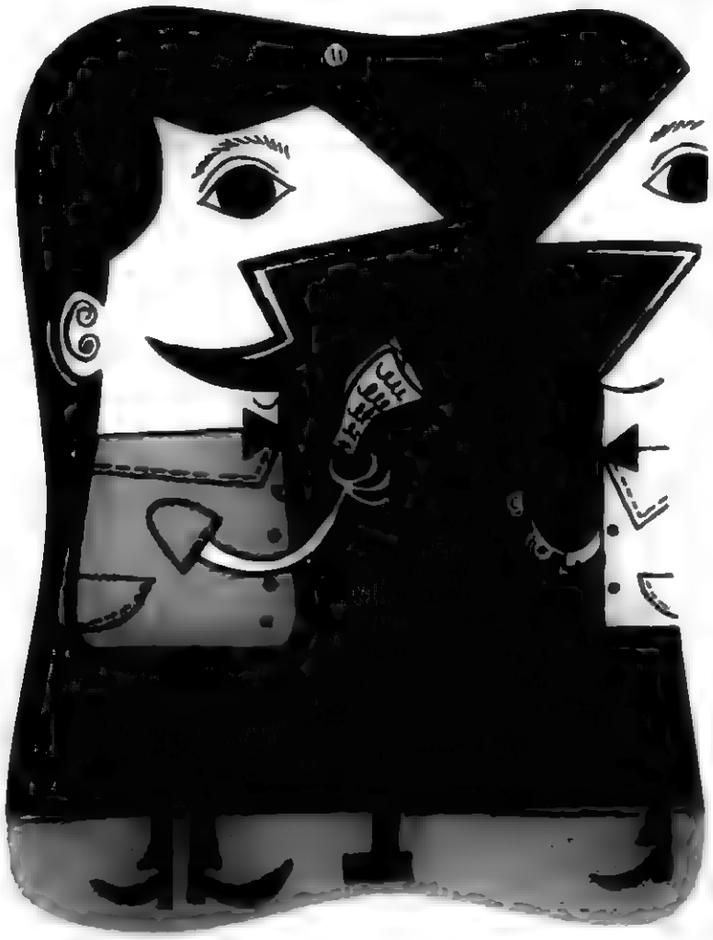
Ring 1: The market itself loses the potential fees on all transactions that don't execute. It also loses revenue it could earn from providing market data for traders' workstations.

Ring 2: Brokers lose transaction fees. They also take positions while buying and selling for their house accounts, and they can lose big if a system crash prevents them from getting out of an unfavorable position.

Ring 3: Customers such as major financial institutions lose when they are unable to hedge a perceived market or business risk by buying a future on a security or commodity.

Ring 4: The originator of the asset being traded – the farmer, in the case of agricultural futures – loses because he is unable to dispose of the asset. If disposal is time-sensitive, he loses even bigger.

Ring 5: Money flows between markets, so the absence of activity in one market impacts activity in all the others, and they lose as well.



MELINDA BECK

THE Elevator Speech

Turn a dreaded encounter into an opportunity for some high-level PR.

BY KATHLEEN MELYMUKA

A FEW WEEKS AGO, *The Wall Street Journal* ran a column on the dreaded elevator encounter. It discussed the terror many rank-and-file employees feel at the thought of sharing a 30-second ride with the CEO or some other top executive for fear they'll commit some career-ending faux pas.

But why not see the chance encounter as a great opportunity to let them know just what technology has done for them lately? Why not make sure everyone in IT is ready to grab the opportunity when those doors slide open?

"I think the challenge here is not the elevator speech, but what comes before it," says Mark Endry, senior vice president and CIO at J.D. Edwards & Co. in Denver. Your company should have clear goals and objectives; IT should be aligned with them, and each IT employee should know how his own work is helping to attain them, he says. Endry's managers coach IT workers on this linkage at every opportunity, from performance reviews to events where they play "The Weakest Link" using questions about IT and company goals.

Speak Business Value

Good metrics can help you pinpoint how you're adding value to the business in ways management can easily grasp, says John Boushy, senior vice president for operations, products and services, and IT at Harrah's Entertainment Inc. in Las Vegas. For example, a help desk person who tells the CEO that his job is to solve internal customers' technical problems won't have the same impact as the one who states that his group has cut response time by 30% in the past year and is now closing half of its calls on the spot.

Once you understand your business value, get psyched about the opportunity to demonstrate it. "People have to want to be ready," says Dennis Klinger, vice president of IT at Florida Power & Light Co. in Juno Beach, Fla. "They have to realize that this is a good thing to do and agree that if they get the opportunity to do it, they will." A good elevator speech is great public relations for your career as well as for IT, he says.

As for the speech itself, a manager can help with the framework, but each message delivered spontaneously will of course be different. Think about what you do that is most important to the business in terms of raising revenue and cutting costs, Boushy says. "Look at profit, growth and customer loyalty, and try to isolate the things you are doing that would make an impact on those," says Klinger. "Those areas get right to the chairman's heart."

Choose to talk about projects that include lots of non-IT people, says Virginia Robbins, director of IT at Chela Financial Inc. in San Francisco. Select an action verb that truly reflects your role. If you're excited about the project, say so. And it's OK to acknowledge that you don't know all the details. Neither does the CEO.

"Stay truthful, and articulate your actual contribution," Robbins says. "And remember: No acronyms!"

Robbins gives an example of how even a low-level IT worker can make an impression on a senior executive: "I'm learning tape-labeling for the customer retention project. I don't know all the details, but from what I understand, this will help retain customers by reducing the time spent responding to their requests. My part is to make sure that the tapes storing all of their data are labeled and loaded on time."

A programmer might talk about working with the marketing department on the new customer-rewards program that will increase customer loyalty and market share. Operations people can tie their value to maintaining IT tools that the CEO uses every day. Can he turn on his PC and get the latest balance sheet and data on profitability by customer and product? Not without operations folks.

Keep updating the speech as your job changes, and think topical. When the government upgraded the national security level to "orange" in February, Klinger's IT group had to segment the network and shut down some areas, with minimal disruption to the business. "That's something that involves people at every level," he says. "They can all talk about that."

The venue doesn't have to be the elevator. Last year, when Endry's chief operating officer held breakfast meetings with employees, the IT people impressed him with how much they knew about their impact on the business.

Nor should your audience be limited to the CEO. Klinger and his higher-level IT people often plan targeted quick-hit messages for certain executives. Thirty seconds with your chief financial officer, for example, might start a ripple that leads to a new financial system. "That 30 seconds might leave a seed that can cause something good to happen or generate another discussion in more depth," Klinger says.

Regardless of the venue, the elevator speech is an opportunity that shouldn't be missed. And by the way, make sure everyone in the department knows what the CEO and other top executives look like. It would be a shame to waste a perfectly good ride.

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@yahoo.com.

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NEWSMAKER

Merrill Lynch & Co. has shrunk from 70,000 employees worldwide in 2001 to 53,500 today. Its 2003 IT budget of $2.2 billion is down 30% from two years ago. Yet miraculously, its IT training budget has remained intact, largely due to the fierce lobbying efforts of Chief Technology Officer STEPHEN NORMAN. Norman says IT managers must distinguish between "starvation" and "bodybuilding" budget-cutting exercises. Training, he says, is a bodybuilding exercise. In the end, it will make the company's IT group stronger. Norman recently spoke with *Computerworld*'s Julia King.

How do you preserve your IT training budget? Whenever we get handed a target to save *x* amount of money, I keep on saying we can't touch training. Training is usually about 2% of the total head-count cost, so you're not going to save the planet by cutting training. I tell them [top managers] that I'll make them happy by cutting something else.

Where are you putting your IT training dollars? We're putting money into project management training, service management training, time management training and courses we developed about knowing yourself and knowing your customers. Most of our people, for instance, had no formal training around how to deal with difficult customers.

Why emphasize customer service? We're setting up our services for unit pricing. Charging back [business units for the IT services they use] started about 18 months ago. The compelling story with unit pricing [for the business units] is, "Use less, spend less." It gives customers the idea that they can control their costs by using less. In IT, unit pricing allows us to compare ourselves to external providers and also to compare ourselves internally across different IT centers, which creates healthy competition, say, between New York and London. ▶

JOHN BERRY

Assume Nothing. Audit Instead

THE IT manager who assumes that a technology investment will meet or exceed an economic or return on investment forecast reminds me of the anecdote about the economist trapped in a burning building. "No problem," he says. "I'll assume a fire hose."

While the dismal science of economics relies on assumptions to build theories to explain economic phenomena, IT managers are under no such obligation. In fact, the practice might be dangerous.

One of the most damaging assumptions an IT manager can make is that the cost savings or revenue increases forecast in an ROI exercise will materialize on schedule, or at all. Yet it happens all the time.

How else to reconcile the fact that most organizations don't bother to confirm that all the economic returns depicted in a forecast actually materialize? Too often, the effort invested in constructing such a forecast as a decision-making tool becomes digital dust on someone's hard drive after the project has gone live. The thinking goes: The forecast is irrelevant because the project is done — let's move on.

What's likely lurking behind the absence of postinvestment auditing at most companies is fear, uncertainty and doubt that the real-world results will fall below forecast. No one enjoys evaluations, especially when the outcomes are less than expected, and people in a position of accountability — the project champions and those who control the budget — fear a metaphorical courtyard stoning.

There are ways to conduct a consistent, repeatable postinvestment audit, and no one need fear being shot at dawn. If you accept the lofty principle that one of employees' most powerful capabilities is the ability to learn and to turn the learning process into improvements, then you should see audits as an effective component of IT management.

The maximum value from an IT investment isn't realized from simply confirming that the returns match the forecast, but rather from improving the technology asset's performance should it turn out that the returns are lower than planned — which is often the case with more strategic kinds of technology requiring process and organizational change. The act of investigating why some element of the deployment isn't returning the projected cost savings or increased revenue is the first step of the remediation process by which maximum value is extracted from the technology. This might be the single strongest argument for devoting the time and money to an auditing process.

Consider the example of a hospital that decided to expand its lab business. Instead of doing the lab work of hospital patients only, it took on referral business from physicians and clinics as a way to increase revenue by leveraging unused lab capacity in the off hours. This was a big-risk, big-payoff project, involving an investment in people, processes and technology — an ideal candidate for a postinvestment forecast validation exercise.

The hospital correctly anticipated that the specialized lab management software it rolled out to support this venture might introduce some business-process incompatibilities that could drag down forecast ROI. However, it had little visibility into what those exact incompatibilities would look like and how they would affect returns. The hospital's IT team decided to conduct an audit concurrent with technology deployment. It could have waited to audit the returns until some point after deployment, but the risks were high enough that it sought to catch any operating dysfunction quickly.

The audit team discovered soon after the platform went live that the software collected far more data than it needed for referral patients. The system required lab workers to capture 20 data elements from each patient with a lab order. This demanding screening process was optimized for in-hospital patients, but for referral patients, the lab really needed only a few pieces of information such as name, age and insurance carrier.

The dysfunction wasn't catastrophic, but it clearly could have compromised the volume of referral patient traffic the lab was equipped to handle. Having discovered through an audit the operational tension between the needs of the referral patient service and the information acquisition overkill of the software, the IT organization recognized the potential drag on revenue and went to work immediately on a code fix.

Today, this reference lab is a $7 million profit center for the hospital. In the absence of an audit capability, it would have been less profitable, because lab personnel would continue to grill patients as if they had committed a crime rather than gotten sick. ▶

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NEWSMAKER

Q&A

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Software Engineer – Responsible for design & development of the company's Business Process Manager product; specific duties incl. maintain system/application software, design & develop applications using Object Oriented & XML-based technologies & specifications. Enterprise Application Integration (AI), & Web based technologies; develop & extend advanced complex software system in a reliable & modular fashion using Java and XML based technologies. BS in Computer Science and 2 yrs. of software engineering experience using Java (J2EE), XML-based technologies, Web based technologies (HTTP, SMTP, POP3), proficiency w/ Web Security Protocols (SSL), & ability to work on Unix environment & Clearcase. 40 hours/week. Salary $80,000/yr. Send two resumes to **Case #200116022**. Labor Exchange Office, 19 Stamford St 1st Fl, Boston, MA 02114

Quantitative Analyst wanted by Manhattan Securities Clearing Firm to conduct risk analyses and modeling projects. Must have 2 yrs. exp. with database administration/application design & C++ programming. A Master's degree (or completion of all Master's coursework) in Financial Engineering or in a related field is required. Fax resumes to HR Dept., DTCC (212) 855-5802. Refer to Job #8071.

S/W Engineers to analyze, design, develop, maintain business applications using Java, XML, JavaScript, HTML, DHTML, XML, COM/DCOM, PL/SQL, Oracle, etc. on Windows OS; analyze business processes to determine client reqs, maintain documents/program specs, create appl prototypes for client approval, perform research, analyses, testing of new/existing technologies. Require Masters or foreign equiv in CS/Engg/Physical Science/Business discipline with 1yr exp in IT. High salary. Travel involved. Resumes to HR, Synergy America, 1565 Woodington Circle, Suite 101, Lawrenceville, GA 30044

Systems Analyst – Used systems analysis skills to analyze Latin banking systems & business req. Designs, dev & prog Software for integrated banking systems in Latin America Banks & financial institutions. Works w/ IBM, AS/400, RPG, ILE, static programming w/ servlets. Designs teller attn systems incl. (Serabank Sale, IBS Branch) 40 per wk 9A-6P, 3 yrs req in job offered. Fax resume to Datapro, Inc. Attn: William Montiel (305) 929-4182.

Manager, Software Engineering

Wave Three Software, Inc. is a privately held, cutting-edge engineering company that develops and licenses software for desktop communication and collaboration. We are currently looking for a Manager of Software Engineering who can lead our team in taking the existing product suites and creating the VVoIP products of the future.

The successful candidate will be hands-on in the designing, coding, testing and delivery of the software products. A Bachelor's degree in Computer Science or Computer Engineering or working equivalent, and a minimum of five year's experience creating industry leading audio/video communications software is required. Excellent knowledge/experience with C/C++ programming, object-oriented design, software design and development tools, software optimization and real-time software development is required. A solid foundation and working knowledge of audio and video encoding and decoding algorithms and techniques as well as exposure to multiple platforms and networking concepts (PC, Mac, Unix, TCP/IP) is required. Prior experience with developing networking solutions for IP and telecommunication signaling and data protocols including a working knowledge of H.323, ISDN, ATM, SIP, SDP, RTP. Superior written and verbal communication skills are also necessary. A proven track record of leading a project from beginning to end is a must. Prior experience working in a shrink-wrapped software environment is a plus.

Only qualified candidates are encouraged to e-mail their resumes in Word format, to resume@wave3software.com. EOE.

Software Engineers/ Programmer Analysts
(St. Louis, MO):

C/C++ Development:
Develop syst. communication infrastructure, implement server logs, develop syst.mgmt. appls. using OOD methodology, C/C++, Pro C, V/C++, VB, SQL, UNIX, Oracle, Shell Scripts, UML, TCP/IP, and ADI.

Java Development:
Develop multi-tier OO web-based info. Syst. on J2EE architecture in both NT and Unix envir using C/C++, Java, VB, EJB, Servlets, Jbuilder, Java Beans, JDBC, JSP, XML, SQL, Oracle, Websphere, and UML.

Network Administration:
Plan/program network and web appls. for large scale LAN/WAN networks in UNIX/NT envir. using TCP/IP, BGP/OSPF protocols, Cisco Internet Router (1000+), MPLS/VPN, SNMP, QOS, Checkpoint, VPN, VoIP and Nokia Firewall; analyze complex circuit / networking / routing issues; direct network testing procedures.

Require BS/BA or the equivalent in Comp. Sc., Engr. Math. or in a closely related field.(will accept equivalent exp.) plus min. 2 yrs. exp. in offered/related position, and must be able to perform all the duties in the day of employment. Full time w/ competitive salary. Resume to HR NetEffects, Inc., 500 Chesterfield Ctr., Ste.350, St. Louis, MO 63017. No Call/EOE

NET2S

NET2S is a leading international e-business, information technology, and communication infrastructure consulting firm. We are currently seeking for the following positions:

- Sr. Tibco (RV, Hawk, Ingistration Manager) Developer
- IT Risk Mgmt Security Architect
- Sun One / Siemander Architect
- Business Objects / Cognos Developers
- .NET Architect

All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street, Suite 400, New York, NY 10005; Fax: (212) 279-1980; Phone (212) 279-6985; or Email: jobus-nyc@net2s.com

Senior Systems Analyst to provide hardware and software technical support to end users of company's retail management information systems. Specific responsibilities include: Providing system engineering, architecture , administration & support for Citrix Metaframe 1.8 / Winframe environment; Leading engineering team for Windows 2000 implementation; Providing technical leadership for 3rd tier Windows 2000/NT technical support; Researching system architecture and making recommendations for server infrastructure; Consulting with clients on technical needs and specification development; Coordinating & providing network related support, configuration, optimization and operation support; Testing, researching and setting up applications; Developing documentation for automated systems and procedures; Providing support with Network Management Software; Providing training to end users in software and systems operations; and Providing backup & recovery solutions to protect Enterprise data. Minimum Requirements: Bachelor's degree (or equivalent) in Electronics & Communication Engineering, plus 2 years experience in systems analysis or network engineering. Must be able to perform all of the following: Design, implementation & administration of LAN/WAN networks; Windows 2000/NT system architecture, installation, administration & troubleshooting; Optimization & troubleshooting the network environment; Citrix Metaframe/Winframe environment design, installation, administration & troubleshooting; Application/software installation & troubleshooting; Providing technical support for data access to enable data retrieval & manipulation; Network related configuration & support; and Providing end user training in applications & systems. Must be knowledgeable in data backups & restores. Salary: $58,850 for 5 day, 40 hour week. Send 2 resumes to Case #200115344, Labor Exchange Office, 19 Staniford St., 1st Floor, Boston, MA 02114.

SOFTWARE ENGINEER NEEDED

Software Engineer is responsible for analyzing system requirements and developing technical specifications for computer programs used in the healthcare industry. Must consult with clients to gather information about program objectives and functions, write computer code and user interfaces, and refine, test and debug programs as necessary. Also required to write and maintain documentation to describe program developments, logic, coding, testing, changes, corrections, installation and operating procedures. Must have a Bachelor's degree in Computer Science and four years of progressive experience in computer programming, systems analysis, or software engineering. Experience must include: Visual Basic, Winsock, Windows Programming, Java2, JAX, Java Threads, Java Sockets, JSP, Servlets, XML, Xerces, Apache, IIS, Tomcat, database concepts (Oracle/SQL Server), object oriented design and programming concepts with UML. Prevailing wage to be paid.

Please send resume to:

Michael Buda
SIS Acquisitions, LLC
3650 Mansell Rd., Suite 300,
Alpharetta, GA 30022

Computer Systems Analyst (multiple positions): Designs, develops, modifies, debugs and evaluates programs for use in internal systems within functional areas. Analyzes existing programs or formulates logic for new systems, devises logic procedures, prepares flow charts, performs coding and tests/debugs programs. Prepare and obtain approval of system and programming documentation. Four years of prior exp. required. $75,000/yr. Send resumes to: Cree, Inc., 4600 Silicon Drive, Durham, NC 27703. (attn: HR) EOE/M/F/H/V. No phone calls please.

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Software Engineer

Euro Solutions Group dba e Solutions Group seeks Software Engineer – Oracle Applications in our New York, NY loc. Position involves application customizations + enhancements for business solutions, system admin & troubleshooting. Also database activities incl. System dev't life cycle, data analysis, system design & dev't, testing + implementation. Must have Bachelors in Business, Computer Sci. or related field and 3 yrs of relevant exp. Applicants send resume to e Solutions Group, H R Dept. 1103 Standing Reed Pl, Wesley Chapel, FL 33543

Software Engineer Works under the supervision of sr. mngmt. To research/develop image/graphics processing software related to the import/export of Macintosh/Windows raster/vector graphics file formats using Assembler/C/C++, design/implement scientific image processing/ image processing optimization algorithms/ client server software, determine design time/ cost feasibility, evaluate HW/SW interface/ system operational/ perf. req's., develop/software testing procedure/ programming/documentation. Req. Bach. in Computer Engineering, rel. or equiv. and 1 year exp. Resume to J. Miranda, Dembe Software Inc., 1150 N.W. 72nd Avenue, Suite 160, Miami, Florida 33126. No Calls.

Sr. Database Admin. Design, analyze, test, maintain & improve logical & physical databases. Responsible for backup, recovery & tuning of databases. Calculate optimum values for database parameters & system analysis. Use Oracle, SQL server, &/or related skills. Req 4 yrs exp in job/4 yrs exp as Systems Analyst & Consultant or Asst. Syst. Anal. Or Sr. Programmer & Programmer. Jobsite West Greenwich, Rhode Island. Send ad & resume: Yen C. Chong, Amgen Inc., One Amgen Center Dr., Thousand Oaks, CA 91320-1799. Include Ad# 02-412FV.

Sr. Software Engineer wanted by legal services info corp in NYC to be responsible for high-level architecture, analysis, design & development of mission critical web products built on Windows DNA/.Net architecture. C++, COM, DCOM, COM+/MTS/MSMQ, ALTCOM, VC++, C#, .NET, XML, ASP, JavaScript, DHTML, IIS, SQL, VB, Oracle. Resumes to HR Dept, CCH Legal Information Services, 111 8th Ave, NY, NY 10011.

Technology Support Manager - for non-profit organization to manage and implement all internal IT solutions including network support, troubleshooting, and internal helpdesks, for Windows 2000, XP, and Exchange Server environments. Position requires degree or experience. Send cover letter and resume (no calls) to A. Marano, NPower NY, 145 W. 30th St., 8th Fl, NY, NY 10001.

WTR inc, a comp cons co. seeks to fill the following positions in Columbus, Indiana.

• Programmer Analyst with strong Oracle skills. Must have BS in Comp Sci, Engg, or Math & a min of 2 yrs exp
• Business Analyst with Oracle ERP skills. Must have BS in Comp Sci, Engg or Econ/Fin & 2 yrs exp

Mail R & CL to HR Dept. 130 W 30th St. 12th Fl, NY, NY 10001.

Opportunities in Walnut Creek, CA and Chicago. Positions may require travel.

• Tech Support Engineer (Mgr)
• Sales Engineer

Send resume to Pointsec Mobile Technologies, Inc., Attn: HR, 1333 N. California Blvd, #445, Walnut Creek, CA 94596. Fax 925-256-2501 Email: jobs@pointsec.com

Paradigm Infotech is looking for programmer/system analysts, s/w engineers. Candidate must have BS with at least one-year IT experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML are plus. Traveling is required. Apply jobs@paradiminfotech.com. EOE.

Synova Inc is seeking professionals with following skills: Programmer/System Analysts, Engineers in Mainframe, Web Tech, Technical/functional (SAP & Peoplesoft), Java, Rational/RUP, UML, J2EE, Unix DBA, Oracle, SQL DBAs. Respond to ads@synovainc.com

Software Engineer. Research, dsgn & dvlp software systems & GUI interfaces using Sun Solaris, Windows NT, Websphere Appln srvr, MQ Series, Rational Rose, WAJ, JSP, Quest Toad, DB2, Interbase & related tools. Perform functional & bus reqmnt analysis. Customize/enhance/configure/integrate s/ware systems. Dvlp & direct s/ware sys testing procedure; performs unit & integration testing. Must have MS or equivt in Comp Sci or Comp Eng & 3 yrs exp in s/ware dsgn & dvlpmnt. Job in Chicago, IL & other locations. Competitive Salary. Apply to HR, Pivot Information Technology Corp, 3300 W 159th St. #206, Markham, IL 60426. FAX: 7062257763.

Software Programmer. Programs software components using Visual C++ and Visual Basic; debugs existing software; designs and implements interfaces for communications servers. 2 yrs. college in Computer Science required. Two years of experience in job required. 40hrs/wk, 9:00 a.m. to 6:00 p.m. $59,238/year. Applicants must show proof of legal authority to work in the U.S. Northwest Suburb of Chicago. Send resume to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 7 North, Chicago, Illinois 60605. Attention: Leonard Baksa. Reference #V-IL 34630-B an employer paid ad. No calls-send 2 copies of both resume and cover letter.

Sr Programmer Analyst. Design s/ware solutions using COBOL, MVS, JCL, CICS, or Basic and commercial DBs. Bachelor degree in CS, Eng'g, Business, similar field, or equiv. req'd, as is 4 yrs as a Sr P/A or in a computer prog'g position. Competitive salary. Resume to James D. Cuniffe, Technical Recruiter, Sallie Mae, Inc., Job #1915.26, 11000 USA Pkwy, Fishers, IN 46038.

Programmer Analyst. Develop computer programs using Visual Basic, ASP, ER-Win, Sybase, SQL Server, C, C++, SQL, VB Scripts, PowerBuilder, Access, &Oracle. Bachelor degree in CS, or similar field, or equiv. req'd, as is 1 yr of exp as a P/A or in a computer prog'g position. Prior exp must include exp w/ Visual Basic, C, & ASP. Competitive salary. Austin, Texas, location; reassignments possible. Resumes to S. Pun, Job #1629.71, Business Software Assoc., Inc., 8140 N. Mopac, Bldg. 1, Ste. 130, Austin, TX 78759.

Computer Programmer. Plan, develop & test data warehouses Oracle/DB2 databases. Provide installation,implementation & maintenance support. Develop documentation. Provide technical support. Req: BS in comp. eng., 40 hrs/wk. Job/interview site: Glendale,CA. Send resume to Satwic, Inc., 1205 N. Geneva St., Glendale,CA 91207.

Software Engineer for Columbus, OH to assist in plan/design/develop/test/document computer software systems; apply principles and techniques of comp systems, assist developing and directing software system testing procedures, programming and documentation. Bachelor's in Comp Sci or equiv and 3 mos in job/job related exp req. Exp must include UNIX, C++, Perl, Java, SQL (PgSQL), UNIX supervising (UNIX/Solaris), Apache, MPTG, SNMP, ssh, Free TDS. Resumes (no calls) to 699 Harrisburg Pike, Columbus, OH 43223. EOE.

Software Engineer (Columbus, OH) Design, analyze, develop, test, implement & maintain client/server projects on UNIX, WINDOWS. Design & analyse Database using Oracle Designer. Server side dvlpmn't using SQR, PERL, C, COBOL, SQL scripts. Front-end dvlpmn't using Oracle Developer, Java, JFC, VB6.0, JavaScript & HTML. Test w/ MS-Test/SQA Team Test. Req. Bachelor's or its foreign degree equivalent in C.S., C.S.E, C.E. or other engineering field + 2 yr. exp. in job offered. Resume to HR Mgr., SoftTech, Inc., 6025 The Corners Pkwy, Ste 204, Norcross, GA 30092

Vision Tech has several openings for IT professionals & engineers. Degree is required. Skills in Oracle, HTML, VB, SQL, Java will be used for the position. We offer competitive wage with full benefits. Contact crice@visionetwork.com or visit our web www.visionetwork.com. EOE.

Programmer/System Analysts, Software Engineers wanted by Assery, Inc. for positions located in Michigan. Minimum requirement is BS plus experience using Oracle, Visual Age, Visual InterDev, SDM (System Development Methodology). Apply at mwale@assery.com. EOE.

Forum Systems currently has opportunities in Sandy, UT for the following positions: **"Software Engineers/Consultants"**

"Must be available to travel to various and unanticipated worksites throughout the U.S.

Positions require Master's in CS, Engineering, or related field and 2 years of software engineering experience. Experience must include:
1) XML-based encryption
2) SOAP
3) Cryptography
4) EJB development and
5) 6 sigma project methodologies.

Send resumes to: Zak Farmington, Forum Systems, 45 West 10000 South, Ste 415, Sandy, UT 84070 (No phone calls)

www.forumsys.com

Programmer Analysts, minimum education: Bachelor's Degree or equivalent. Some positions require a Master's Degree or equivalent. Minimum experience - adequate industry experience. Please send resumes to Northbound LLC, Attn: Leena Menon, 1999 South Bascom Avenue, Suite 1050, Campbell, CA 95006.

Systems Analysts to travel throughout USA. Skill sets include JAVA, ASP, XML, Informix, Oracle, & SQL. E-mail: resume@maruthi.com & mail to: 969 g Edgewater Blvd, #260, Foster City, CA 94404.

PROGRAMMER wanted by consulting & software development firm in Sugar Land, TX. Requires degree in Computer Science. Respond by resume to Ms. B. Nelson, Recruiter, J/S-#10, Digital Consulting & Software Services, One Sugar Creek Center Blvd., Ste 500, Sugar Land, TX 77478.

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FL Data/Telecom Service Co. seeks Programmer-Analyst 1; assist in plan/develop/test/document computer programs; apply knowledge of programming techniques and comp systems; assist in evaluating user request for new/modified programs; consult w/users to ID current operating procedures; clarify program objectives; enter program codes into comp system; assist in analyze/review/alter program to increase operating efficiency. Bachelor's in Comp Sci/Div Eng or equiv and 3 mos in job/job related exp req. Exp must include prev work w/.NET Framework, Windows, C#, C++, Java, JMF, VB6, ASP.NET, ADO.NET, SQL Server 2000, PeSOL, XML, SOAP, .NET Webservices. Resumes (no calls) to A. Bader-man, 1228 Euclid Ave., #380 Cleveland, OH 44113. EOE.

SOFTWARE ENGINEER to research, design, and develop advanced optimization, numerical and statistical algorithms, including stochastic optimization algorithms such as simulated annealing, genetic algorithms, tabu search, clustering using advanced methods, network clustering, numerical methods for function minimization, multivariate regression/analysis, and large scale simulations including Monte Carlo methods. Design, develop, implement and analyze large scale application software systems in a client server environment; Lead a team and establish work plan under limited supervision. Require M.S degree in Applied Mathematics, Computer Science/Engineering, or a closely related field with two years experience in the job offered or in the related occupation of Staff Scientist. Competitive salary offered. Apply by resume to: Malhem Aref, Setram International Inc., 75 14th Street, Unit 2600, Atlanta, GA 30309 Attn: Job MG.

Imaging Software Engineer. Develop and maintain business specific implementation of purchased document technology applications using ActionPoint scripting language, develop reusable program modules (COM objects) for business application integration; maintain DocuPACT source code developed in object oriented technology; create and maintain WEB interface for DocuPACT based on XML; provide solutions to DocuPACT user problems; use MS SQL to extract data into document repository; incorporate document technologies into strategic design and architecture of Enterprise Application Integration solutions; and collect, define, publish, and adopt enterprise wide standards for unstructured data repository/ storage, metadata and style sheets definitions, and systems security and access. Minimum requirements: Bachelor's degree or equivalent in computer science or engineering plus two years experience. Prior experience must include two years of C++ and one year in web development and imaging systems or document management systems using XML/HTML, Java, and DocuPact. Competitive salary. Hours: 8 am - 5 pm, M-F. *Must have indefinite right to work in U.S. Send resume demonstrating minimum requirements to: Tipton Bradford, c/o ChoicePoint, AVP-Human Resources, 1000 Alderman Drive, 70-A, Alpharetta GA 30005.

Software Engineer. Job location Gaithersburg, MD. Duties: Resp for develop & perform all software & system/network mgmt & for system-level aspects of the product. BroadWorks. Resp for redundancy & fault tolerance & integration of software w/fault tolerant Sun server. Monitor stats, testing & code enhancements to ensure uptime & quick system startup. Design the database interface & schema. Resp for system/network mgmt such as generation of system-level faults/alarms, capturing of system-level performance measurements & mgmt of traffic levels. Install & upgrade CDs & procedures as well as database schema & procedures. Resp for the system security & set up of firewalls. SIP, SSL & software license enforcement. Install & maintain Win2000 network server & Microsoft Exchange 2000 server. Use Microsoft APIs to programatically manipulate mail messages on Microsoft Exchange 2000, via Microsoft Outlook. Resp for open external call client XML-based protocol. Requires: M.S. in Comp. Sci., Eng. or related field & 2 yrs. exp. in the job offered or 2 yrs. exp as an Assoc. Software Eng or Software Developer. Concurrent exp. must incl: 1 yr exp using Microsoft APIs to programmatically manipulate mail messages on Microsoft Exchange 2000, 40 hrs./wk., 8:00 a.m. to 5:00 p.m. Send resume (no calls) to Mary Alice Dawe, BroadSoft, Inc., 220 Perry Pkwy., Gaithersburg, MD 20877.

PROGRAMMER/ANALYST to analyze, design, develop and maintain business critical credit card application software using TSO/ISPF, JCL, MVS COBOL, COBOL II, Ezitrieve, DB2, VSAM, CICS, Changeman, Informan, ELIPS, Unitech, Strobe, XpediTor, File-Aid, File-Aid for DB2, Pro-Edit, DB2I, SPUFI, OPC/ESA, SAR, Abend-Aid, IOF, IDCAMS, TableBase, Connect Direct (NDM), Express Delivery, SAS and MS-Office products (MS-Word, MS-Excel and MS-Project) on MVS OS/390 and Windows NT platforms. Require: B.S. degree (or equivalent work experience) in Computer Science/Applications, or a closely related field with two years of experience in the job offered. Competitive salary offered. Send resume to: Sandra A. Ricks, Citibank, Universal Card Services, 8787 Baypine Road, Jacksonville, FL 32256; Attn: Job MM

JRD Systems Inc., has multiple openings available for IT professionals including software engineers, consultants, programmer analysts, project leaders/managers, account managers, Database Administrators, systems/management analysts, web masters/designers & project engineers. Some positions req Bachelor's Degree (or equiv.) while others require Master's Degree (or equiv.) in C.S., Eng'g, Info Systems, Math, Bus Admin or related field. We will accept the foreign equiv. of the required education and/or its equiv in edu & exp. Exp. required will depend on the position. Travel on some assignments to various client sites within the U.S is required. Send resume to HR, JRD Systems, 42524 Hayes Rd. Suite # 100, Clinton Twp, MI 48038.

SOFTWARE ARCHITECT

Herndon Virginia Dulles Design software applications to the object level. Design the architecture/framework for the Company's applications. Design and document data access and processing applications. Review existing applications and participate in code review. Analyze software requirements for microbiological healthcare vertical segment. Design, develop and implement software that helps in microbiological research/study data and publish them as internet and Palm tools. Requirements: Bachelor's Deg. in Mechanical Engineering or rel. fld. and 3 yrs exp in job offered, as programmer/analyst or associate developer. Also 3 yrs exp., which may have been gained concurrently, using object and internet technologies, such as JAVA, EJB, XML, CORBA and VXML. Please send resumes (no calls) to: Andres Moreno, Focus Technologies, 13695 Dulles Technology Dr., Ste. 200, Herndon, VA, 20171.

OH Indus Distrib seeks Database Administrator to coordinate changes to corp databases, create/review SQL scripts and stored procedures, schedule/review jobs and system performance, review backup/recovery strategy, disaster recovery planning, and long range database planning w/Microsoft SQL and Oracle; assist w/database design and modeling, develop models/designs for data warehouse/data store/data marts, develop incremental and full load processes for data marts, develop data validation processes, plan/implement metadata repositories, perform migration; monitor/tune database admin on performance tuning and monitoring of databases. Bachelor's in MIS (or equiv) and 2 yrs in-job/job related exp req, including exp in the following areas: Oracle, SQL 2000, Windows NT and 2000, IIs 4.0/5.0, Microsoft ASP, MS transaction and cluster server, DHCP/DNS/WINS, T-SQL, Oracle PL/SQL, Erwin, Embarcadero, ERStudio. Must be Oracle cert prof (developer 2000 track and 8i DBA track), and Microsoft cert database admin and systems engineer. Resumes (no calls) to HR Dept, One Applied Plaza, Cleveland, OH 44115. EOE.

PROGRESS DEVELOPER – Design, develop & analyze Progress 4GL code version 9 for ChUI & GUI environ. B.S. Comp. Science, Eng or equiv & 3 yrs programming experience. Must be proficient in Progress Webspeed, UNIX (ADX) & NT platforms. Apply to: Century Maintenance Supply, Attn: Ken Schreiber, 10050 Cash Rd, Ste. 1, Stafford, TX 77477.

Personnel Manager (Technical) Recruit, interview, and select IT professionals to fill vacant positions. Administer technical interview of applicants. Negotiate employment terms including salary and benefits and conduct employee orientation to foster positive attitude toward company goals. Arrange training and certification of employees. Ensure project goals are achieved. Must have Masters degree in HR Management or Business Administration and experience in IT Project Management or Resourcing.

Recruitment Coordinator
Rapidigm, Inc.
Code # 326R
4400 Campbells Run Rd.
Pittsburgh, PA 15205
EEO/AA/M/F/V/H

SOFTWARE ENGINEER, SALES MANAGER, AND BUSINESS ANALYST

Glendale based IT Company has multiple openings for Software Engineers, Sales Managers, and Business Analysts. These positions may require travel throughout the U.S. For consideration please send resume and salary history to: Trinus Corporation, 330 North Brand Blvd., Suite 324, Glendale, CA 91203.

PROGRAMMER/ANALYST to analyze, design, develop, implement and maintain application software for the telecommunication industry using object oriented programming, Java, C++, CORBA, Orbix 2000, Weblogic Application Server, EJB, J2EE, XML and Shell Scripting under SUN Solaris operating system in a distributed environment. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Roz L. Alford, ASAP Staffing LLC, 3885 Holcomb Bridge Rd., Norcross, GA 30092; Attn: Job SD.

SOFTWARE ENGINEER to design, develop, support and implement application software using XML, JSP, Servlets, JMS, JDBC, EJB and J2EE services, as well as open source frameworks including Struts under UNIX, Solaris and Windows NT/2000 operating systems. Design and develop trading software, and navigation and persistence frameworks using Castor, BEA Weblogic, Websphere, Oracle and MS Access. Require: M.S. degree in Computer Science/Engineering, or a closely related field with one year of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Nilay Sheth, Symbiosis Software, Inc., 950 White Run Court, Roswell, GA 30075; Attn: Job VM.

SOFTWARE ENG. 3 Design & implement complex operating software applications. M.S. Engineering, Comp Science/Math or equiv. & 2 years Sr. programming experience, must be proficient in: Java, C++, SQL & OO programming. Competitive salary. Apply to: Harland Co., Attn: Caryl James, 2939 Miller Road, Atlanta, Ga 30035.

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain inbound/outbound calling application software, including sales, marketing, survey, advocacy, and customer service applications, using Informix 4GL, Informix SQL Dynamic 4GL, DC9, QBuilder and Shell Scripting on UNIX and Linux platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered. Competitive salary offered. Apply by resume to: [illegible]@precisionbusinessstaffing.com Attn: Job AD.

Multiple positions available for computer professionals including Soft. Eng.'s, PM's, Systems Analysts, Network Analysts, Systems Admin.'s, SW Developers, Website Developers, DBA'S, etc. Locations vary. Openings now w/leader in the field including TEKsystems, Orsite, and Allegis Group. Req's degree (Bach, MS, or equiv.) in relevant field. Travel/frequent relocation possible. E.O.E. Competitive salary & benefits. Resume to: J. Brigham, Allegis Group, HR, 7301 Parkway Drive, Hanover, MD 21076. ID Job No. 04-01-2093.

How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

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(508) 820-8179

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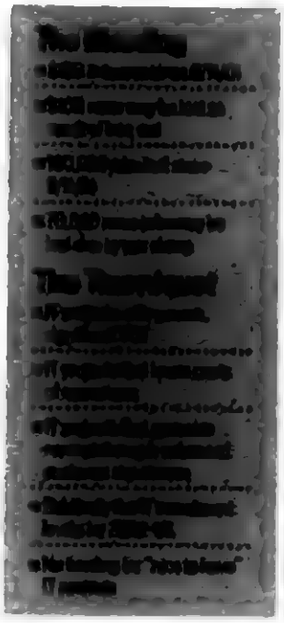
Airlines

ington International Airport at far less cost than expanding the number of ticket counters.

Monte Ford, CIO at American Airlines Inc. in Fort Worth, Texas, said IT projects that aren't focused on increased productivity, customer self-service and Internet functionality have been "slowed down" at the airline. American has also delayed



projects that "simply add granularity to systems that already exist," he said.

However, Ford said, American differs from some other airlines in its approach to ROI. "Many IT departments spend time stewing over ROI numbers that will justify their existence," he said. "Not at American. My staff and I implemented a portfolio management approach to all IT projects nearly two years ago, and it took the guesswork out of determining which projects to work on."

American's approach to portfolio management divides all IT projects into categories that are aligned with the company's business objectives. "As a result, we can quickly see which projects will have immediate impact on the business vs. projects with long-term payback," Ford said. That way, "there is no need for knee-jerk reactions to financial circumstances."

Atlanta-based Delta Air Lines Inc. hasn't backed away from new IT projects. But it has also refocused on ROI and projects that offer clear benefits to the bottom line.

"We're focusing on those projects that enhance Delta's core business processes, infrastructure and productivity and have an ROI of 12 to 18 months," said Betsy Talton, a Delta spokeswoman.

Through what Talton called "transformation" projects, Delta plans to realize nearly $1 billion in savings this year as part of a companywide profit-improvement initiative designed to save $2.5 billion by the end of 2005. Many of the changes being implemented are technology-driven, said Talton.

For example, this year Delta will deploy more than 400 self-service kiosks at 81 airports, bringing its total to more than 800 throughout its domestic system.

Gary Kelly, chief financial officer at Dallas-based Southwest Airlines Co., said that the carrier is also focusing on projects that will improve customer service and overall efficiency, but he added that overall IT budgets and head count will likely remain flat for the next two to three years.

Southwest recently introduced automated boarding passes, kiosks and automated bag tags, said Kelly.

Ron Kuhlmann, vice president of the R2A transportation management consulting unit of Unisys Corp., said many airlines are burdened by back-end systems that are more than 20 years old. And while many have expressed interest in replacing those systems with modern, open architectures, doing so would require infrastructure overhauls that none of them can afford right now, he said.

The new kiosks, wireless systems and other enhancements "are only as good as the core data stored on the legacy systems," Kuhlmann said. "Eventually, those systems will have to be replaced."

But not anytime soon. "The nice-to-have stuff is on our road map," Beery said. "But we're not going to fund those projects."

TSA Standardizes on Oracle

WASHINGTON

The Transportation Security Administration (TSA), working through its prime contractor, Unisys Corp., announced today that it has tapped Oracle Corp. to provide the software necessary to manage its infrastructure.

Unisys, the managed services provider for the TSA, has established a licensing agreement to provide the Oracle9i Database with Real Application Clusters and Oracle9i Application Server software to the TSA. The agency will also deploy Oracle CRM applications from the Oracle E-Business Suite to enhance case management and incident tracking.

Oracle Consulting will build a portal for TSA's intranet using Oracle9i Application Server Portal.

The TSA is one of the 22 federal agencies that now make up the Department of Homeland Security. The Oracle deal announced today is part of the TSA Information Technology Managed Services Program Contract, awarded to Unisys in August 2002. The contract will supply IT infrastructure support for the TSA's field offices and headquarters.

Deirdre O'Sullivan, a TSA spokeswoman, said the infrastructure management project is a massive undertaking that spans 429 commercial airports.

Steve Perkins, senior vice president of Oracle's public-sector and homeland security division, said the TSA program is a first step toward the integration of the agencies within the Department of Homeland Security.

The TSA deal follows similar Oracle-based projects at other Department of Homeland Security organizations, such as the U.S. Coast Guard, which purchased Oracle's Real Application Clusters, Application Server and security options last May.

– Dan Verton

Continued from page 1

Sun

around $2,995. The V240 can support two processors and up to 8GB of memory and features more expansion slots and disk space. Pricing starts at $3,495.

Both systems will also come with a full stack of preintegrated software that Sun hopes will be a crucial differentiator in the low-end space, according to another source close to the announcement.

That software includes the Solaris 8 operating system, Sun Open Net Environment (ONE) application server, Sun ONE Active Server Pages software, Sun ONE messaging server for 200 mailboxes and Sun ONE directory server with up to 200,000 entries, Haff said. Also included in the stack is Sun's SunScreen firewall technology and basic virtual private network support, he added.

"One of the things that Sun is certainly trying to play up is the value they are offering with this whole bundled approach," he said.

The problem is that what Sun is bundling may not always be what users want, said Eric Greenwade, a fellow at the Idaho National Engineering and Environmental Laboratory in Idaho Falls. "On the surface, it doesn't seem to offer us anything that we aren't getting out of our [Advanced Micro Devices Inc. Athlon] Linux boxes," Greenwade said.

But the integrated approach could make a lot of sense, especially for corporations that want to standardize on Sun technologies, he added.

On the storage side, meanwhile, Sun will introduce its StorEdge 6120 and StorEdge 6320 systems, which will be the first products in a new family of StorEdge 6000 Fibre Channel RAID products. The products will feature virtualization and provisioning technologies from the company's acquisition of Pirus Networks Inc. last year. The technologies are aimed at letting users better utilize their storage resources by pooling and sharing them across multiple applications.

Sun's efforts in this area are aimed at helping it close the gap with rivals in the area of storage management capabilities, said Anne Skamarock, an analyst at Enterprise Management Associates Inc. in Boulder, Colo. "Sun is a latecomer in this space, but they are doing a really nice job of catching up," she said.

Sun will also announce price cuts for several of its low-end hardware products, sources said. Prices for the Sun Fire 280R, for instance, are being rolled back by up to 40%. Also included in the price cuts are Sun's Sun Blade 2000 workstations.

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IT Plans: Stop or Go?

JUST WHEN WE THOUGHT the budget purse strings for IT projects were beginning to loosen, word comes that they're about to snap tight again. Last week, Morgan Stanley chief economist Stephen Roach told his clients that he now predicts a worldwide recession in 2003, triggered by war, the rapid spread of the "mystery virus" SARS, uncertainty and economic imbalances.

Or maybe it won't happen. Other economists figure the chance of a new recession is still less than 50%, especially if a quick end to the war in Iraq generates optimism that jump-starts the economy.

Economic indicators in February and March, even before shooting started, were pretty dismal. Consumer confidence plunged, manufacturing shrank, and payrolls were slashed. That's showing up in IT hiring plans as well — they've shrunk by 26% since last fall, according to a survey by Dice Inc. and the Information Technology Association of America (see story, page 9).

On the other hand, we've recently been hearing that CEOs are starting to understand that it's time to invest in IT again. Projects that have been on hold are being given a green light. We're finally getting a chance to show once more how IT can help grow the business.

So which is it — a new recession or the start of a robust recovery? Time to restart those projects, or time to batten down the hatches for a rerun of 2002?

Sure, you'd love to be optimistic and just decide things *will* get better. But you don't know that. And you won't know until it's too late to change course.

You need to prepare for both possibilities.

If you're taking projects out of mothballs, you've probably already begun. You're looking at how well those projects you originally planned to do last year still match up with your business needs and technology options.

After a year or so on the shelf, some projects no longer make business or technical sense. Others will need a complete overhaul because business processes have changed, better technology has arrived, or products you were planning to use no longer exist. Still others may have changed priority, lost their sponsorship because of political shifts or layoffs, or simply dropped off the radar of people who once backed them.

So while you're figuring out how to refactor these projects for the situation you're in today, take the next step: Refactor them for the possibility you'll have to mothball them again.

Which projects look like they'll produce payback fastest? Which ones have backers too powerful to buck? These are the projects you may not have to suspend, especially if they can be rolled out before a downturn hits.

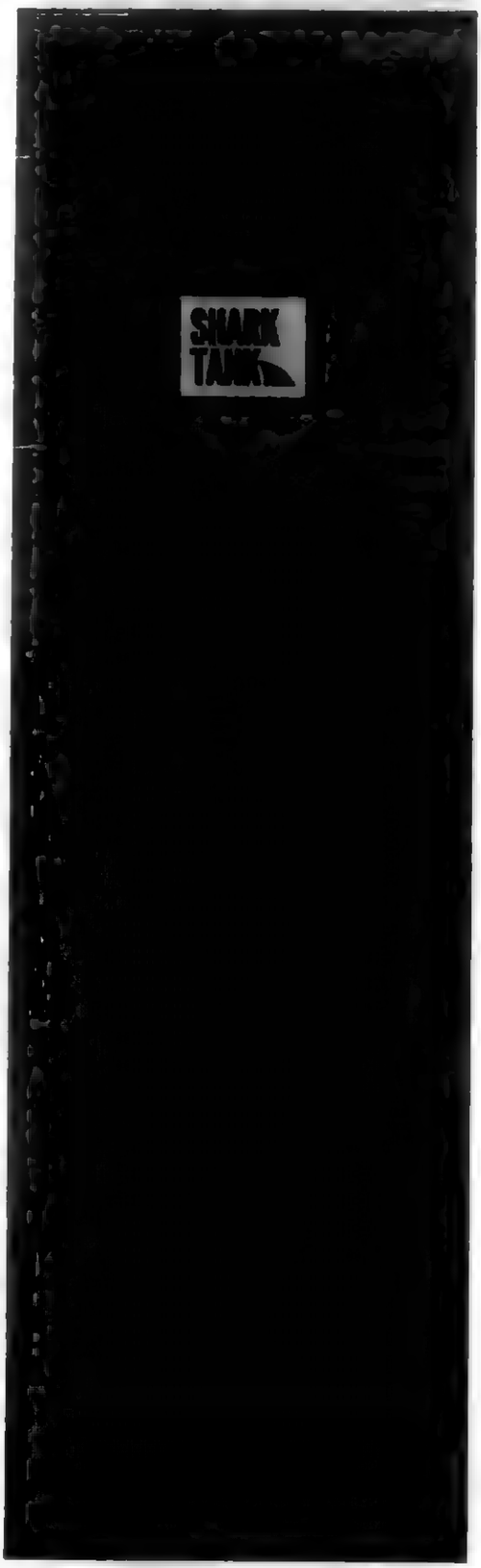
Which projects will use stable, mature technology? Which ones solve classic business problems for your industry? Which ones have sponsorship from political survivors? These are the ones you likely won't have to junk if they're stopped and restarted.

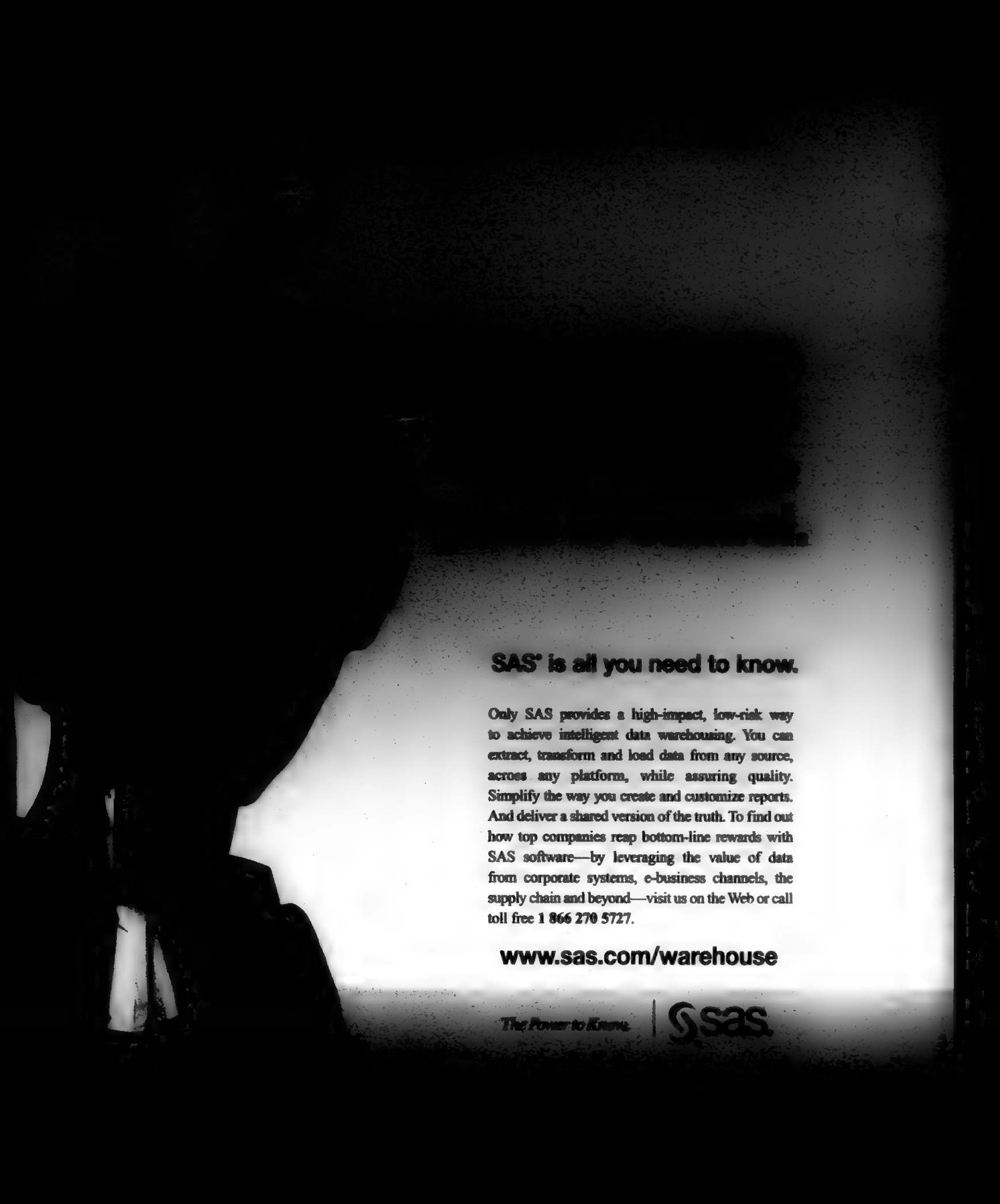
For the rest, which parts of the projects are the least volatile? Which are the most flexible or reusable? Sketch out your project plans so these parts get done first. They have the best chance of surviving another year if things come to a screeching halt.

These may not be the projects you'd like to build, or the ones you think are most important. This may not be the way you'd prefer to do those projects. But this is how you'll be least likely to have wasted work if the economy heads south and your projects have to go back into the deep freeze.

Don't let your optimism get the better of you. Build contingency plans into the projects you're restarting — with an eye toward the real possibility of another recession this year.

That way, whether your CEO comes to you with a bigger pot of money or slashes your budget to shreds, you'll be ready. ◗

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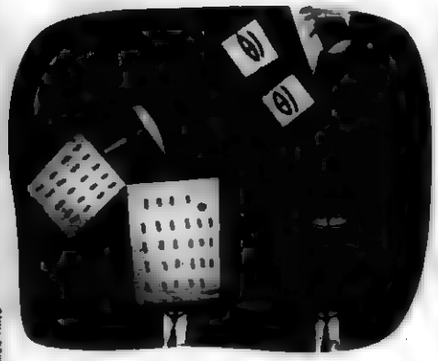

JAMES YANG

SPECIAL REPORT

Business-intelligence tools can uncover valuable insights about your business — even predict what customers will do next. But be careful that those data jewels don't fall into the wrong hands. **Stories begin on page 25.**

ONLINE EXCLUSIVE

Management dashboards move down into the cubicles:

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IBM Begins to Plot Integration Of Rational Tools

Says it's working on a road map for the $2.1B acquisition; products may arrive later this year

BY CAROL SLIWA
NEW ORLEANS

Developers hoping to hear IBM convey definitive plans for its new Rational tool line may have been disappointed at last week's developerWorks Live conference here.

But through interviews, IBM executives began to provide more details about its plans for Rational Software Corp., which it acquired for $2.1 billion in February.

Steve Mills, senior vice president of IBM's Software Group, said his application integration and middleware unit is working with the Rational team on a road map. Customers can expect announcements and possibly some integrated product deliveries beginning later this year, with more expansive product rollouts starting next year, Mills said.

IBM Software Group's Steve Mills scans the competitive landscape

Several users said the integration of the companies' product lines, particularly the Rational XDE modeling tool that some of them already use and IBM's WebSphere Studio Application Developer, will be of key importance to them.

"We're pretty happy with WebSphere Studio Application Developer, but if they could add the [Rational] modeling pieces, that's a plus," said

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Finance Law May Force IT System Overhauls

Companies brace for full impact of new federal reporting regs

BY GARY H. ANTHES

The Sarbanes-Oxley Act, the U.S. government's attempt to bring honesty, clarity and speed to corporate financial reporting, may ultimately require costly overhauls of budgeting, reporting and decision-support systems.

But much remains unclear about the potential impact of the law, which was passed last summer. Even companies whose systems appear to comply with the act are uncertain as to exactly what some provisions mean and when they must comply with the requirements, according to recent interviews with IT and business executives.

The uncertainty stems from the fact that the Securities and Exchange Commission is still fleshing out the details of the law through a series of proposed rules. Moreover, the SEC has delegated some regulatory tasks to other organizations, such as stock exchanges, and they have yet to act.

But the combined weight of Sarbanes-Oxley and other new regulations is expected to result in major systems changes

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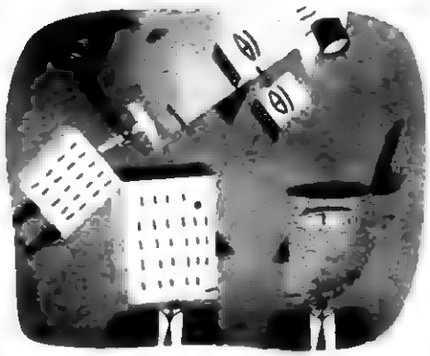

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INSIDE: ONE ON ONE

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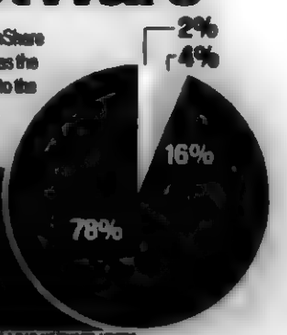
NetWare

SPECIAL NEWS REPORT

When Novell rolls out the public beta of NetWare 6.5 at its BrainShare user conference this week, the NetWare faithful will cheer. But as the once-dominant network operating system continues to slide into the OS periphery, users need to consider how far it is from oblivion.

MATT HAMBLEN REPORTS ON PAGE 8.



SOURCE: ONLINE COMPUTERWORLD SURVEY OF 1,043 NETWARE USERS

IN DENIAL?

NetWare loyalists refuse to believe the NOS faces its demise.

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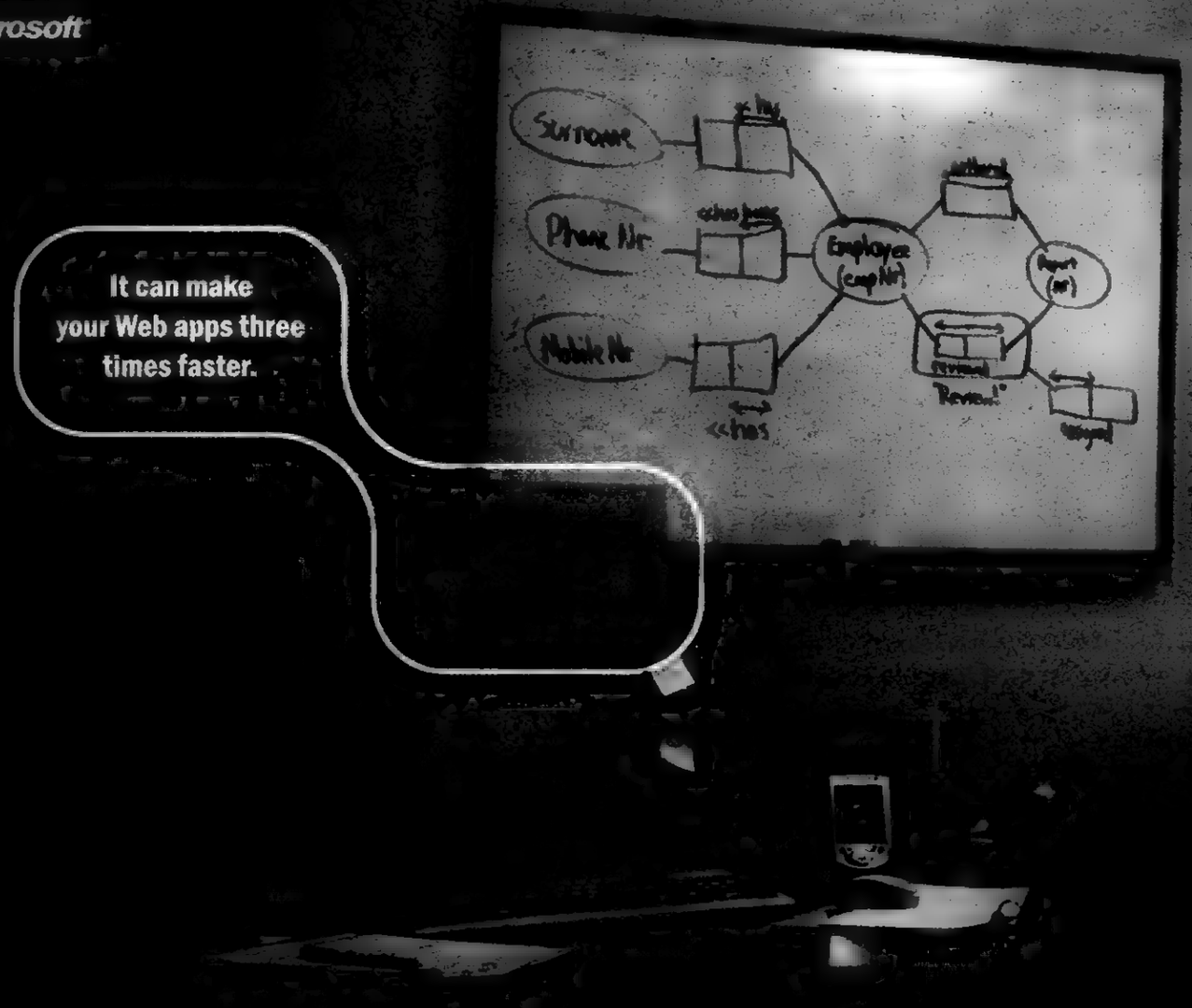

Visual Studio .NET can help you with (nearly) every part of your job. Your Web applications just got faster. ASP.NET, the Web application environment in Visual Studio .NET, offers dramatically improved performance over classic ASP. Here's how: **1 Compiled Page Execution** ASP.NET pages are compiled once and cached in memory instead of being interpreted each time the page is requested. **2 Rich Output Caching** ASP.NET's caching features quickly retrieve database queries, entire pages or parts of pages, and objects from memory for improved app performance. **3 Crash Protection** Web applications can be [illegible]

It can't tell you
whether this is meatloaf
or lasagna.
down. Duh. So ASP.NET automatically detects and recovers from errors like deadlocks so
your application is always available. And now the newly released Visual Studio .NET 2003 is
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KNOWLEDGE CENTER DATA MANAGEMENT

Mining for Gems

Many executives seem content to manage their businesses by gut feelings, even though valuable truths about their customers, costs and profits are sitting unexplored in their data warehouses. This report will help you discover and protect your company's most valuable data assets.

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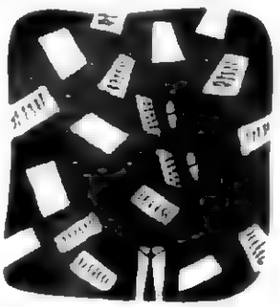

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44 QuickStudy: A primer on data models, the organization of a database that gives meaning and utility to the data inside it.

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52 The Next Chapter: Asked to predict the future of business intelligence, these pundits say that dashboards will be hot, e-mail will be mined for business insights, and middle managers may be out of work. **ONLINE:** Industry visionaries say the future includes, among other things, expectations of instant information. QuickLink 37054

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Management Dashboards Becoming Mainstream
Q&A: Decision-support pioneer John Kopcke says management dashboards are moving from the executive suite down to front-line managers who need specific information.
QuickLink 37101

What Web Services Can Do For Business Intelligence
OPINION: Web services promise to make the job of integrating business-intelligence systems easier, but they won't significantly reduce the overall IT investment needed to build such a system, says one CIO.
QuickLink 37104

Open-Source Database Buying Suggestions
OPINION: From the superspeedy to the feature-rich, several open-source databases are equipped to meet your needs, says columnist Russell C. Pavlicek.
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AT DEADLINE

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NetApp to Release Nonrewritable Array

Network Appliance this week is expected to announce an upgrade of its NearStore disk array that addresses data-retention compliance issues and is squarely aimed at grabbing sales away from EMC's Centera, according to industry sources.

A spokeswoman for Sunnyvale, Calif.-based NetApp confirmed that it will introduce a new product this week but wouldn't disclose any details.

The sources said NetApp will unveil technology called SnapLock, which will let users partition disk space on NearStore file servers as nonrewritable capacity. Like Centera, SnapLock uses ATA disk drives to store fixed data such as e-mail messages, X-rays and document images. But the sources added that NetApp won't mimic EMC's approach of assigning a different identifier to each record.

One analyst said that SnapLock will probably sell well in industries such as health care and defense, because it's easy to deploy on existing NearStore arrays. "It does provide the flexibility of having some of the file-server [disk space] locked down and some of it not locked down," said the analyst, who asked not to be identified.

But he added that SnapLock isn't expected to fully meet the SEC's rules on data retention, which require financial services firms to ensure that electronic documents are indexed for retrieval purposes and can be verified as authentic originals.

– Lucas Mearian

NetWare Stalwarts Remain Loyal Despite Dwindling Market Share

Most users want to stay with NOS 'as long as possible'

BY MATT HAMBLEN

THE THOUSANDS of NetWare faithful meeting this week at Novell Inc.'s annual BrainShare user conference in Salt Lake City will see the latest version of the venerable network operating system as it's released for public beta. And they will no doubt cheer its arrival.

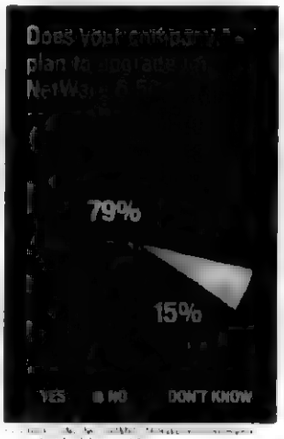
Seventy-nine percent of NetWare users want to upgrade to NetWare 6.5, according to an online poll of 1,042 NetWare users conducted by *Computerworld* last week. And a nearly equal percentage said they expect to stay with NetWare for "as long as possible," despite projections that show NetWare continuing to lose share in the server operating system market.

Many users said that they want a more consolidated, easier-to-use interface for NetWare and that they wish Novell would finally get its marketing act together. But they continued to overwhelmingly endorse the operating system for its reliability and its lower total cost of ownership compared with competitors' products, the poll found.

"I'd be hurting, personally, if NetWare declines in the next two years," said Doug Boval, systems engineer at St. Vincent Hospital in Indianapolis. "NetWare is awesome, but two to five years from now, it could be snuffed out . . . with more applications taken off NetWare and moved to Windows or elsewhere."

Stephen Millington, technology manager at North Carolina Mutual Life Insurance Co. in Durham, said Windows isn't as dependable as NetWare for building a networking infrastructure, and therefore NetWare deserves to survive. "I think NetWare will be around for a while, partly because there's no one shoe that fits everybody's needs," Millington said.

Novell officials can't deny the decline but have stressed that they are transforming NetWare from its traditional role as a network operating system to a set of services, such as a continuous backup and server aggregation. They have also noted that Novell isn't solely reliant on NetWare, which accounted for $361 million, or 32%, of the company's 2002 revenue.



"It's no secret that a NetWare market decline is happening, but we're taking measures to resolve that [by] adding a broad range of technologies that have not been there before," said Tracy Thayne, director of solutions marketing at Novell.

Those technologies include open-source software support and the ability to run Java applications natively on a J2EE server, according to Thayne.

A February forecast by Gartner Inc. projected that the 4% of global server operating system sales that Novell held in 2002 will decline to 1.3% by 2006. Novell introduced NetWare in 1983, long before Windows ran on servers. And by the early 1990s, NetWare had captured 70% of the network operating system market.

Despite its shrinking share, there are still 90 million licensed NetWare users on 4 million servers worldwide. And that base is fiercely loyal.

Brad Staupp, a senior support analyst at Johnson County Community College in Overland Park, Kan., has NetWare running predominantly as a file and print server for 30,000 students and employees. "I thank God every day that we use NetWare," because of its near-immunity to persistent viruses, he said.

"Most definitely NetWare will be around in three years," Staupp said, if only because so many large corporations rely heavily upon it. But he speculated that after that, NetWare could be integrated with products from another vendor, such as Sun Microsystems Inc.

"I have confidence in Novell to put money into innovations and to keep NetWare alive," Staupp said.

Boval and Staupp are testing NetWare 6.5 and seeing many improvements over 6.0, including support for more third-party applications and for open-source software useful to their development efforts. But Staupp said 6.5 still needs a single interface running on a single console.

Marketing Missteps

The *Computerworld* survey found that marketing is the No. 1 area NetWare users want Novell to focus on. At last year's BrainShare conference, they roundly criticized the company for its failure to effectively market NetWare.

The company listened and in January launched a $30 million campaign of TV, print and online ads, the largest in its history. The target audience is C-level executives rather than front-line IT workers, who typically don't need convincing, Thayne said.

The effort to target senior executives is key, many users said. The University of Iowa expects to migrate from NetWare to Windows servers within two years. But according to systems administrator Kevin Keyser, that decision was made by senior management, not by the people who know and use the product.

"So far, nobody who is a user or works at the administrative level is in a hurry to get off NetWare," Keyser said. "I hate Windows, personally, since we spend our lives nursing it with daily restarts.

"Novell needs to get the mind share of CIOs and CEOs," Keyser said, "just as Microsoft has done by flying top executives to events to sell them."

Research manager Mari Keefe conducted the research for this report.

WISH LIST

Top 10 things NetWare users want from Novell:

1. Improve marketing, including to top execs
2. Improve administrative/management tools
3. Expand Web features
4. Support open source, including Linux
5. Improve cross-platform integration
6. Clarify upgrade path
7. Expand directory services
8. Maintain stability/reliability
9. Expand security features
10. Improve installation/ease of use

Begin Looking at Alternatives to NetWare, Analysts Advise

With NetWare experiencing a steady decline in market share, IT managers should face the music and consider an alternative network operating system strategy over the next two to three years, some analysts advise.

"NetWare still has legs, but the decision point about keeping it is two years out," said Earl Perkins, an analyst at Meta Group Inc. in Stamford, Conn. According to Perkins, "no strategy from Novell" will bring in new NetWare customers in appreciable numbers. He said he expects the company to increase annual support costs for the existing user base to make up for the lack of new customers, putting more pressure on users to find alternatives.

Gartner analyst John Enck advises users to wait and see what Novell has done with NetWare two to three years from now before jumping ship. If a company does decide to migrate away from NetWare, he suggests that it take one of two paths. One is to adopt Windows for file and print functions, especially if a shop already has a Microsoft infrastructure. Otherwise, a shop should consider a combination of network-attached storage (NAS) and print devices, with the NAS devices supporting Windows, Unix or Macintosh clients.

Migrating away from NetWare doesn't mean dropping other Novell products, such as ZENworks, eDirectory and DirXML, Enck added, noting that these work well in other environments.

But not everyone is convinced that the writing is on the wall.

James Taylor, a NetWare consultant at East Cobb Group Inc. in Marietta, Ga., said he believes Novell "will keep NetWare going" for five years at least, so users need not worry about making more immediate migration plans.

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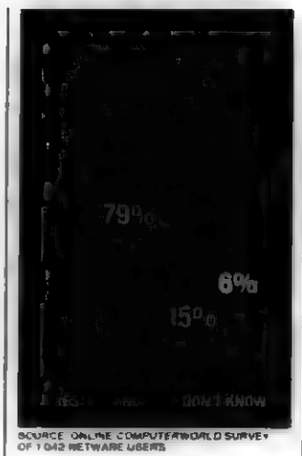

SOURCE: ONLINE COMPUTERWORLD SURVEY OF 1,042 NETWARE USERS

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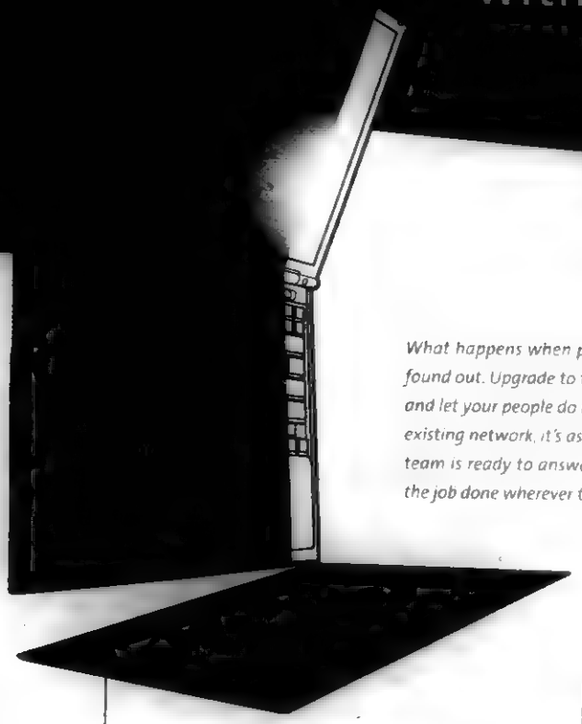

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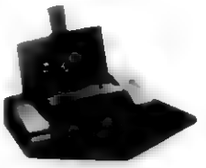

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BRIEFS

Nasdaq Moves to Drop i2's Stock

Software vender i2 Technologies Inc. said it received a stock delisting notice from Nasdaq Stock Market Inc. The notice came a week after Nasdaq halted the trading of i2's stock following disclosures that the Dallas-based company was being investigated by the Securities and Exchange Commission and would delay the filing of its financial statements for last year. i2 said it will appeal the delisting.

Microsoft Warns of Java Code Flaw

Microsoft Corp. warned of a security flaw in its Java virtual machine software that could be used by attackers to run malicious code on Windows systems. It gave the vulnerability a "critical" rating and urged users to install a new release of the virtual machine. Microsoft also detailed a less severe flaw in its Proxy Server 2.0 and Internet Security and Acceleration Server 2000 products.

Vendors Form New IT Security Group

Microsoft, Advanced Micro Devices Inc., Hewlett-Packard Co., IBM and Intel Corp. said they have formed a group to develop a set of proposed security and data privacy standards. The Portland, Ore.-based Trusted Computing Group will take the place of the Trusted Computing Platform Alliance.

Short Takes

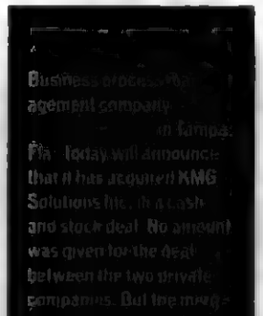
ANITA BORG, who founded the Palo Alto, Calif.-based Institute for Women and Technology in 1997, died of brain cancer last week at the age of 54. . . . Raleigh, N.C.-based RED HAT INC. announced open-source content management and portal server tools that support its Linux release.

MARK HALL ▪ ON THE MARK

Politics Bedevil Web Services Standards . . .

. . . process, and "it's users who suffer from the fracture," laments Dave Chappell, VP and chief technology evangelist at Sonic Software Corp., a Bedford, Mass.-based subsidiary of Progress Software Corp. He also serves on the OASIS Web Services Reliability (WSR) committee that's drawing up a specification for reliable messaging, **debating the right way to, say, receive acknowledgments** in a SOAP message exchange. All to the good, except a fearsome foursome of Microsoft Corp., IBM, BEA Systems Inc. and Tibco Software Inc. back something called Web Services ReliableMessaging. And, no surprise here, there are conflicts between the two. Chappell says the quarrelsome quartet is welcome to join the OASIS effort. Also, he's been wooed by Microsoft to consider the virtues of its preferences. But he grumbles, "There are some corporate egos about who's first and who's driving the standard." No doubt the **egos of Oracle Corp. and Sun Microsystems Inc.**, who have reps on Chappell's committee, flare from time to time.

▪ As it happens, Sonic Enterprise Service Bus 5.0 (formerly Sonic XQ) ships on April 28. ESB 5.0 uses a "services container" approach to Web services-based integration. It lets developers **"plug" applications into a virtual bus** for services such as data transformation and intelligent routing based on content. The 5.0 release will include Stylist Studio for XML developers and Orchestration Server, which helps you design business-process management into a Web services application. ESB 5.0 is the first major element of the Sonic Business Integration Suite, the rest of which, such as an XML Server, will appear in the next few months. ▪ The **federated approach to user authentication** gets a boost tomorrow when Secure Data In Motion Inc. (but far better known, according to marketing VP Tanya Candia, as Sigaba — you figure it out) releases Sigaba Secure Email, which complies with the Liberty Alliance 1.1 specification. The spec calls for one partner company to authenticate its own users and then pass an "assertion" of that authentication to its partner, relieving the user from logging onto the other system. The San Mateo, Calif.-based firm on April 30 will release Sigaba Secure Instant Messaging, which uses the same federated authentication technology. ▪ **Remember the Ricochet?** It was a 1990s VC-funded brainchild for booking laptop users to a "national" wireless network. (Since when did half a dozen cities constitute the whole nation?) When it worked, it was wonderful, but slow. Well, corporate Windows and Mac OS X laptop users get another wireless WAN technology starting today when Venturi Wireless Inc. in Sunnyvale, Calif., releases the Venturi 100E. The device sits behind the company firewall and links users to a carrier, such as Verizon Wireless, which will be outfitted with the new Venturi 20, also ready today. The 100E has been optimized to handle bandwidth-hoggy Microsoft Exchange as well as GIFs, JPEGs and other commonly sent files. Venturi does some standard tricks with compression and caching, but **what's clever** is that its Venturi Transport Protocol **(VTP) works in concert with or instead of TCP/IP**. VTP is designed to reduce wireless interference and handles missed bits differently than TCP/IP. The 100E costs $17,900 and supports up to 100 users.



▪ **Add BSM to your acronym memory lobe.** You'll be hearing lots more about it. That's no BS, man. Business service management is the step beyond managed frameworks, such as Unicenter and Tivoli. BSM tools tie online business activity — say, transaction volume on an e-commerce site — to the network and systems administrator's trouble-ticket priorities. If it's important to the business and it depends on IT systems, you need to design your monitoring and management technology to that end and **not just "instrument" everything on your network and computers willy-nilly**, BSMers say. BMC Software Inc.'s recent acquisition of IT Masters International, its ownership of Remedy and its own Patrol line give it a breadth of technologies beyond most of its BSM rivals. Plus, the Houston company last week announced that it will package these systems to forge "the direct linkage of IT resources and management solutions with the goals of the overall business." Sounds good. But Helen Donnelly, VP of marketing at Managed Objects Inc. in McLean, Va., objects to ceding them any ground and **dismisses her competitor's ability to bolt together these disparate products.** Donnelly says Formula 3.1, her company's product, uses a less-is-more approach, putting BSM agents in as few places as possible. She argues that competing products give IT too much information. "You can't manage from a million points of light," she says. Indeed. Hard to connect all the dots. ◗

Sun Expands Availability of Solaris Security

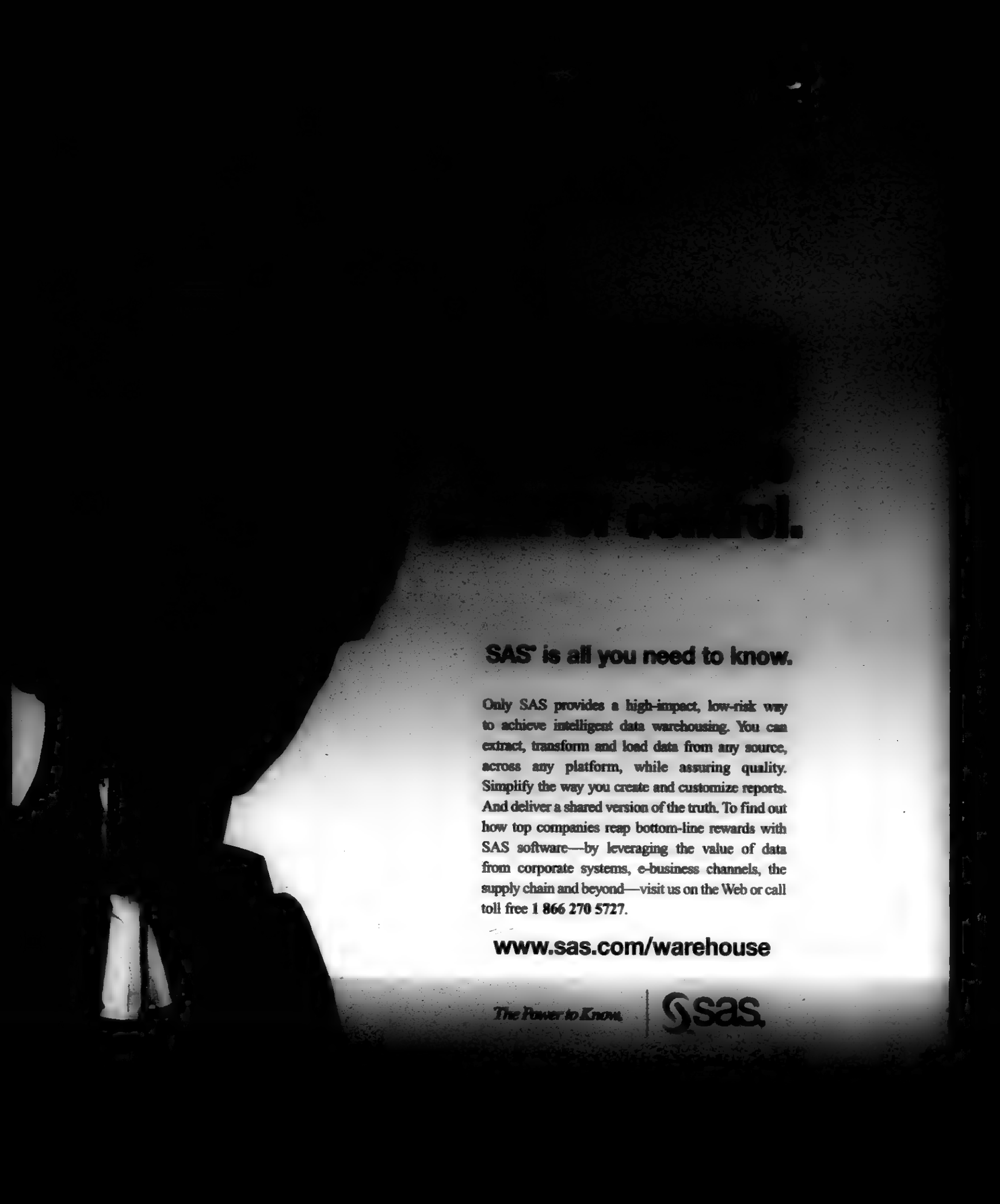
BY PATRICK THIBODEAU
SAN FRANCISCO

Sun Microsystems Inc. said last week that it will offer commercial customers a version of its Solaris operating system originally developed for military and government intelligence use. Sun intends to include the technology in its next version of Solaris, due in mid-2004.

The security technology, called Trusted Solaris, provides role-based access control at the root, dividing or limiting root access by user. It also creates audit trails, company officials said. The technology supports both Sparc and Intel-based systems.

Although the commercial availability of Trusted Solaris isn't new, the company hasn't marketed it broadly and interest has largely been limited to financial services companies. Beginning this spring, Sun intends to market an offering that includes firewalls and other access controls. Pricing will start at $999 for a standard desktop edition.

Because Trusted Solaris provides access control at the root, it allows companies to separate systems administration from operations, at the most fundamental level of the operating system. "Just because you are the system administrator and you have root access, I don't want to give you access to the payroll database," said Jonathan Schwartz, executive vice president of Sun's software products group. ◗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BRIEFS

Microsoft Supports AMD's 64-bit Chips

Microsoft Corp. said it's developing native 64-bit versions of Windows XP and Windows Server 2003 that will support systems based on Advanced Micro Devices Inc.'s upcoming Opteron and Athlon 64 microprocessors. The 64-bit operating system releases are being designed for use on servers and high-end desktops, Microsoft said.

Siebel Says Q1 Was Below Plan . . .

Siebel Systems Inc. joined the list of software vendors warning that their first-quarter financial results will be lower than expected. San Mateo, Calif.-based Siebel said it now expects to report a profit of up to $6 million on revenue of about $335 million. The company said it was on track to meet its sales goals until "a few" purchases were postponed late in the quarter.

. . . But EMC, NCR Top Their Goals

On the flip side, EMC Corp. and NCR Corp. both said their first-quarter numbers will exceed projections. Hopkinton, Mass.-based EMC said its revenue will be within the predicted range of $1.35 billion to $1.4 billion, but it noted that profits should be slightly better than expected. Dayton, Ohio-based NCR said it will report a smaller-than-expected loss on revenue of about $1.23 billion.

Short Takes

ELECTRONIC DATA SYSTEMS CORP. in Plano, Texas, said it won a contract to take over the management of most IT operations for the city of Anaheim, Calif. Terms of the deal weren't disclosed. . . . GATEWAY INC. in Poway, Calif., introduced a pair of rack-mounted Windows servers based on Intel Corp.'s Xeon chips.

Intrusion Prevention Touted Over Detection

Products promise proactive security defense but still need time to mature

BY JAIKUMAR VIJAYAN

THIS WEEK'S RSA Conference 2003 in San Francisco will feature a range of security technologies meant to let corporations more proactively defend themselves against a growing array of cyberthreats.

Unlike most traditional firewall and intrusion-detection products, which passively detect problems, the new tools use rules, usage models and correlation engines to enforce authorized network behavior. In some cases, these tools automatically prevent unauthorized or malicious tasks from executing.

But many of the technologies are still in their infancy, are largely untested in enterprise environments and may not deliver all of the promised functionality just yet, users and analysts cautioned.

Rules-based Protection

One of the vendors touting such products at this week's conference, sponsored by Bedford, Mass.-based RSA Security Inc., is Entercept Security Technologies Inc. The San Jose-based company will release an updated version of a host-based intrusion-prevention software tool that uses virus signature information and behavioral rules to intercept suspicious activity before it accesses an application.

For example, if a rule states that only Web server processes can access Web files, all attempts by other processes to do so will be automatically blocked by Entercept software, company officials said.

RSA announced on April 4 that it would acquire Entercept for $120 million in cash, and on April 1 it said it would buy San Jose-based Intruvert Networks Inc. for $100 million [QuickLink 37579].

Entercept's technology recently helped Arlington County, Va., protect its core databases from being corrupted by the Slammer worm and has contributed to a more proactive security posture, said Vivek Kundra, the county's director of infrastructure technologies.

"Historically, we would learn of an attack only after it happened, and we would react to it. Now we are in a position to prevent some of it as well," he said.

Also this week, Teros Inc. in Sunnyvale, Calif., will add a new module called SafeIdentity to its Teros 100 Application Protection System. Teros 100 is an "in-line" hardware device that sits directly on the network in front of a Web application server and inspects every packet going in and out of the server in real time.

Like other intrusion-prevention products, Teros' blocks anything that deviates from predetermined norms for a particular server or application. While Teros claims that its product can determine what those norms should be, companies that are unwilling to leave that decision to the technology can specify them.

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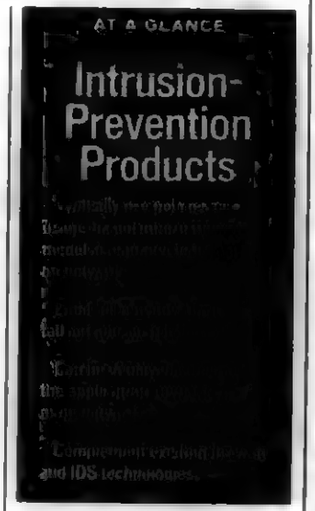


Baker Hill Corp., a Carmel, Ind.-based provider of application services for the banking industry, has placed such "default deny" application firewalls in front of several Microsoft Internet Information Servers, said Eric Beasley, a senior network administrator at Baker Hill.

Among other benefits, the technology has eliminated the need for Baker Hill to immediately patch its servers every time a Microsoft vulnerability is discovered, Beasley said. Since the Teros firewall is designed to allow only a very limited set of activities on the servers it protects, any malicious activities triggered by viruses like Slammer are automatically stopped, he said.

Traditional firewall technologies aren't equipped to stop attacks that come through commonly used ports such as Port 80, said Raj Dhingra, a vice president at Intruvert, a provider of intrusion-detection systems (IDS).

The company this week will announce IntruShield 1.5, a hardware appliance that sits on corporate networks and sifts through the contents of each packet looking for problems. The technology is able to modify, drop or block individual packets or entire sessions if needed, company officials said. It can also modify firewall policies while an attack is happening or provide real-time alerts for manual follow-up, they said.

The product has resulted in more accurate and real-time reporting of vulnerabilities, said Andrew Berkuta, manager of network and physical security at HomeBanc Mortgage Corp., an Atlanta-based mortgage lender.

"Originally we were more in the 'detect and tell us' mode," said Berkuta. IntruShield "understands the traffic flow and gets into more of a dynamic prevention" mode, he said.

But Kundra and other users offered several caveats.

For one thing, the tools have to mature so that they're able to consistently block malicious activity without interfering with legitimate traffic. Currently, companies often have to fine-tune and extensively customize such products to prevent that problem, Kundra said.

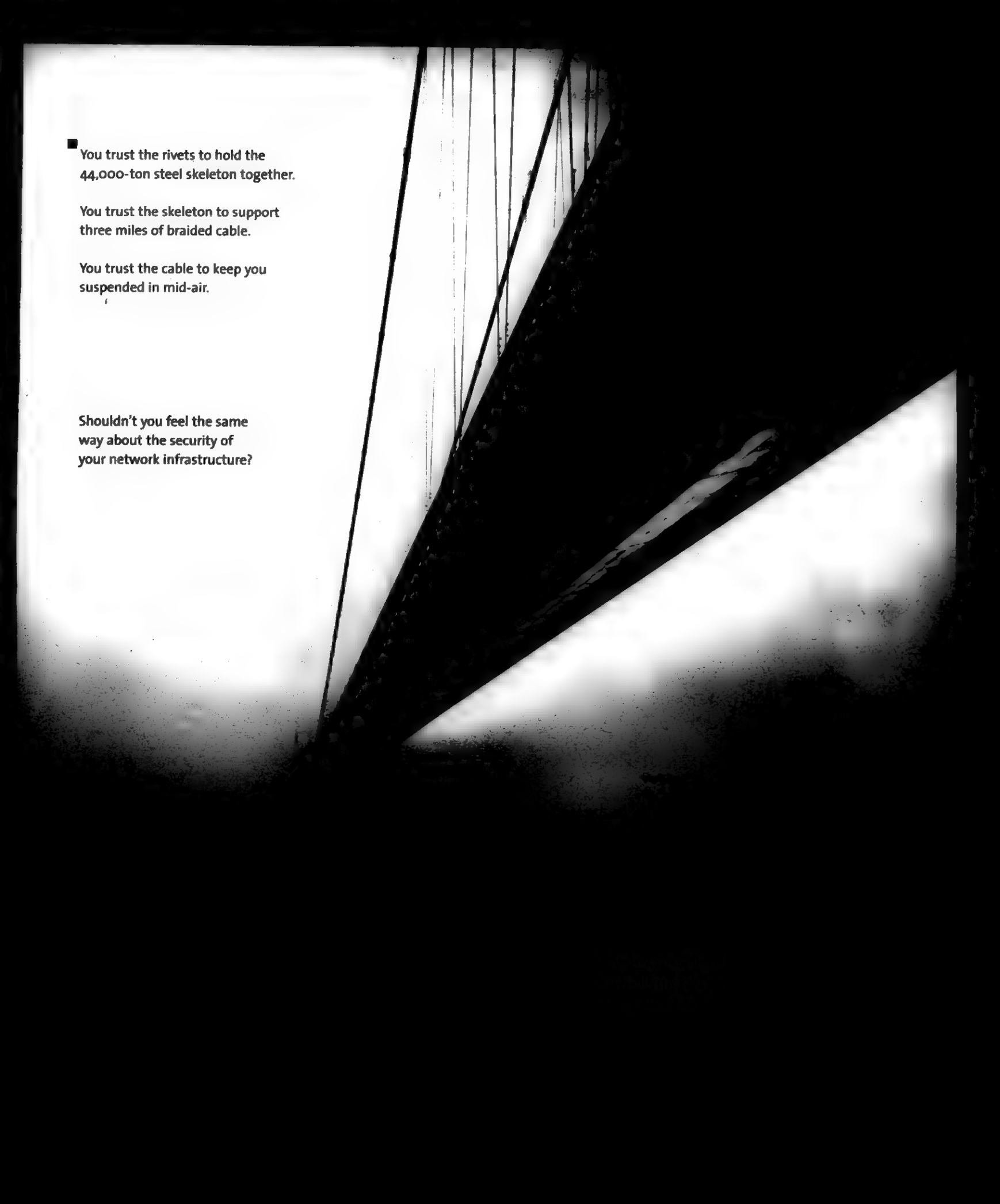
IDS devices have long been notorious for generating false positives, and there's little to show that the new tools are much better, said Ted Julian, president of Arbor Networks Inc., a vendor of network anomaly detection products in Lexington, Mass. For automatic prevention to become a reality, "the need for better filtering and detection methods is patently obvious," he said.

Such devices could also be single points of failure for companies that rely too heavily on them. Baker Hill, for instance, is investing in load-balancing technologies to spread the load flowing into its Teros systems. The company plans to install standby servers in case its primary systems fail, Beasley said.

COMPLIANCE TOOLS

New security management software aims to make it easier for companies to ensure compliance with policies:
QuickLink 37707

Security Knowledge Center: For more on this topic, visit our Web site:
QuickLink k1600
www.computerworld.com



You trust the rivets to hold the 44,000-ton steel skeleton together.

You trust the skeleton to support three miles of braided cable.

You trust the cable to keep you suspended in mid-air.

Shouldn't you feel the same way about the security of your network infrastructure?

Supply Chain Vendors Vying to Provide More Inventory Visibility

Upgraded apps will offer real-time insights, automated response tools

BY MARC L. SONGINI

Rival vendors of supply chain management software are racing to develop tools that give users additional collaboration capabilities and real-time visibility of product inventory and demand levels.

For instance, Manugistics Group Inc. later this year plans to roll out an applications upgrade that will use Web services hooks to create a "glass pipeline" into supply chains for users, said Lori Mitchell-Keller, senior vice president of market strategy at the Rockville, Md.-based company.

The software will take real-time feeds from Manugistics' supply chain planning and scheduling tools, as well as from third-party ERP systems and other business applications, Mitchell-Keller said. It will also let users set rules for automated resolution of unforeseen supply chain problems and provide additional forecasting, scheduling and collaboration capabilities.

Manugistics expects to beta-test the software in August and release it by September as Version 7.1 of its applications, Mitchell-Keller said.

What's New?

Chain Visibility:

BOTH MANUGISTICS AND BAAN are developing software that can automatically respond to supply chain problems.

SAP plans to use its NetWeaver integration technology to connect supply chain systems to other applications.

i2 has built new data extraction, event management and information workflow design tools into its software.

The upcoming applications sound similar to dashboard-style products that other vendors like SAP AG and PeopleSoft Inc. are rolling out, said Jeri Dunn, CIO at Tyson Foods Inc. in Springdale, Ark.

Tyson is installing Manugistics' supply chain planning software in its chicken-processing businesses. But Dunn said she has yet to evaluate the features of Version 7.1.

Manugistics isn't alone in targeting increased collaboration and supply chain visibility. SAP in the third quarter plans to beef up the real-time visibility capabilities in its supply chain applications by shipping an upgrade that exploits its new NetWeaver integration technology, said Christian Knoll, the company's global vice president of supply chain management products.

Knoll said NetWeaver will let both SAP and third-party software more easily share data to connect product lifecycle management, CRM and other corporate systems to supply chain applications.

Dallas-based i2 Technologies Inc. last month released an i2 Six upgrade that includes added extraction capabilities for pulling data out of various systems, as well as enhanced event management capabilities designed to give users real-time views of their supply chains [QuickLink 37218].

In addition, Barneveldt, Netherlands-based Baan Co. said it's prototyping an advanced planning tool that can automate responses to production scheduling snafus or other problems. Baan is also developing another application that will let supply chain managers execute a collaborative process in real time.

Almost every supply chain vendor is starting to offer inventory monitoring capabilities and other real-time visibility functions, said Karen Peterson, an analyst at Gartner Inc. in Stamford, Conn. But most of the products are still in the initial stages of maturity, Peterson said.

Lawson Adds Outsourcing Services – With Help

Vendor relies on partners to host, manage systems

BY MARC L. SONGINI

Lawson Software Inc., which is trying to rebound from three straight quarterly losses, hopes to entice new users by working with two other companies to offer outsourcing services for its business applications.

APPLICATIONS

Lawson will announce the plan this week at its annual user conference in Orlando, where the company also plans to showcase the latest additions to its software.

Sam Adams, senior vice president of global sales at St. Paul, Minn.-based Lawson, said the move to offer hosted applications is largely targeted at midsize and large users.

New Outsourcer

Lawson will handle sales and then hand off users to Velocity Outsourcing, a new company set up by Eisner Technology Solutions LLC, a New York-based systems integrator and Lawson business partner.

Velocity will manage the applications and be responsible for meeting the requirements in service-level agreements with users, Adams said. The software will run on systems at Verizon Information Technologies Inc. in Tampa, Fla.

Lawson could use a boost in sales. The company posted a $711,000 net loss on revenue of $78.4 million for its third quarter, which ended Feb. 28. The revenue total was down 34% from $118 million in the same quarter a year ago.

Adams downplayed Lawson's fiscal woes, noting that the applications market as a whole is struggling and that the company has $250 million in reserve.

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Crystal Decisions Tightens Analysis Software Bundle

BY MARC L. SONGINI

Crystal Decisions Inc. last week announced an upgraded set of its reporting and data analysis software that's more tightly integrated than earlier releases were.

The Palo Alto, Calif.-based company said its Crystal Enterprise 9 Premium offering expands on a version of the software bundle that was announced in January. The new package includes hyperlinks to make it easier for end users to send data back and forth between the different applications, said James Church, a group product manager at Crystal Decisions.

The company also added self-help wizard technology and new packaging that should result in lower prices for users, according to Church. But he declined to give any baseline cost savings provided by the bundle, which starts at $75,000 per processor.

Mark Smith, an analyst at Ventana Research Inc. in Belmont, Calif., said the premium version will let end users do more ad hoc querying and create more sophisticated reports than they could before.

Appetizing Features

Charles Castleberry, assistant director of architecture at Los Angeles-based Fox Filmed Entertainment, a subsidiary of Fox Entertainment Group Inc., said he's eager for some of the new bundle's capabilities.

"It will certainly make it easier for us to expand into the analysis features of the Crystal product line," Castleberry said. "The more tightly integrated and seamless the tools are, the simpler it will be for us to start taking advantage of hitherto-unused features." Fox Filmed Entertainment currently runs Crystal Enterprise 8.5 to support internal decision-making.

Crystal Decisions also announced Crystal Analysis Professional 9, an upgrade of its stand-alone Web-based analytics reporting application. New features include improved integration with its Crystal Reports software and products like Microsoft's Excel and IBM's DB2 database.

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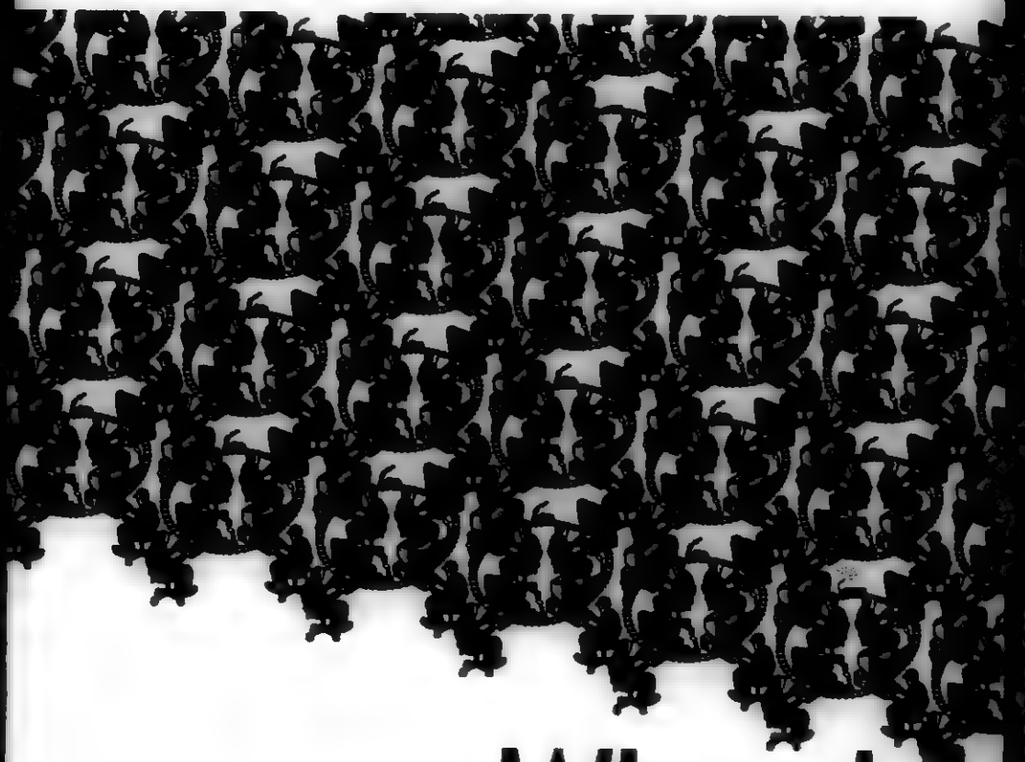
Your Enterprise Monday 10:32 A.M



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IBM/Rational

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But IBM executives said the level of integration will be more extensive in the future. IBM can "drive a very deep level of integration" down into the runtime, Mills said.

Grady Booch, chief scientist in the Rational division, said the sweet spot for integration will be a model-driven architecture leveraging the Unified Modeling Language standard, which provides mechanisms for visualizing different aspects of a system, from the deployment architecture to the component architecture and even database schemas. He said business rules could be written in a graphical way.

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He noted, for example, that three tools — Rational XDE, a tool that IBM acquired from Holosofx Inc., and a tool that Rational acquired from NeuVis Inc. — all contain differing levels of business process modeling capabilities.

"What they haven't done is rolled out a road map of which tools will merge in the future," Meyer said.

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Rationalizing IBM

Opportunities for new products or additions to existing tools include

- **Testing,** especially in the area of profiling.
- **Architectural and design patterns.**
- **Commercial collaboration** for development teams through instant messaging, video-based Web meetings, Web-based repositories or Web-based configuration management.

SOURCE: GRADY BOOCH, CHIEF SCIENTIST IN IBM'S RATIONAL SOFTWARE DIVISION

TOTALLY RAD

IBM's Rational division last week previewed a rapid application development tool

QuickLink 37737
www.computerworld.com

IBM's Software Chief Scans The Competitive Landscape

BY CAROL SLIWA
NEW ORLEANS

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How do you view the future of Unix at IBM? There are strong indications that the market is moving down the path to shift toward Linux. These things tend to be long-term trends. The existing Unixes are not just going to disappear from the planet. People started predicting the demise of NetWare 10-plus years ago. There's still lots of NetWare out there.

The more important issue is that Linux is following a fairly predictable path toward reaching maturity. As you look at the progression of Linux, at each level, this has become a more scalable product.

Today, people are typically running two-ways and four-ways, but eight-way is certainly possible. If we look out to the end of the year, we're going to see a more significant number of people beginning to look at running seriously on eight-way and even pushing toward 16-way.

As we come around for another rev of Linux a couple of years out, Linux will be in the 16-, 24-way types of SMP systems.

Where is IBM's R&D money being invested for operating systems? Most of it goes to the mainframe still, for obvious reasons. Most of the world's business runs every day on the mainframe, and that's a life-and-death environment.

What do you think about Hewlett-Packard's strategy to focus exclusively on Intel architecture? Remember, HP was reaching a point — this is going back to Lew Platt's tenure — where they were having to think about what the long-term costs were going to be to design and fabricate high-performance microprocessors, which is not an inexpensive business to be in. Lots of science, lots of heavy investment to create the fabrication capability.

[Platt's] conclusion was that HP's best bet was to essentially become an Intel-based processor company.

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It's very different than selling at the departmental level, though. The enterprise-level people generally do much more physical comparison of products. So it's a very different competitive environment than Microsoft is used to.

Our position is: Wheel it in. Bring in your people and your code, and let's have a duel. This is our expertise. They're playing our game. This is American football, not soccer. It's played with pads, and usually at the end of the game, somebody's bleeding.

MORE ONLINE

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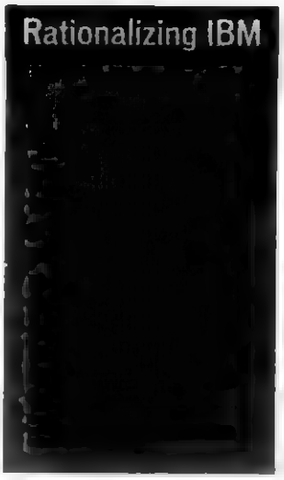

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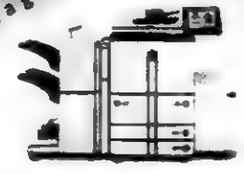

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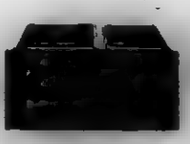

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Unisys Pins Server Hopes on Microsoft

BY PATRICK THIBODEAU

Unisys Corp. last week introduced a midrange version of its ES7000 server [QuickLink 37562] in a bid to broaden the market for that product line, which is based on Intel Corp. processors and the Datacenter edition of Microsoft Windows. George Gazerwitz, president of the Blue Bell, Pa.-based company's Unisys Systems & Technology unit, discussed the ES7000 strategy in an interview prior to the product launch.

Dell and other Intel-based system vendors are pushing clusters for big corporate applications. Why should users consider the ES7000 over that approach? Certainly, from a performance standpoint, you're always going to get better performance [from a single system], especially when you have demanding applications that drive large databases or transactions. There's a lot less latency, because there are a lot less connections and wires. And from an overall management standpoint, a single-image system vs. a cluster approach is a heck of a lot more efficient to manage and to protect from security infringements.

You're closely aligned with Microsoft. Some IT managers worry that standardizing on Microsoft technology throughout their companies and relying too much on one vendor could make them vulnerable. Is that a fear you're going to have to deal with? We've got a great partnership. Are we concerned about it being a single environment? It all comes down to the amount of value that they can continue to add. There's a lot to be said about having a standard environment, and there's a lot to be said about all the applications and solutions that are available to run on that environment.

What market segment are you targeting with the ES7000/500 system? We're still focused on the same markets that we've always been focused on, and that's the high end at the enterprise level. This new product series allows us to get down a little bit lower, [closer] to the midtier, and offer the same mainframe attributes.

Is Unix a shrinking niche market? I don't think Unix is going to go away. It will shrink a little bit. I think the biggest hit on Unix will probably be with Linux at the low end. The impact at the higher end is going to be the result of Microsoft and the environment that we're talking about here. ▶

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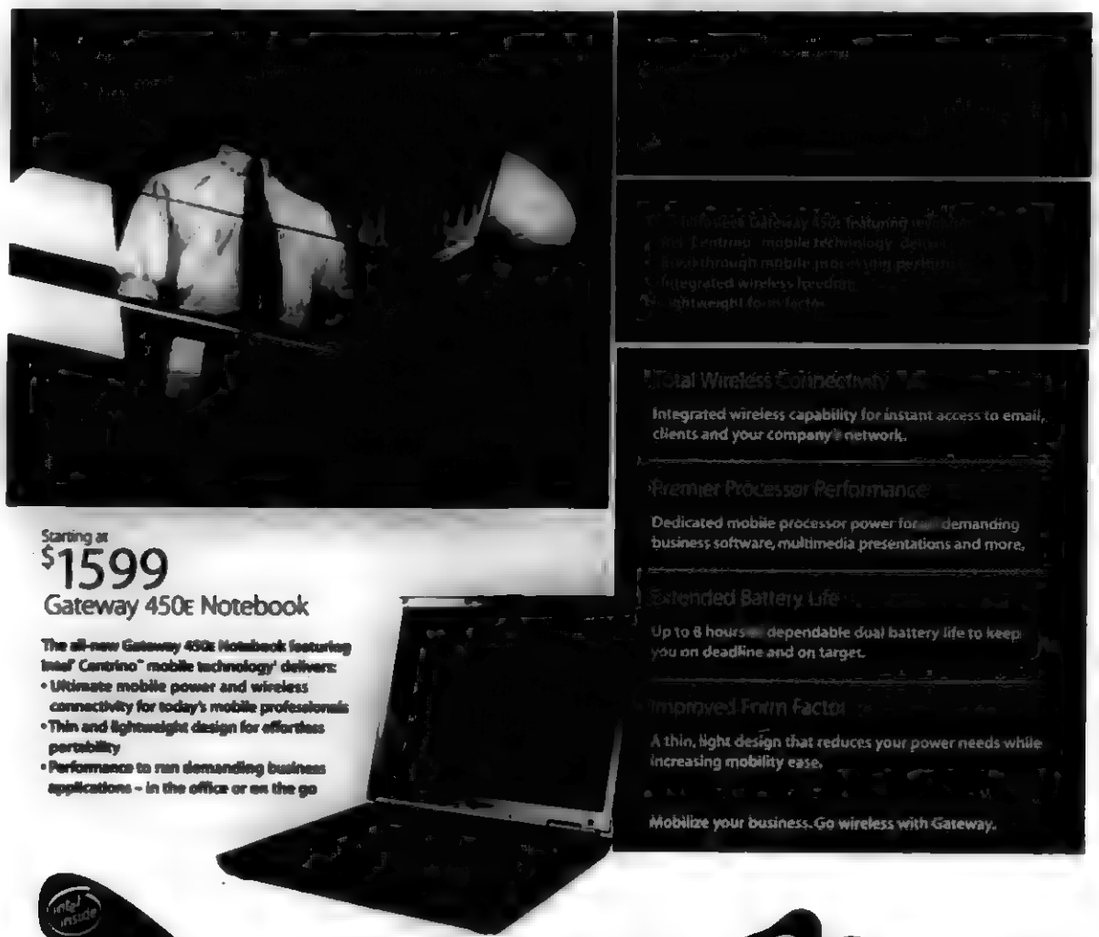

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PATRICIA KELLY

Demand Executive ROI

AT LAST, WE ARE STARTING to see shareholders with backbone and more than a modicum of common sense. Two weeks ago, Hewlett-Packard shareholders passed a nonbinding recommendation asking the company's directors to obtain stockholder approval of large executive severance packages. HP's management, which had lobbied hard against the proposal, issued a terse statement saying that it would "duly consider" the recommendation.

Patricia Kelly is a Computerworld editor at large. You can contact her at patricia_kelly@computerworld.com.

Governing bodies tend to ignore nonbinding referendums, so the shareholders will need the backing of the board. But many boards of directors function as little more than rubber stamps for pay increases or protections sought by the management team. SEC and accounting reforms are supposed to snap these boards to attention, but even among the spectacular ruins of companies such as Tyco International, Enron and Adelphia, we see their boards continuing to go to bat for C-level managers, requesting astronomical salaries, bonuses and severance packages even as creditors line up on one side and laid-off workers struggle to retain their homes on the other.

Those boards and some bankruptcy court judges may have taken leave of their senses, but thankfully, investors are starting to regain theirs. Bids to gain control over executive compensation have either been accepted or are under consideration at companies such as Alcoa, Bank of America, Citigroup, General Electric, Norfolk Southern, Tyco and United Technologies. Various investor groups, including The Conference Board, the Investor Responsibility Research Center, the Pension Rights Center and Institutional Shareholder Services, are starting to press for reform. Even Congress is getting warmed up. "It's insulting when they lay off thousands of people and then pay top executives millions of dollars in raises," said an outraged Sen. John McCain (R.-Ariz.) recently.

He's right. Executive pay is out of control. The average severance for CEOs at the country's largest companies during 2001 and 2002 was $16.5 million, according to The Corporate Library. A recent analysis of CEO compensation at the 100 largest U.S. companies by *USA Today* and the Investor Responsibility Research Center found that CEO salaries and bonuses jumped 15% in 2002, while rank-and-file workers averaged only a 3.2% gain. By some estimates, CEOs now make more than 450 times what the average worker earns.

It *is* insulting when companies richly reward high-level executives who have basically been fired and then begrudgingly scrape up minimal severance for laid-off workers. If we really believe that much of a company's success rides on the shoulders of the CEO and his team, then the reverse ought to play out. If the company stumbles, then the blame should fall squarely on the executive team. Their parachute strings should be severed, not reinforced with platinum.

Why should you care? Because excessive compensation can undermine the financial strength of the companies you work for and with. It can wreak havoc with service levels and worker morale. What kind of message does it send when your vendor heaps another six- or seven-figure bonus on an already richly compensated executive but announces in a separate press release that, to cut costs, it will whack off another chunk of its service and support division? Or perhaps it expands your sales rep's territory, or charges for or automates a service you would rather it didn't.

High tech — and, by association, IT — has been hit especially hard over the past three years. At a time when ROI is king and cost-cutting is the new Zen, we should demand that these values extend to the executive suite. Leadership starts at the top. ◆

PIMM FOX

Stop the Web Conferencing Cost Clash

WEB CONFERENCING is creating a clash that pits departmental prerogatives against corporate cost savings. The departments need to retreat.

Defined as the ability to share documents, applications and even desktops, Web conferencing is a service outside the corporation, offered by the likes of WebEx, PlaceWare and Raindance. But as Web conferencing becomes a general business necessity, the argument that each department should be able to choose its own Web conferencing tool on an ad hoc basis is losing ground.

Pimm Fox is a freelance writer in San Francisco. Contact him at pimmfox@earthlink.net.

One reason is cost. At around $200 per seat per month, hosted Web conferencing can be expensive.

Another reason is technology. The T120 standard used by hosted services (based on P2P networking, and good for a small workgroup) doesn't scale when it comes to offering rich media.

This has left an opening for companies such as Pleasanton, Calif.-based Pixion. Rather than being exclusively a hosted service, Pixion software operates behind the enterprise firewall on Windows servers and integrates with your LDAP settings. Pixion claims that its server can accommodate up to 4,000 unique users concurrently. It uses a capture-frame technology that's recognized by the server, which then discerns who is to get which information or connection. In essence, you have a smart, secure server delivering Web conferencing functions at a cost of $6,625 for 10 seats per year.

That compares with $24,000 for an equivalent hosted service.

You'd think that something that much cheaper would be a shoo-in. But the challenge is in persuading marketing, sales, engineering and other departments to give up parts of the budget allocated to their own Web conferencing favorites. That's no easy task.

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2003 iForce Partner Excellence Awards

Harnessing the Power of the Internet to Drive Business Advantage

Welcome to the Sun Microsystems 2003 iForce℠ Partner Excellence Awards, co-sponsored by Computerworld. The awards recognize U.S. iForce Partners that have excelled in providing innovative, customer-driven solutions and services in areas as varied as decision support systems, supply chain management, product development and communications.

The iForce Initiative is the collaboration of Sun and its partners working with customers as a community to address customer business issues. Through the creation, development and delivery of proven solutions that can be implemented in less time and with less risk, Sun and its partners enable customers to more quickly realize a return on IT investment.

2003 marks the inaugural year of the iForce Partner Excellence Awards, and we were impressed by both the quantity and quality of the entries. Our independent panel of judges had quite a challenge selecting just one winner per category from the breadth and depth of solutions entered.

We are proud to honor the winners of the 2003 iForce Partner Excellence Awards. To learn more about Sun's iForce Partner Program and offerings, visit www.sun.com/iforce.

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BASIS, Inc.: Most Innovative Solution

As a drug research company that discovers new chemical scaffolds and high-quality leads on promising new drugs, Plexxikon works with massive volumes of highly complex data. Recently, when it sought a highly accessible and interactive system that will scale for years to come, Plexxikon turned to iForce Partner BASIS, Inc., Sun Microsystems, Inc. and Sun Professional Services℠ for a solution.

Grand Solution of the Year

Sun, BASIS and Plexxikon worked together to determine that the company needed a grid computing environment that could apply the resources of many networked computers to a single problem at the same time. The resulting system consists of four tiers: a visualizations tier of powerful workstations; the grid computing layer, which prioritizes resources using the Sun Grid Engine, Enterprise Edition software; a network services tier; and a database services tier running Oracle 8i.

The system is not for the faint of heart – but BASIS and Sun Professional Services engineers worked tirelessly to complete and test the installation ahead of schedule.

The results are impressive. Plexxikon has dramatically lowered its compute time, and therefore costs. For example, tasks that used to require a full week are now accomplished in a day. It's safe to say the company that discovers new drugs is glad it discovered BASIS and Sun clustering.

"We required a platform that would accommodate some very demanding computational requirements. The technologies coupled with the expertise of Sun consultants and BASIS offered a significant comfort level."

—Dr. Michael Milburn, Senior Vice-President, Research, Plexxikon

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2003 iForce Partner Excellence Awards

Kirchman Corporation: Best Business Transformation

"The project was a complete success. We've speeded up our end-of-day updates by 30%. That saves a lot of labor costs, on top of the $100,000-per-year savings we're seeing in maintenance costs and license fees."

—Jim Stock, Senior Vice-President and CIO, Landrum Company

When Landrum Company, a bank holding company, evaluated its operating expenses, executives were struck by the continual increase in the cost of operating software. The bank decided to seek alternatives.

Kirchman Corporation, a Sun iForce Partner, recommended a solution based on Sun Fire™ V880 servers that allowed Landrum to meet its goals.

In June, Landrum converted its data processing operation to one Sun Fire V880 server, with a second located in an affiliate bank for disaster recovery (the price point of the servers was so attractive that Landrum eliminated its third-party disaster-recovery provider). Throughout the migration, Kirchman and Sun experts worked side-by-side with Landrum's IT staff to implement each of the company's four banks (in several states) on the same weekend.

The Sun Fire V880 servers are faster than the old mainframe, tapes are a memory and labor savings have pleasantly surprised the company. The project certainly paid dividends for Landrum.

AAL and Dimension Systems: Best iForce Partner Collaboration

"We were really pleased by the way the partners collaborated on the configuration of Sun computers for our student information system, ensuring that when the bell rings and all teachers take attendance simultaneously, response time will be fast."

—Marjorie Mills, Technical Project Manager, Seattle Public Schools

When the public school system in Seattle decided to implement a Student Information System, it demanded a state-of-the-art system with top-notch functionality as well as easy access. And like many publicly funded groups, the schools faced a budget crunch to boot.

Seattle Public Schools initially leaned toward an NT solution in an effort to standardize on a single technology platform. But two Sun iForce Partners — The Administrative Assistants Ltd. (AAL) and Dimension Systems —teamed up to design a Sun-Oracle-AAL-Dimension Systems solution with fast response time and maximum reliability and availability. Working within all timing, budget and functional parameters, the two partners were able to stage, install, integrate and deploy the solution along with Sun Professional Services.

The project was completed two weeks ahead of schedule and is on pace for its full launch in the fall. AAL, Dimension Systems and Sun have earned an A+.

Sybase, Inc.: Best e-Business Solution

As part of the U.S. Department of Transportation, the Bureau of Transportation Statistics (BTS) provides data, analysis and consulting services to myriad federal agencies, universities, the media and the public. Historically, serving so many constituencies made for laborious, time-consuming processes. But by developing a Sybase IQ Multiplex-powered data warehouse, the BTS can now offer its customers fast, accurate, reliable access to data.

Jeff Butler, Assistant Director of the BTS' Office of Statistical Computing, led the team that tackled the challenge. Butler architected a business intelligence solution based on Sybase IQ Multiplex 12.4.3 and new Sun Fire V880 servers from Sun Microsystems. The solution delivered the ease of use, flexibility and scalability that were demanded by the BTS.

The BTS TranStats business intelligence solution is an unqualified success. It handles over 15,000 Web hits per day and features a searchable index of over 100 databases; selective download capability, which lets users download data using any database or spreadsheet software; comprehensive online documentation; and interactive analytical tools. At BTS, traffic is flowing smoothly.

"The performance of the V880 servers with IQ has been quite impressive. We have a simple, manageable environment that enables IT to meet ever-changing information needs."

—Jeff Butler, BTS

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2003 iForce Partner Excellence Awards

Workscape, Inc.: Best Sun™ ONE Enterprise Software Integration

As one of the world's largest corporations, with hundreds of locations worldwide, General Motors faced a challenge when it sought to create a portal for employees. The portal had to streamline human resources functions, provide 24/7 access, promote a "One Company" culture and foster a sense of corporate community.

The solution: mySocrates, built on Workscape's Employee.com portal running on the Sun Microsystems Solaris™ Operating System and Sun™ Open Net Environment (Sun ONE) Portal Server software. This solution lets GM customize portal content for individual users' needs, offering each user only the content, services and applications that are appropriate for him or her.

Hosted by Workscape and deployed in only 12 months, mySocrates is already delivering high returns on the investment; it provides anytime-anywhere access for GM's 190,000+ North American workers. The hosted solution eliminated major infrastructure, software and labor investments, and has reduced mailing costs while providing a high level of self-service in the HR arena.

"mySocrates gives employees the flexibility and technology tools to juggle demands of work and home, along with applications that improve productivity while reducing infrastructure costs."

—Katy Barclay, Vice-President of Global Human Resources, General Motors Corporation

inSolutions: Best Sun™ ONE Collaboration with a Third-Party Software Provider

Nielsen Media Research, the most trusted company of its kind, has created many identity management and security services for its worldwide users. Previous efforts focused on individual applications. They were successful, but none delivered a comprehensive, single solution.

When Nielsen Media Research approached iForce Partner inSolutions, that company took on the challenge and implemented an enterprise security gateway based on Sun ONE, Sun Microsystems' architectural solution for Web services.

"This solution lets us handle special identity management issues that are unique to our business as an information service company for the TV media industry."

—Kim Ross, CIO Nielsen Media Research

inSolutions took time to learn the intricacies of the client's business model before addressing technical issues. At the core of the solution is a Sun ONE Directory Server providing directory-based authentication and authorization. Overall, the system exceeds Nielsen Media Research's expectations, serving as both a security platform and an integration hub for other applications.

Nielsen Media Research projects that the project, currently under development, can save it $4.9 million. No wonder inSolutions and Sun have earned great ratings.

Dynamic Systems: Best Storage Consolidation Solution

Streamlining and enhancing a storage and server environment is a challenge. So is creating a viable disaster recovery plan. Doing both simultaneously, when budget is a factor, borders on the impossible. But Puget Sound Naval Shipyard (PSNS) recently pulled off this impressive feat with help from Sun Microsystems and Sun iForce Partner Dynamic Systems, Inc.

"Dynamic Systems, working closely with our staff and engineers, upgraded our Sun Microsystems platforms to meet all our objectives at a cost savings of over $1.2 million."

—Vickie Dill, Project Manager, PSNS

Facing a U.S. Navy mandate to create a disaster recovery plan, PSNS called in Dynamic Systems for an IT needs assessment. The company was able to show PSNS how it could achieve that preparedness and save $1.2 million.

Dynamic Systems identified a 3-year lease for both hardware and service that allowed the shipyard to use its savings for additional Sun hardware and software. The solution also positions PSNS well for the future, as the Sun StorEdge™ 9960 system will handle its future storage growth.

Results have been outstanding. PSNS has its disaster recovery plan — and a 60% performance gain. The shipyard is now considered a model for naval shipyards contemplating disaster plans or storage consolidations. PSNS' ship has truly come in.

Special Advertising Supplement

2003 iForce Partner Excellence Awards

FusionStorm: Best SunTone Certified Service

A leading provider of the infrastructure global financial institutions rely on, CashEdge recently sought to boost its customer support ratings and generate ROI for both the company and its customers. And that ROI had to be based on true business metrics.

CashEdge found the right solution in Remote IT Managed Services from FusionStorm, a Sun iForce Partner. CashEdge was impressed by the way FusionStorm learned about its business model and needs before suggesting a solution for CashEdge's Sun Microsystems servers.

Jason Braatz, Vice-President of Operations at CashEdge, says FusionStorm's SunTone Certification "makes it clear to our customers that we adhere to the highest standards." CashEdge recouped its investment in only three months. It also cut availability problems 20%, leading to a 30% boost in customer satisfaction.

"For us, Sun Microsystems and FusionStorm have been the difference between being a successful business or not – affecting everything from lowering TCO to reducing time to market. By maintaining our core competencies in-house and outsourcing functions that others can do more efficiently, we can optimize value."

—Jason Braatz, Vice-President of Operations, CashEdge

Clearly, the Sun-FusionStorm solution gave CashEdge a competitive edge.

Innovative Systems Design, Inc.: Top Sun℠ Services Consulting Partner

A longtime Sun iForce Partner, Innovative Systems Design, Inc. specializes in architecting, designing, deploying and monitoring end-to-end high-availability solutions. Its mission: help clients manage their infrastructure more effectively to avoid unnecessary expenditures.

While Innovative Systems Design uses software and services from many partners, its sole hardware partner is Sun Microsystems. This has created a relationship that brings value to clients, as the company is intimately familiar with Sun's hardware platforms — and knows how to build solutions around them.

Innovative Systems Design has also developed its own powerful software tools. For example, ITVerify improves IT infrastructure stability by predicting potential outages. The company's platform technologies in messaging, mobility, storage and software help clients that need to turn data into information.

Innovative Systems Design's client services organization offers integration and deployment support, ensuring complete satisfaction.

"Working together, Innovative Systems and Sun have been able to produce increased mutual financial benefits and high-quality solutions for our customers. Our relationship has been a model for success."

—Jon Caputo, Vice-President, Americas Professional Services, Sun Services

Forsythe Solutions Group, Inc.: Top Sun℠ Services Support Partner

Forsythe Solutions Group, Inc. is a leading provider of technology infrastructure solutions. Forsythe helps companies nationwide, many in the Fortune 1,000, build cost-effective IT infrastructure.

The solutions Forsythe provides incorporate best-of-breed technology from Forsythe's strong network of industry-leading provider partners, including Sun Microsystems. As a Sun iForce Partner, Forsythe is a certified specialist in available and recoverable Sun solutions, including Sun Fire enterprise servers. As an added value to customers, Forsythe's dedicated Sun maintenance team handles the administration of clients' current Sun contracts, including consolidation, renewal and addition of equipment to current contracts.

In 2002, Forsythe achieved its thirty-second consecutive year of profitability with revenues estimated at $627 million.

"Successful iForce Partners like Forsythe meet the complete needs of their customers by providing not only the hardware and software, but also the integration, leasing and, more important, services. Service delivery provides the margins necessary to remain competitive in this marketplace and also strengthens the bond between customer and partner, forming strategic relationships that last well beyond the hardware sale. Forsythe understands how to maximize this model."

—Darlene Yaplee, Vice-President, Services Sales, Sun Microsystems

While I'm not sure Web conferencing should become a C-level management decision, it certainly needs some attention from IT managers.

If document- and application-sharing, Web pages, live annotation and whiteboarding are routine tools for your company's employees, then it's time to move Web conferencing decisions to a higher level. That means confronting corporate fiefdoms that still insist on buying IT a la carte.

Of course, other Web conferencing services have value. (WebEx is great for one-to-one sessions, Java-based PlaceWare is fine for one-to-many, and Raindance has supporters who commonly exchange and work on code.) And small or midsize companies may not see significant cost savings in adopting Pixion or its competitors.

But for the chief financial officer hoping to cut costs and for the CIO eager to promote company standardization, it's time to turn Web conferencing over to the enterprise.

DAN GILLMOR

Lawmakers Outlaw Firewalls

SINCE MARCH 31, most corporate networks in Michigan have been using illegal technology. No, it wasn't an early April Fools' Day joke pulled off by the Michigan Legislature.

Thanks to the movie industry's paranoia about copyright infringement — plus a clueless group of lawmakers and an inattentive IT community — amendments to a state law called Act 328 have created a mind-boggling slew of limitations on what users of technology may do with what they own.

Here's just one example: Users may not conceal the origin or destination of their communications. Consider the implications.

"If you send or receive your e-mail via an encrypted connection, you're in violation, because the 'To' and 'From' lines of the e-mails are concealed from your ISP by encryption," observes Princeton computer scientist Ed Felten, who broke the news and is keeping close track of the situation on his Web site, *www.freedom-to-tinker.com*.

"Worse yet," he adds, "Network Address Translation (NAT), a technology widely used for enterprise security, operates by translating the 'From' and 'To' fields of Internet packets, thereby concealing the source or destination of each packet and hence violating these bills. Most security 'firewalls' use NAT, so if you use a firewall, you're in violation."

And Michigan isn't alone in this insanity. Similar legislation has been enacted in Delaware, Illinois, Maryland and Virginia, according to the "Washington Internet Daily" newsletter. Measures are pending in several other states, including Massachusetts and Texas.

How could this happen? Credit — or blame — a relentless and reckless copyright cartel that holds copyright enforcement above all else. During the past several years, the Motion Picture Association of America (MPAA) has been quietly lobbying in various states for these laws, now being dubbed "Super-DMCAs" — a reference to the federal Digital Millennium Copyright Act. During this time, people fighting for users' rights have focused almost entirely on the federal scene.

An MPAA vice president told CNet's Declan McCullagh that the law is only "an extension of what we've done for years with cable television and phone services at the state level. It's nothing new. For the life of me, I don't see why anybody would object to that." Gee, maybe somebody who wants to protect the security of his own communications?

Credit the entertainment companies with cleverness, but they've gone too far, as usual. Now watch as the states themselves make this situation worse. State laws are enforced by state prosecutors, who are generally even more clueless on technology matters than federal law enforcement folks.

No one is suggesting that we encourage infringement. But the MPAA's "model legislation" (find it on Felten's site) essentially bans even technology that might be used for infringing purposes, as well as information about such technology.

Whoops. There goes security, and research into security, too.

Now that Felten and others have sounded a warning, this bandwagon is slowing. Colorado postponed a vote for a week (it's pending as I write this). Massachusetts legislators seem to be having second thoughts as well.

IT must get involved. Now. Find out what the status of the Super-DMCA is in your state. If it has already passed, tell your legislators that they should undo the damage. If it's pending, scream bloody murder. If it hasn't been introduced, keep your eyes open — because the entertainment cartel never sleeps, even if you do.

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site: **www.computerworld.com/columns**

READERS' LETTERS

Stop Protecting Turf and Share Info

I AGREE WITH the statement in the article "Gartner: Change Management Needed Before Real-Time Data Can Flow" [QuickLink 37350] that business leaders require near real-time critical and financial data to adjust to changing business needs. I also agree that becoming a real-time enterprise will require business leaders to cede control of customer data and other information and share it with other managers and executives. But Gartner analyst Matt Hotle's statement that "programmers like to build; they don't like to reuse" is absurd. To add that IT managers will have to become stricter about enforcing the reuse model and that programmers who don't comply must be "disciplined, beaten or fired" is preposterous. So it's the programmers' fault! We reuse code every day, but we can reuse code only if we know it exists.

How about this for a suggestion: Put the blame where it belongs, on the business leaders. They should tell their business units that they expect them to work together and share their turf, instead of trying to protect it. They should also invite developers to real business meetings so that they can learn the business processes and how they affect other groups. Or they can take the easier route and hire an analyst who will waste thousands of dollars on some useless tripe. Now, who should be beaten?

Mike Gempe
Software engineer, Pittsburgh, mike@gempe.com

Get Up to Date

I NOTICED that the front page of the March 24 issue features a picture of an old 8-in. self-propelled howitzer. That's a little like putting a picture of an 8088 on your front cover. It's old news. The U.S. military doesn't use 8-in. cannons anymore. They were replaced by the Paladin 155mm self-propelled gun. Please update your information.

Dan Drees
Network administrator, Garrisonville, Va.

Easy Rollback

THE COMMENT in the story "Getting Started With Linux" [QuickLink 36271] that Red Hat Package Manager (RPM) doesn't support rollback needs some clarification. Red Hat Update Manager may not be able to, but I have on occasion had to reinstall older packages because of issues in new packages, and the RPM tools are more than capable of reinstalling older versions if the need arises. Because updates are distributed as part of an entirely new package, rolling back to the previous version is easy.

Rodd Clarkson
Software developer, Redfish Bluefish, Ringwood East, Victoria, Australia, rodd@redfishbluefish.com.au

Real Unemployment

A GREAT MANY OF US in IT have experience that says the unemployment rate in the field is closer to 20% than the official national average of all unemployment, currently 5.6%.

Into the wide gap between 20% and 5.6% falls the question of the H-1B program: By what morality, ethics or national priorities can our government possibly justify importing hundreds of thousands of H-1B visa workers for jobs previously held by hundreds of thousands of IT-experienced, currently unemployed citizens of this country? Federal employment figures come from a national phone poll that is spread too thin (over all occupations and the entire country) to capture data for specific occupations, such as IT. I understand that the poll also misses many long-term unemployed, discouraged searchers, those who have been forced from the occupation by lack of work and necessity, and those who have taken "desperation jobs." I strongly suggest that the top IT publications commission their own statistically valid poll of unemployment among computer and IT workers. I'll bet my last year's salary (ha-ha) that the results will gain a media coup for the publishers.

John C. Napier
Cambridge, Mass.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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KNOWLEDGE CENTER DATA MANAGEMENT

04.14.03

Too Much of a Good Thing?
Real-time data feeds are just an added expense if data quality is poor or the organization is unable to analyze and act on the incoming information. Page 38

The Forecast Is Clear
Predictive analytics use data mining and tools like regression and neural networks to predict customer behavior. BankFinancial Corp.'s William Connerty (at left) is using this technology to hit customers and prospects with more accurately targeted promotions. Page 31

EDITOR'S NOTE

WHAT WOULD HAPPEN if you were to unleash a data mining tool on the contents of this special report on business intelligence? Here are some of the gems it might uncover:

1 **Be selective about implementing real-time business intelligence.** It sounds great in the boardroom, but pick the mission-critical decisions that actually need split-second data feeds. Real-time data isn't a constitutional right or an across-the-board necessity. Besides, if the data quality is bad, real-time data just means managers can make bad decisions faster.

2 **Enforce multilevel access controls for your business-intelligence data.** This is a badly neglected area of security, yet business-intelligence data is the company's most valuable asset. What could be more important than the list of your most profitable customers? And what happens if that list falls into the hands of your archrival?

3 **Explore the world of "predictive analytics," sophisticated modeling tools that can predict what customers will do next.** But, again, you'll need high-quality data, or the predictions won't be any good.

4 **Data mining can produce surprising – and surprisingly valuable – results.** Sometimes you find out that old assumptions about your business are wrong. Sometimes you find out what customers really want and what's really profitable. I'm amazed that so many executives run huge companies by "gut feelings," when the facts they need to manage intelligently are buried in data warehouses. ◗

Mitch Betts is director of Computerworld's *Knowledge Centers. He can be contacted at mitch_betts@computerworld.com.*

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More features and resources on this topic:
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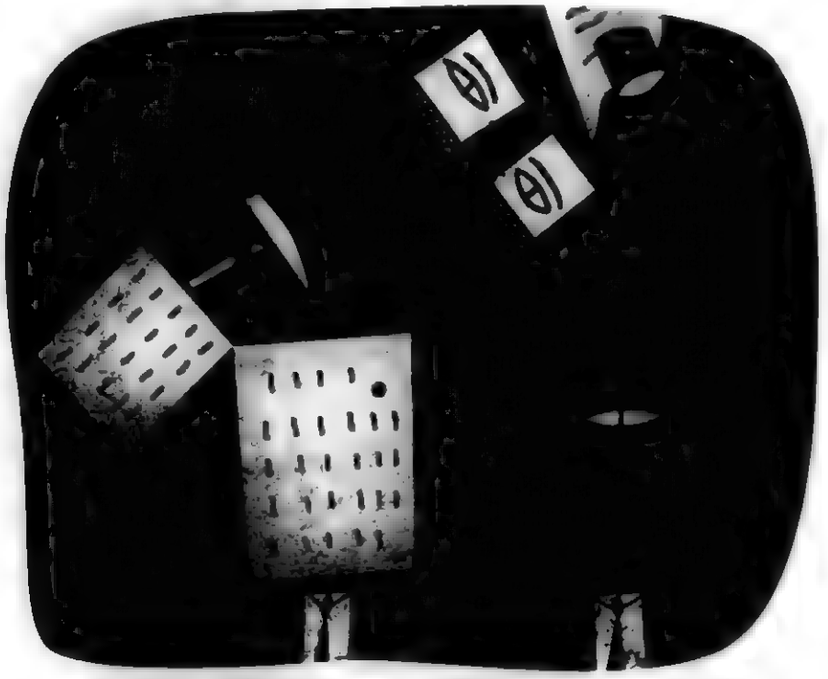
JAMES BYARD



Mining For Gems

Business-intelligence tools can uncover hidden truths about your customers and your business.

The Story So Far

A first-person account from the first person to develop the data warehouse concept.

William H. Inmon *is commonly known as the father of data warehousing. While speaking with Frank Hayes, Inmon recalled the development of the data warehouse idea, starting with his 1983* Computerworld *article, "What Price Relational?"*

"YEARS AGO, the rage was relational technology, DB2 and Oracle. And in healthy skepticism, I wrote a couple of articles saying that while relational technology certainly had merits, it simply wasn't fulfilling everything that was being ascribed to it.

"I got hate mail — people said I should never be allowed to speak in public, that I was setting our industry back 25 years. But I learned from that to ask the question, 'If relational technology isn't the answer, then what is?' And based on the premise that you need to have integrated, historical, easy-to-access information, that was the genesis of data warehousing.

"From that, I started to build data warehouses. My day job was working at American Management Systems, so I was able to try some of my theories out. Some of the early data warehouses we built were very novel and very innovative, and I know I learned a lot.

"The first issue that hit me like a two-by-four was the fact that integrating data from legacy sources is a very nontrivial thing. In the beginning, we thought, 'Well, you've got this source of data over here; you just write a program and you bring the data forward into this data warehouse.' I'll never forget saying, 'Gee, what's so hard about this?' Today, there's a whole industry called ETL [extract, transform and load] that does that.

"The second thing we learned was that the volumes of data that aggregate inside the data warehouse surpassed anything that's ever been seen in the world of transaction processing.

"A third thing is something that the world is still struggling with: How do you cost-justify a data warehouse?

"I wrote the book [*Building the Data Warehouse*] in 1989. Then, all of a sudden, people I'd never heard of started calling me and asking questions. I started to work with Claudia Imhoff, Sue Osterfelt, Chuck Kelley, some of the early pioneers, doing seminars and conferences and consulting and building data warehouses. It began to take on a life of its own.

"I was surprised about the industrial usage of it. The first data warehouses I did were at PacTel Cellular, Aetna Casualty and Blue Cross/Blue Shield of Michigan, so the early data warehouses were in the telephone and insurance environments. I never thought that manufacturing, transportation, retailing, government — I never thought data warehouses would be as applicable to those environments as they are.

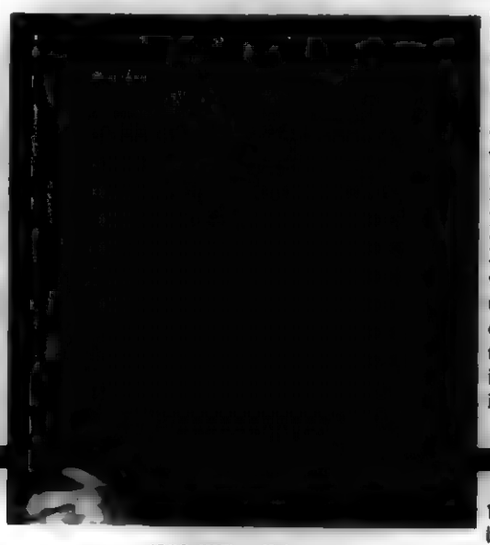
"It also surprised me that [the] data warehouse forms a foundation for all kinds of analytical processing. We've actually had analytics around for a while: the churn analysis the telephone company does, the elasticity analysis that retailers do. But we're just now starting to see the vendors make things available for widespread usage. Sagent, ProClarity, SAP, PeopleSoft, Cognos and Business Objects all have their own flavors of analytical applications, and I think that's one of the futures for data warehousing.

"Another major issue is that the size of the warehouses is drastically changing things. It's one thing to build a warehouse of 10GB or 20GB; it's another thing to build a data warehouse of terabytes' worth of data. How do you do data management for supersize warehouses? An index of 100TB of data may take three or four months to build. How long is it going to take to load the data? A week? A month? Six months? The next major trend is learning how to cope with volumes of data the likes of which haven't even been imagined by most people.

"After Sept. 11, I began to adapt the material I had written for data warehousing into something we call the Government Information Factory. I'm extremely excited about it. There is a lot of really novel and useful information in there, and we're just now starting to talk with and work with government agencies. So that's the direction I'm off on."

And now, on with the story. . . .

HISTORY LESSON
A quick tour of the history of data management is available online:
QuickLink 28502
www.computerworld.com



1960

1961: Charles Bachman at General Electric develops the first database management system, IDS.

1964: Michael S. Scott Morton first describes the concept of decision-support systems.

1970: Express, a multidimensional analytic processing tool for time-sharing systems, becomes available.

1970: Ted Codd invents the relational database.

1978: Work begins on the Management Information and Decision Support system, an early executive information system, at Lockheed-Georgia Co.

1980

1983: William H. Inmon begins work on data warehousing concepts.

1988: Gartner analyst Howard Dresner coins the term *business intelligence*.

1990

1991: Inmon publishes a practical how-to guide, *Building the Data Warehouse*.

1993: Ted Codd coins the term *OLAP* (online analytical processing).

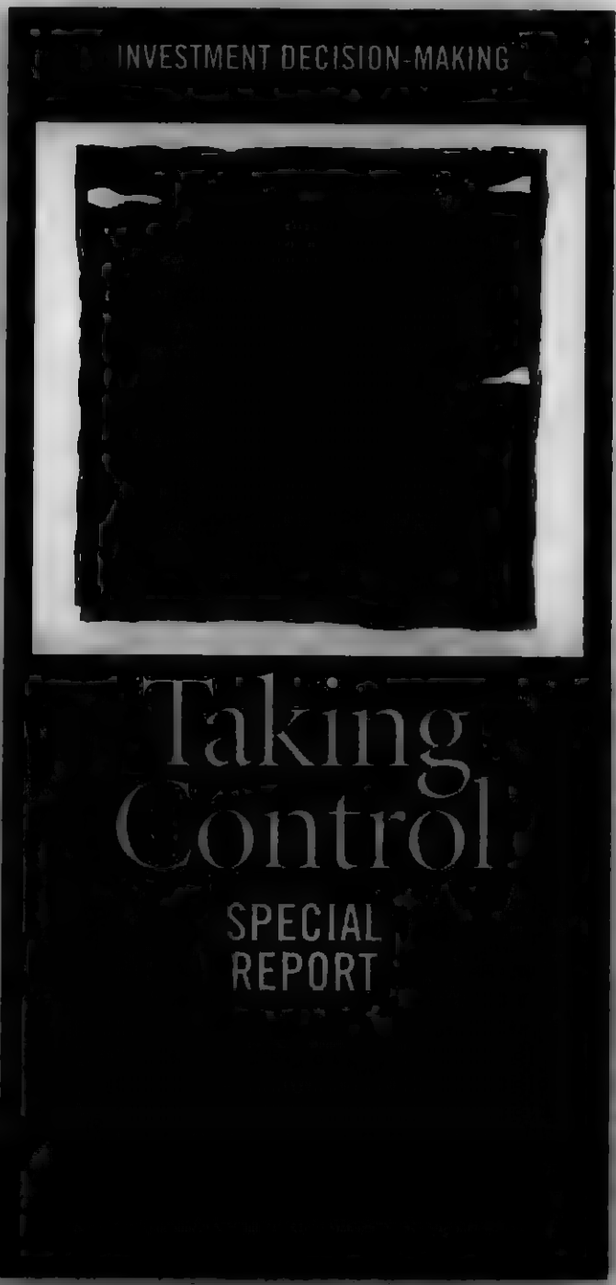
2000

ENSURING IT PRIORITIES MATCH CORPORATE OBJECTIVES.

pacificedge software

PACIFIC EDGE RAISES THE BAR ON PORTFOLIO MANAGEMENT

Emphasizes the enterprise, helps businesses maximize return on IT investments



IT AND BUSINESS STRATEGY

In the current chilly economic climate, IT is more than ever having to prove its value in business terms. Most organizations have more IT project requests and wish-lists than they have resources to complete, so the process of making choices has become increasingly important. In this environment, the concept of Portfolio Management has come to the forefront as a means of making informed decisions and ensuring maximum return on IT investments.

As a result, Portfolio Management has evolved from a somewhat academic discipline of project analysis and comparison, to a practical technique for aligning IT investments with overall business objectives. And given the real-world return on investment Portfolio Management has been shown to deliver, the approach is rapidly gaining acceptance in executive offices and even boardrooms. Analysts such as META Group are of the opinion that "when consciously pursued, it provides the enterprise (IT organization and lines of business) a disciplined framework to leverage IT management processes and IT asset investment and deployment decisions."

That Portfolio Management is no longer a niche solution is borne out by a recent META Group survey of 219 organizations from a variety of industries. META reports that 56% have adopted a Portfolio Management approach or plan to adopt one in 2003/2004. More than 40% of respondents plan to use Portfolio Management to aid decision support, and almost 30% plan to adopt it as an enterprise-wide discipline. Further evidence comes from the types of companies which are adopting Portfolio Management.

A pioneer of the Portfolio Management movement from the start, Bellevue, Washington-based Pacific Edge Software has consistently preached the benefits of the strategic approach to investment evaluation and execution. With an aggressive program of product enhancements, Pacific Edge has consistently upped the ante, becoming the de facto standard when it comes to Portfolio Management solutions.

In a service and information driven economy, IT is evolving from a supporting role – facilitating the "real business" – to center stage: increasingly, IT is the business. As a result, the need to align IT's activities with corporate objectives grows greater, while pressure on spending forces difficult choices to be made.

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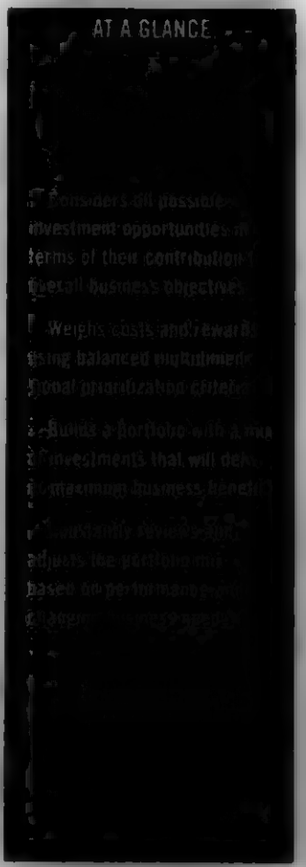

ENSURING IT PRIORITIES MATCH CORPORATE OBJECTIVES.

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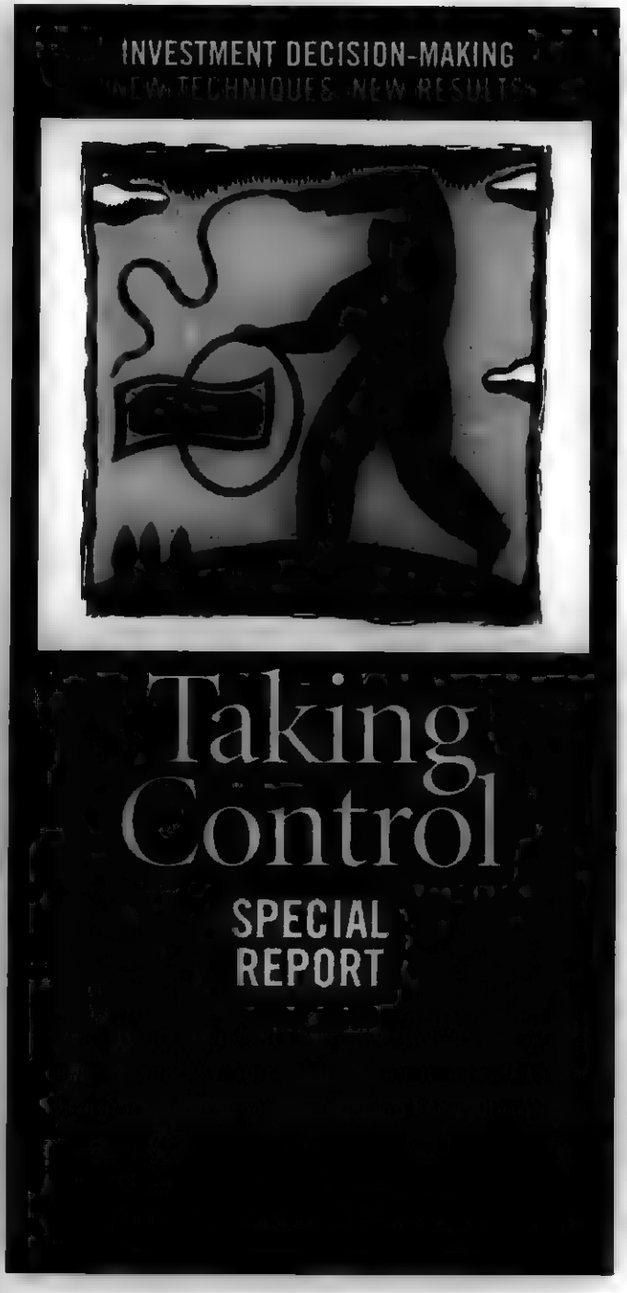

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AT A GLANCE

Portfolio Management tools for business investments – what a fund manager does for financial investments

- ✓ Considers all possible investment opportunities in terms of their contribution to overall business objectives
- ✓ Weighs costs and rewards using balanced multidimensional prioritization criteria
- ✓ Builds a portfolio with a mix of investments that will deliver maximum business benefit
- ✓ Constantly reviews and adjusts the portfolio mix based on performance and changing business needs

BUSINESS FOCUS

What is Enterprise Portfolio Management – and why does it matter?

Rob Dickerson, President & CEO of Pacific Edge Software

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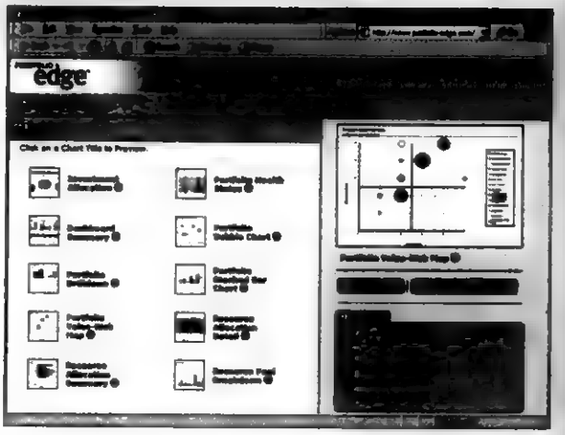


The "Bubble Chart" is a favorite with portfolio managers, who find it invaluable for cherry-picking high-value/low-risk investment "gems" – and for steering clear of low-value/high-budget "dogs". The X and Y axes can be selected to display any chosen criteria – here risk vs. value – while the size of the bubble allows a third dimension to be considered. Pacific Edge Software's Enterprise Portfolio Management solution, Portfolio Edge, provides a comprehensive library of charts and reports to meet the needs of all Portfolio Management roles. A template tailored to the specific needs of the IT department is also available.

Portfolio Management provides an opportunity for IT to be managed like the business it truly is. The IT organization manages its portfolio of activities – from baseline business support to asset renewal and development to high-risk business/IT ventures – in a manner consistent with the principles of best-in-class business practices. The portfolio is actively managed with a focus on yield, risk, risk-taking, and agility.

This active approach requires information and techniques, and it is these needs which Portfolio Management software – like Portfolio Edge™ and Project Office® from Pacific Edge Software – now fulfills. These products provide a framework for considering investments – and their requirements for money, time, resources, and effort – in a rational, standardized way. The most valuable investments get prioritized for execution, while the others remain in inventory for further development, future review, or reassessment if the business objectives or competitive environment should change.

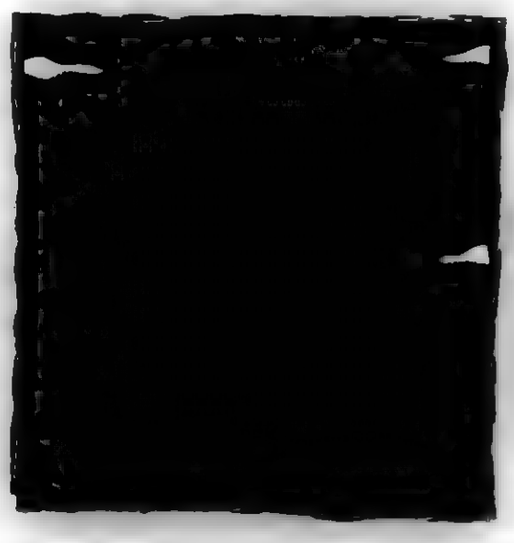
On this level playing field, investment decisions are faster, more accurate and less influenced by politics. Since reviews take less time, they can be held more frequently – possibly even daily – allowing Portfolio Management to be more responsive to evolving business needs.

www.pacificedge.com/moreinfo

ENSURING IT PRIORITIES MATCH CORPORATE OBJECTIVES

ENTERPRISEPORTFOLIOMANAGEMENT

INVESTMENT DECISION-MAKING NEW TECHNIQUES, NEW RESULTS



Taking Control

SPECIAL REPORT

Although often viewed as a benefit to IT decision-making only, the emerging Enterprise Portfolio Management discipline is, in fact, finding acceptance and delivering benefits in the broader business context.

Questions like these shown here are at the heart of business performance and critical to meeting investors' expectations. But finding the answers to them can be surprisingly challenging. Information on costs and performance is often separate from data on project status and resource utilization – and typically available only after the fact. In fact, simply obtaining an inventory of all the company's assets, resources and project investments may be almost impossible.

Even with a well articulated corporate strategy and sophisticated information systems, managers can find it hard to identify assets which are underperforming, investments which are low-value, or projects which are irrelevant to corporate goals. Even if the information is available, many executives feel there are so many variables, they don't have time to think things through to avoid arbitrary cuts.

Enterprise Portfolio Management goes to the heart of this challenge.

Initially developed to help IT management choose which projects to allocate resources to, Enterprise Portfolio Management has evolved into a powerful tool by which all the enterprise's investments can be analyzed, prioritized, planned, and managed. In simple terms, Enterprise Portfolio Management views the entire business as a portfolio of assets, resources, and project investments – and provides the information and techniques to manage the portfolio for maximum return.

What contribution is each specific investment making to our corporate objectives?

How do the costs and return of an individual investment compare with similar investments?

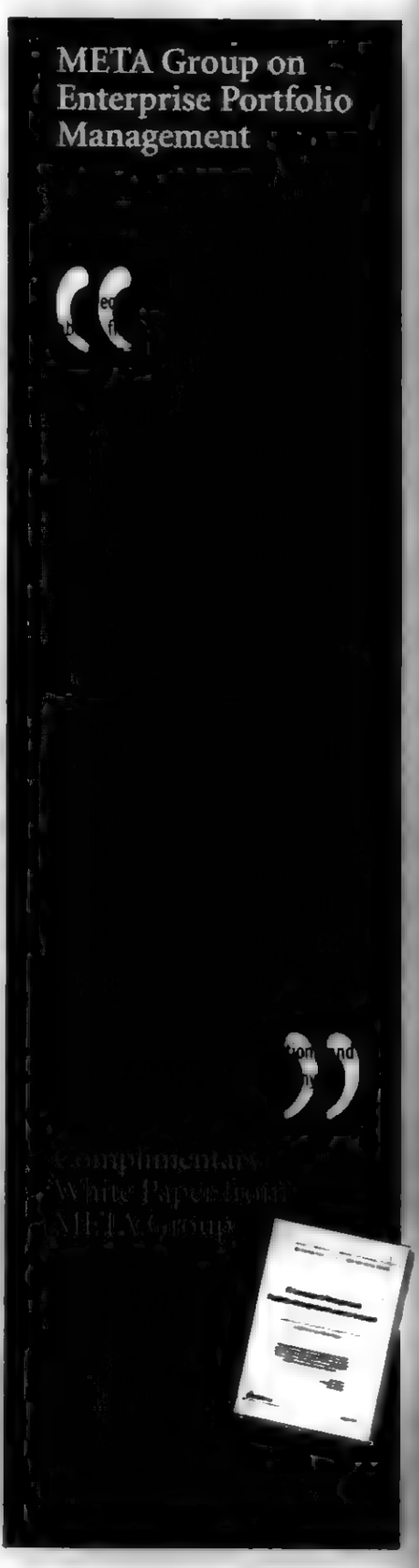
In what areas should we focus our investments for maximum competitive advantage?

Are we maximizing the return on the intellectual assets generated by our projects, products, assets, and resources?

Do we even have the right mix of investments?

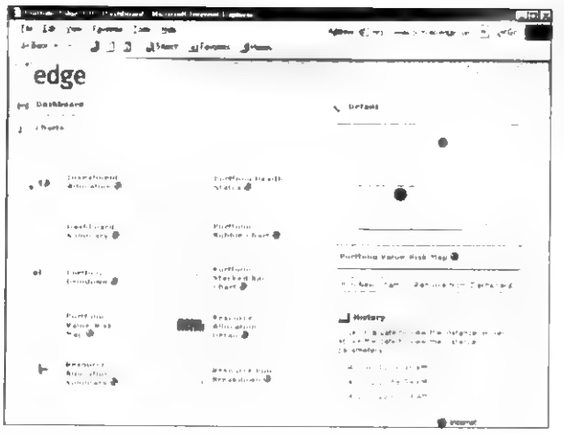
Enterprise Portfolio Management provides a means of quantifying the rewards and risks of all the enterprise's undertakings. Performance can be measured against these metrics, providing visibility into the risks to investors. A key component of Enterprise Portfolio Management solutions, such as Portfolio Edge from Pacific Edge Software, is a "dashboard" which aggregates the performance of the entire portfolio, allowing the executive team to manage the entire portfolio of corporate investments, assets and resources.

Only with this accurate view of expenditures, resources, schedules, risks, anticipated benefits, and business value, can management effectively maximize ROI on the entire investment portfolio.



SPECIALFEATURE

BUSINESS FOCUS



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On this level playing field, investment decisions are faster, more accurate and less influenced by politics. Since reviews take less time, they can be held more frequently – possibly even daily – allowing Portfolio Management to be more responsive to evolving business needs.

For more on the Pacific Edge Portfolio Management solution, call (425) 897-8800 or visit **www.pacificedge.com/moreinfo**

ENTERPRISE PORTFOLIO MANAGEMENT treats an organization's investments in projects, products, assets, and resources in much the same way as a fund manager treats an investment portfolio. Enterprise Portfolio Management is a continuous process of selecting and managing the optimum set of investments to deliver maximum business value.

With the stress of economic pressures, it is more important than ever for organizations to achieve a competitive advantage by reducing costs, increasing efficiency, optimizing use of resources, and delivering more value, while responding to rapidly changing business needs.

Enterprise Portfolio Management is a continuous process of selecting and managing the optimum set of investments to deliver maximum business value.

CORPORATE GOVERNANCE

This "good steward" philosophy also has particular relevance in these times of increasing focus on corporate governance. When objective measures are used to determine which projects get executed, which products get developed, and which resources can best be deployed in different activities, the decisions made are more likely to be the right ones – and more likely to enjoy consensus and support across the organization.

In essence, Enterprise Portfolio Management provides a closed-loop environment in which the complete inventory of actual and potential investments can be analyzed, planned, and tracked. On top of this framework, best-of-breed Enterprise Portfolio Management solutions also provide:

- Portfolio modeling and reporting facilities which are flexible enough to be configured to meet each organization's unique and changing Portfolio Management process and priorities.
- Integration functionality, such as XML connectors, which allow portfolio information to be efficiently captured from the organization's existing business systems.
- Tools and information delivery mechanisms that meet the specific needs of all individuals in the Enterprise Portfolio Management environment.
- Specialized Enterprise Portfolio Management solutions for specific types of business activity, such as IT and new product development.
- Proven Enterprise Portfolio Management consulting and best practice expertise.

ENSURING IT PRIORITIES MATCH CORPORATE OBJECTIVES

With its Enterprise Portfolio Management solution, Pacific Edge Software serves significant business benefits. Here's what it delivers:

- ✓ **Facilitates active management of the mix of IT investments, creating a portfolio that maximizes return on the IT dollar**
- ✓ **Applies a consistent, objective decision-making process to ensure IT efforts are aligned with overall business strategy**
- ✓ **Delivers improved visibility and accountability for IT investment decisions**
- ✓ **Allows the entire lifecycle to be considered when estimating and measuring IT investment returns**
- ✓ **Replaces traditional annual budgeting with a continuous planning process for prioritizing and sequencing**
- ✓ **Enhances business agility and responsiveness with extensive what-if and scenario planning functionality**

Online, In-Depth

The recent META Group White Paper, *IT Investment Management: Portfolio Management Lessons Learned*, provides a more in-depth look at IT Portfolio Management and its benefits. For a complimentary copy and an interactive Web demo, visit **www.pacificedge.com/computerworld**

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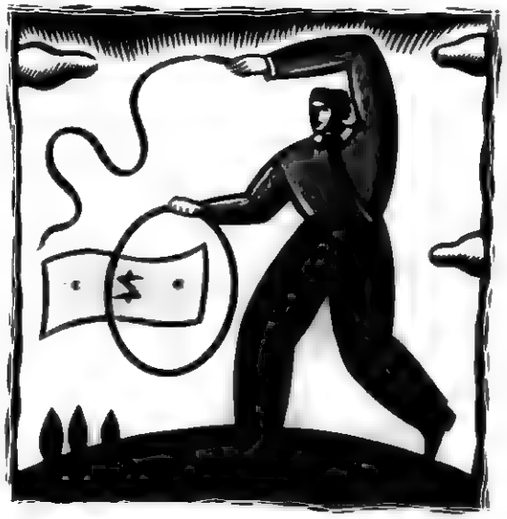

Taking Control

Although often viewed as a benefit to IT decision-making only, the emerging Enterprise Portfolio Management discipline is, in fact, finding acceptance and delivering benefits in the broader business context.

Questions like these shown here are at the heart of business performance and critical to meeting investors' expectations. But finding the answers to them can be surprisingly challenging. Information on costs and performance is often separate from data on project status and resource utilization – and typically available only after the fact. In fact, simply obtaining an inventory of all the company's assets, resources and project investments may be almost impossible.

Even with a well articulated corporate strategy and sophisticated information systems, managers can find it hard to identify assets which are underperforming, investments which are low-value, or projects which are irrelevant to corporate goals. Even if the information is available, many executives feel there are so many variables, they don't have time to think things through to avoid arbitrary cuts.

Enterprise Portfolio Management goes to the heart of this challenge. Initially developed to help IT management choose which projects to allocate resources to, Enterprise Portfolio Management has evolved into a powerful tool by which all the enterprise's investments can be analyzed, prioritized, planned, and managed. In simple terms, Enterprise Portfolio Management views the entire business as a portfolio of assets, resources, and project investments – and provides the information and techniques to manage the portfolio for maximum return.

What contribution is each specific investment making to our corporate objectives?

How do the costs and return of an individual investment compare with similar investments?

In what areas should we focus our investments for maximum competitive advantage?

Are we maximizing the return on the intellectual assets generated by our projects, products, assets, and resources?

Do we even have the right mix of investments?

Enterprise Portfolio Management provides a means of quantifying the rewards and risks of all the enterprise's undertakings. Performance can be measured against these metrics, providing visibility into the risks to investors. A key component of Enterprise Portfolio Management solutions, such as Portfolio Edge from Pacific Edge Software, is a "dashboard" which aggregates the performance of the entire portfolio, allowing the executive team to manage the entire portfolio of corporate investments, assets and resources.

Only with this accurate view of expenditures, resources, schedules, risks, anticipated benefits, and business value, can management effectively maximize ROI on the entire investment portfolio.

For more on Enterprise Portfolio Management and its relevance to senior management, visit www.pacificedge.com/webcast for a complimentary Webcast with CIO of Mercy Health Partners.

In a recent interview, Marnie Ross, Vice President of Executive Directions, META Group, talked about the significance of Enterprise Portfolio Management.

Selecting the right projects is not only about financial return. Important projects continue to be bypassed in many organizations because investment criteria focus only on financial return on investment (ROI), cost/benefit, or (worse) no predetermined decision factors.

Fewer than 10% [of Global 2000 enterprises] use several levels of criteria (risk, life cycle, return, planning horizon, etc.) to select projects. The remaining companies still rely on a first-come, first-served or squeaky-wheel method of allocating resources to projects.

The key to a winning mix in the investment portfolio is ensuring that capacity to complete projects is balanced with several types of projects. Focusing only on high-return, tactical, or offensive projects frequently satisfies line-of-business goals, but can jeopardize enterprise durability.

Balancing a portfolio to ensure maximum benefit to the business requires consideration of various weighted factors that represent the complexities of the business environment, the capacity and capabilities of the IT organization, and the long-term goals of the company.

Complimentary White Paper from META Group

Read all that META Group has to say on the relevance of Portfolio Management in the White Paper, *Portfolio Management Lessons Learned*. For your complimentary copy and an interactive Web demo, visit www.pacificedge.com/computerworld

250 Projects
130 Resources
$15 Million Investment
1 Big Success Story

For Dr. Reagan Ramsower of Baylor University, what started out as a way of prioritizing IT projects has become the key to managing an aggressive 10-year plan for the entire University's future. Today, Baylor is applying the techniques of Enterprise Portfolio Management to shape the extensive and ambitious vision of Baylor President Robert B. Sloan, Jr.

The story begins in November 2000 when Dr. Ramsower became CIO at Baylor. The higher education institution had more than 250 IT projects that represented an investment in excess of $15 million and involved no fewer than 130 different resources. "Within the first week," says Dr. Ramsower, "I realized an IT Portfolio Management solution would be critical to the success of my division."

Dr. Ramsower selected an IT Portfolio Management solution from Pacific Edge Software in Bellevue, Washington. "We selected Pacific Edge," says Dr. Ramsower, "because it was effective, easy to use, and provided predefined IT templates so that information could be obtained with minimal bureaucratic overhead."

"It was also important to us that the Pacific Edge solution supported project and resource management," he continues. "But it is not another project management tool – it's a way to examine, analyze, and measure our product, project, and asset investments and their alignment with strategic objectives."

Initially, Dr. Ramsower saw IT Portfolio Management only as a means of tackling the complex challenge of prioritizing IT investments. However, he soon understood that this could go much further.

FROM IT TO THE ENTERPRISE – [illegible] FOR STRATEGIC PLANNING

Having developed an ambitious 10-year vision for the University's future, Baylor President Robert B. Sloan, Jr., charged Dr. Van Gray to apply the same techniques across the entire institution, to provide visibility into all the initiatives proposed in "Vision 2012."

The dramatic growth in scope – from IT to the Enterprise – shows how broadly Enterprise Portfolio Management can be applied. The University is experiencing the same benefits gained in the IT context, but now, across the entire institution. The Pacific Edge Enterprise Portfolio Management solution enhances the strategic planning process, supports approval and scheduling initiatives, monitors the progress of initiatives, and analyzes the effectiveness of initiatives in achieving their intended strategic outcomes.

Dr. Gray is delighted. "We're taking what the IT division learned and using it to assist the University's Strategic Planning efforts to approve, manage, monitor, and measure the large-scale initiatives required to achieve the president's ten-year vision."

The results: today, Baylor uses Pacific Edge software to filter all proposed vision-related initiatives each year. The project and investments approved and managed with the software currently represent approximately 11 percent of the University's total annual operating budget. This is expected to expand next year to encompass over 700 projects totaling $110 million or one-third of the University's annual operating budget, with this percentage increasing steadily throughout the implementation of its ten-year vision. "Without the systematic approach to decision-making afforded by the use of Pacific Edge's software, our risk of mismatching our financial resources to the activities necessary for successful implementation of our vision would be extremely high. The Pacific Edge solution lowers that risk and is a critical component in promoting the achievement of our required investment returns," reports Dr. Gray.

Dr. Reagan M. Ramsower is Associate Vice President, Chief Information Officer, Dean of Libraries, and Professor of Management Information Systems at Baylor University. He is internationally recognized for his pioneering work in 1984 on telecommuting, and has published several books and numerous articles in the journals of information systems.

Dr. Van D. Gray is Associate Vice President for Strategic Planning and Improvement, and Associate Professor of Management at Baylor University's Hankamer School of Business. He is responsible for managing the overall strategic planning process for both the University's academic and administrative units, including development of strategic plans that support Baylor 2012, Baylor's 10-year Vision.

NEXT STEPS

More information on Portfolio Management in the Enterprise can be found online at www.portfolioknowledge.com.

Sign up at the same Web site for a complimentary subscription to *Portfolio Knowledge* magazine.

For more on the Pacific Edge Enterprise Portfolio Management solution, call (425) 897-8800 or visit www.pacificedge.com/knowledge

This special feature on Enterprise Portfolio Management was brought to you by Pacific Edge Software, the leading provider of Enterprise Portfolio Management software for global organizations. Pacific Edge delivers closed-loop management solutions that help businesses maximize value and reduce risk in their investment, project, and product portfolios.

Pacific Edge's business-critical solutions include Project Office® and Portfolio Edge™ enterprise software products, professional services, industry-specific templates, and a proven portfolio management process.

To explore how Enterprise Portfolio Management can help you align investment and development activities with business strategy, please contact us at:

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Portfolio Management for Smarter Business™

The Forecast Is Clear

Predictive analytics — a combination of mining, models and math — can tell you what customers will do next. By Gary H. Anthes

THE POTENTIAL FOR mining cost-saving and revenue-boosting ideas from data is increasing as companies build bigger data warehouses, applications become more integrated, computers grow more powerful and vendors of analytic software introduce products that are easier to use.

But many companies that have made huge investments in terabyte-size data stores aren't using them effectively to forecast the future — to predict, for example, which customers are likely to leave, which ones will probably respond to the next promotion, which ones are ripe for cross-selling and what will happen to sales if prices are increased by 5%.

While many of the products that can answer those questions use esoteric techniques such as neural networks, logistic regression and support-vector machines, they don't require a Ph.D. in math, users say. Indeed, the biggest stumbling block to using "predictive analytics" is getting the data, not analyzing it, they say.

That has been the case so far at BankFinancial Corp. in Chicago. It uses the Clementine data mining "workbench" from SPSS Inc., also in Chicago, to develop models that predict customer behavior so the bank can, for example, more accurately target promotions to customers and prospects.

The bank uses Clementine's neural network and regression routines for these models. It's also beginning to use PredictiveMarketing, SPSS's new package of "best-practice templates" for helping users set up predictive models.

Models Easy, Data Hard

PredictiveMarketing will reduce the time it takes the bank to develop a model by 50% to 75%, says William Connerty, assistant vice president of market research. The first major application is a model to predict customer "churn," the rate at which customers come and go. It will be used to identify the customers most likely to leave the bank during the coming month.

The problem is, the model has access only to account information prepared from weekly and monthly summaries, not to the daily customer activity that would make it more timely. "The biggest obstacle is getting transaction data and dealing with disparate data sources," Connerty says.

The data that BankFinancial needs in order to assess customer loyalty comes from several bank systems and unintegrated customer survey databases. A lot of systems integration and interface work needs to be done before the bank will see the full fruits of its modeling tools, Connerty says.

"We need to increase our efficiency, our ability to deliver actionable information to decision-makers," he says. "I'm under a lot of pressure to deliver."

KXEN Inc. (Knowledge Extraction Engines), an analytic software company in San Francisco, is another vendor that has heard users' cries for easier modeling. It claims that its Analytic Framework product can greatly reduce the time it takes to define, develop and run a model. For example, KXEN's Consistent Coder module automatically transforms raw, inconsistent data into clean, uniformly formatted data that's ready for modeling.

DAVID JOEL

"The big sweet spot for KXEN is it cuts data preparation time in half," says KXEN user Seymour Douglas, director of CRM and database marketing at Cox Communications Inc. in Atlanta. It also masks complexity, he says, "so you don't need a big-dollar statistician; you can put someone at a more junior level, because a lot of heavy lifting is done by the tool."

Cox, a cable services provider, uses KXEN's Analytic Framework to identify its most loyal and profitable customers, predict churn and forecast who might be most receptive to cross-selling pitches.

One model revealed that customers in apartments tend to be relatively short-term Cox customers. "So we now offer them product packages where we try to recover our investment quicker," Douglas says. "Without KXEN, that would not have been obvious at all."

But the labor-saving benefits of KXEN come at a stiff price, he says. "For a five-seat license, you'll pay about $360,000, plus an annual fee of about $60,000."

Get Organized

Robert Berry, president and CEO of Central Michigan University Research Corp. in Mount Pleasant, says many companies have made huge investments in data warehouses but tend to use them more for analysis of past performance than for "predictive intelligence." One reason is they aren't organized for it, he says.

Berry says predictive modeling should involve collaboration among people who have IT, analytical and business expertise.

"You have to build a business-intelligence team," he says. "But companies are struggling with common issues like who owns it, who manages it and so on. How do you pull the business skills, the IT skills and the analytical skills across corporate silos and create this team? It's not easy."

Berry advises having the business-intelligence team report directly to a business unit. "It needs to have a definite link to corporate profits," he says.

Giving Ratings to Leads

Hewlett-Packard Co.'s Enterprise Systems Group pulls together people with diverse backgrounds and strong analytical skills — including some people who also have IT skills — for its group that does predictive modeling of customer behavior. The group is part of "CRM operations" under a vice president for sales, says Randy Collica, a senior business/data mining analyst. On a project-by-project basis, people from sales, marketing and other departments may participate, he says.

Collica says it's not necessary to have a professional mathematician on staff in order to do statistical modeling. "But you need some basic statistics," he says. "If someone says, 'This is a normal distribution,' you at least need to know what that means."

HP uses software from SAS Institute Inc. in Cary, N.C., to mine its database of customers and prospects, using regression and other techniques to predict churn, loyalty and where to target promotions. HP also mines its huge stores of unformatted text information, conducting a kind of predictive analytics that's much less common.

HP has some 750GB of customer information, including data from pre-merger Compaq Computer Corp. that dates to 1984. It has customer data from its call centers, including e-mails from customers and prospects and text typed in during voice calls. Included in these call records are "lead ratings," call center personnel's assessments of a caller's readiness to buy — coded as "hot," "warm" or "suspect."

But some records lack lead ratings, so HP has used SAS's Text Miner to predict the rating these customers should get. Text Miner does that by comparing text from unrated customers to "clusters" of text from rated customers that contain similar terms and concepts.

Text Miner works by preprocessing raw text after transforming it into a grid, or matrix, that relates terms to documents. The matrix indicates the frequency of every term in the document collection. Specific bits of important information, such as customer names, are extracted and summarized.

Next, a mathematical technique called singular-value decomposition replaces the original matrix with a much smaller matrix by purging unimportant words and highlighting more relevant ones.

The new matrix can be used to place associated terms and documents into categories. HP helps standardize the matrix with synonym lists that say, for example, that customers calling about "disk drives" or "hard disks" are really all interested in storage.

Finally, clustering, classification and predictive methods are applied to the reduced data using traditional data mining techniques. HP uses "memory-based reasoning," a technique that makes a prediction about a record by comparing it with past records with similar characteristics.

These techniques can predict the customer-lead rating with 85% accuracy, Collica says. "Without this technique, I'd have had to go back to the original records and actually read them," he explains. "And when you have that much volume, you can't read them all."

HP also intends to use the text mining and clustering techniques to find out what loyal customers tend to talk about when they contact an HP call center, as well as what's on the minds of those customers deemed least loyal. The goal, of course, is to win over the less loyal ones.

Collica says HP has yet to exploit a number of promising text data sources. For example, it will analyze the text in warranty claims to glean insights about problems customers are having with products and the text in warranty cards to better understand its customers.

HP will also try to mine information from customers' and prospects' own Web sites. "Web sites are a great source of wonderful information about your customers," Collica says.

> "The biggest obstacle is getting transaction data and dealing with disparate data sources."
>
> **WILLIAM CONNERTY**, ASSISTANT VICE PRESIDENT OF MARKET RESEARCH, BANKFINANCIAL CORP.

Tool Box for Forecasting And Analysis

Regression: Fits a line to a set of historical data points to minimize the sum of the squares of the distances of the data points to the line. For example, if the line expresses the relationship between independent variables such as age, sex and income to a dependent variable such as sales, then it defines an equation that can be used to forecast sales.

Time Series Analyses

- **Moving average:** Each new point in the time series is the average of some number of earlier consecutive data points, sometimes chosen to eliminate seasonal factors or other irregularities.
- **Exponential smoothing:** Similar to the moving average, except more recent data points are given more weight.

Memory-based reasoning: Sometimes called the "nearest neighbor method," it's an artificial intelligence technique that can forecast something by identifying the most similar past cases and applying that information to a new case.

Artificial neural networks: Patterned after the human brain, they're composed of a large number of processing elements (neurons) tied together with weighted connections (synapses). [See story, QuickLink a3010.] They're trained by looking at real-world examples – for example, historical sales data and the past values of variables that may influence sales. The training adjusts the weights, which store the data needed to solve specific problems, such as sales forecasting.

Decision trees: Sequential decisions are drawn as branches of a tree, stemming from an initial decision point and branching out to multiple possible outcomes. The trees can be used to predict the most likely outcome and to forecast financial outcomes by multiplying costs or returns at each branch by the probability that of branch being taken.

– Gary H. Anthes

PREDICTIVE MODELING

A Costa Rican bank uses cost modeling to better understand its operations and to make decisions such as whether to add more bank tellers.

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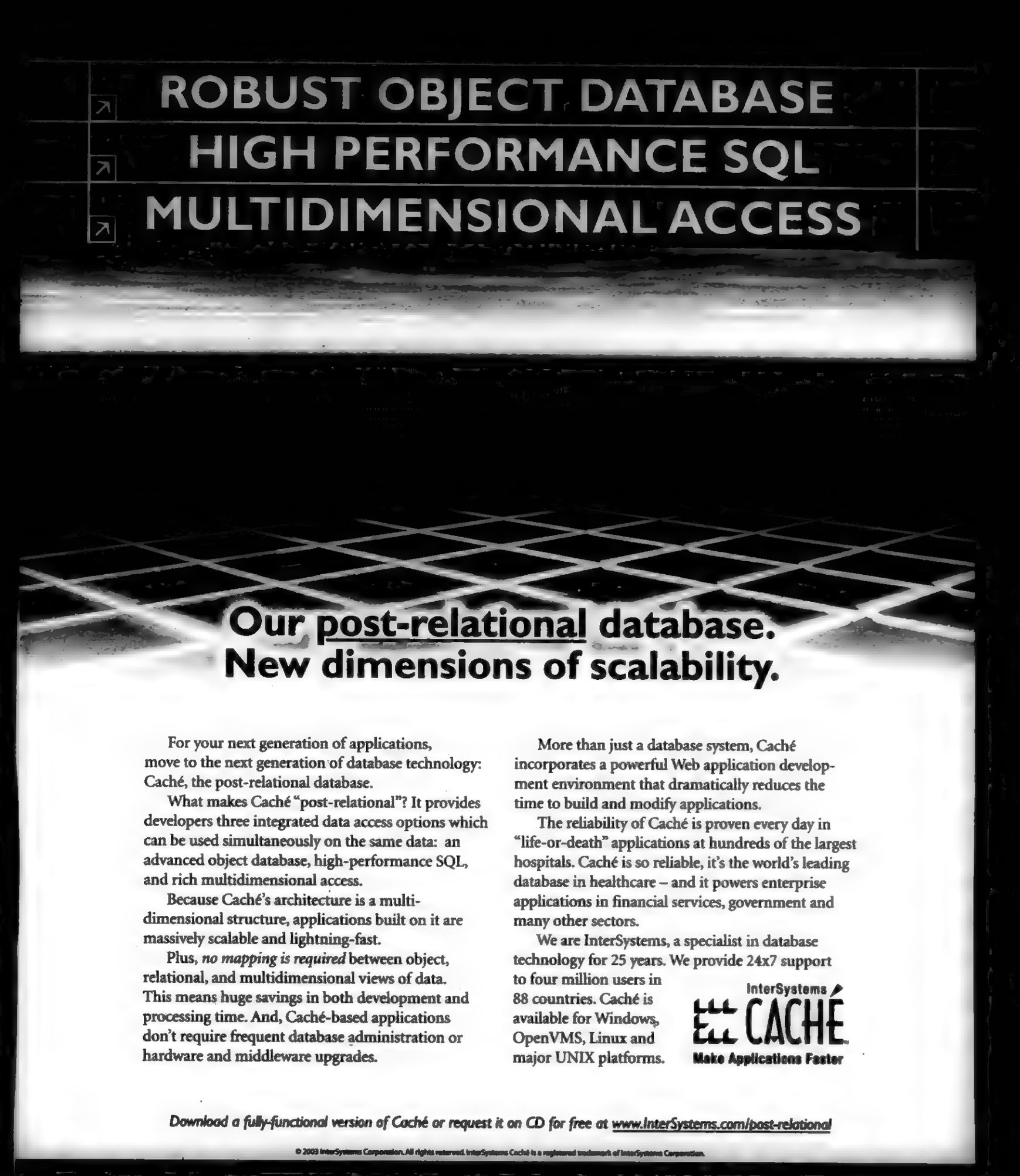

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Unexpected Insights

The results of data mining queries can range from utterly baffling to very useful, with lots of surprises in between. By Mitch Betts

SOMETIMES the results from data analysis are just plain absurd. Web logs show that one of the most common search phrases entered at *Computerworld*'s Web site one week was "Ryder trucks." Nobody knows why.

More often, data mining yields unexpected nuggets of information that open the company's eyes to new markets, new ways of reaching customers and new ways of doing business.

Samsung Electronics America in Irvine, Calif., for example, analyzes reports from 10,000 resellers to identify "lost deals," that is, orders that went to competitors. In one business segment — computer monitors sold to the health care industry — Samsung found that 40% of the lost deals went to one competitor and represented 80% of the total lost revenue.

Knowing those chilling facts, Samsung is working more closely with hardware integrators in the health care field to win more of those orders, says Helman Lukito, a Samsung marketing manager. But until the company collected and analyzed the data from its reseller extranet, which is powered by software from San Francisco-based Allegis Corp., Samsung was "going into the market blind," Lukito says.

Sometimes a company likes what it sees when it analyzes the data. Catalog company Lillian Vernon Corp. in Rye, N.Y., has always been strong with female shoppers but had trouble attracting male customers. Using Web analytics from Fireclick Inc. in Los Altos, Calif., Lillian Vernon discovered that men — who might not flip through a Lillian Vernon paper catalog — were happy to shop at Lillian Vernon's Web site. Since that discovery, the company has placed products that appeal to men more prominently on its Web site, a company spokesman says.

An important lesson from data mining is that stereotypes are often wrong. For example, an image of motorcycle owners as Hells Angels fades away when you learn that they usually rank within the highest income bracket in their neighborhoods, says Jordan Modell, senior vice president of database marketing at Wunderman in New York, a division of Young & Rubicam Inc.

"What you thought previously might not be true," Modell says. "That's what makes data mining fun, but there's a purpose to it, too," because it means the company can send marketing messages to people who will be receptive, he adds.

Modell's data analytics team takes large extracts of clients' data warehouses, matches them with external databases and then uses mining tools from SAS Institute Inc., SPSS Inc. and Brio Software Inc., as well as direct SQL queries.

Some results are almost common sense. For example, the best markets for toy sales are places where there are lots of children and lots of toy purchases, such as Little Rock, Ark., and Macon, Ga., says Warren Foster, director of marketing intelligence at The Martin Agency, a Richmond, Va.-based advertising agency. He uses mapping software and data sets from MapInfo Corp. in Troy, N.Y., to pinpoint areas where clients should advertise.

But some results are counterintuitive. For example, Foster says Phoenix isn't a good place for selling golf clubs, despite the many golf courses nearby. Why? Tourists and conventioneers play in Phoenix, but they don't buy their clubs there. It turns out the best places for golf club sales are Rochester, N.Y., and Detroit, where there are many avid golfers who buy their clubs locally.

Perhaps the most important value of data analytics is that they help business managers make decisions based on facts rather than on old assumptions or gut feelings, many users say.

New York-based cosmetics and fragrance firm Coty Inc. uses financial analytics from Hyperion Solutions Corp. in Sunnyvale, Calif., to settle internal debates about resource allocation for various product lines, says Jim Shiah, senior vice president and corporate controller. The facts about sales and profitability of each product line have put an end to the "democratic anarchy over resource allocation and elevated the level of discourse," Shiah says.

Ace Hardware Corp. in Oak Brook, Ill., finds that the facts gleaned from its data warehouse can persuade reluctant store owners to raise or lower their prices. "We had one store that only sold one wheelbarrow a year, but when he lowered the price, he sold four in one month and made more money than he did the previous year," says data warehouse architect Mark Cothron. Ace uses analytical software from Informatica Corp. in Redwood City, Calif.

And conventional wisdom held that batteries and light bulbs have to be priced very competitively because they can be bought at many different places. But data mining found that shoppers don't really do a lot of comparison shopping for those items, says Diane Flynn, technology business manager at Ace. "People have their long-held theories, but with the facts, you can prove them right or wrong." ■

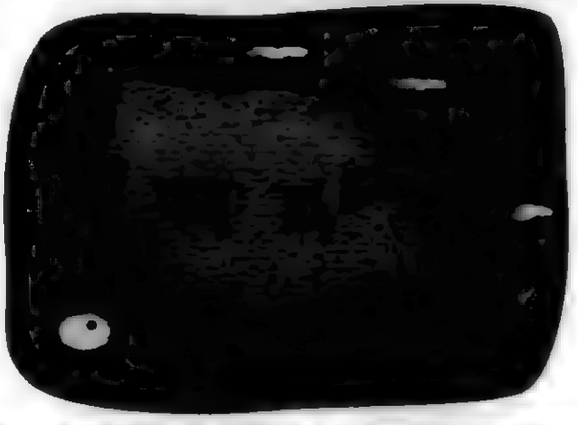
Did You Know?

More quirky insights from data mining:

- **Bank customer-service centers experience a huge spike in calls between midnight and 3 a.m.** (Source: Wunderman, New York)
- **The most frequent callers to bank customer-service centers phone in more than 200 times per year, and yet they generally rank lowest in deposits.** (Source: Wunderman)
- **According to the Florida Marine Research Institute, one quarter of the manatees in the Atlantic Ocean die from boat collisions.** (Source: SAS Institute Inc., Cary, N.C.)
- **Call centers have found that callers from the South talk about 20% longer, even for the same type of call.** (Source: Steve Meyer, Quaero Corp., Charlotte, N.C.)

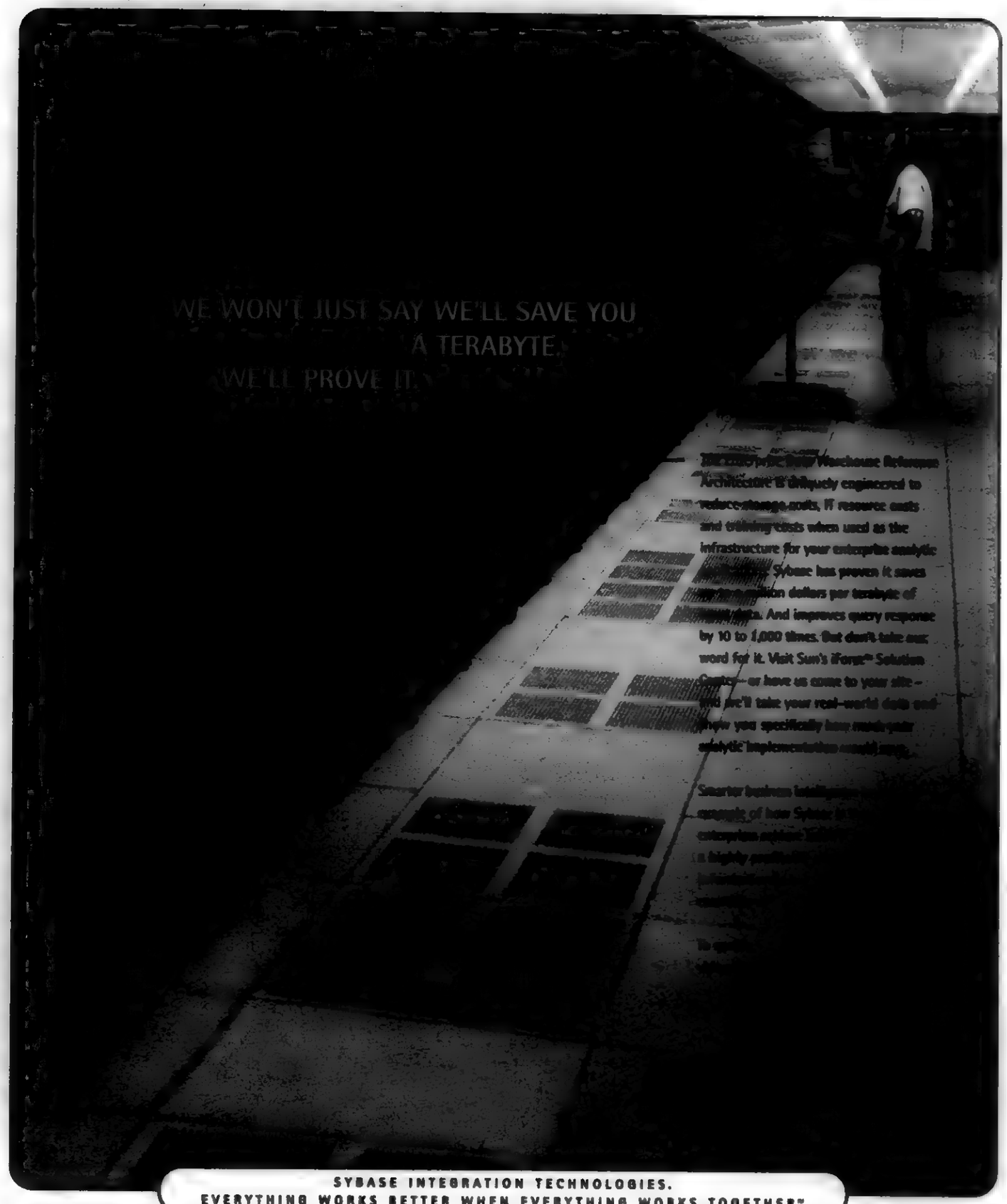
Chicken Burgers vs. Beef Burgers

Using business-intelligence software from Cognos Inc., restaurant chain Red Robin Gourmet Burgers Inc. in Greenwood Village, Colo., can analyze what's selling where and then adjust advertising and promotions to local markets, says Rob Jakoby, director of restaurant systems. For example, according to 2002 data, patrons on the West Coast eat about 40% more chicken burgers than patrons in Missouri do, Jakoby says.



JAMES YANG

- Above-average sales of chicken burgers: Oregon, California, Washington, Pennsylvania, Colorado
- Above-average sales of beef burgers: Missouri, Arizona, Virginia, Ohio, Indiana, Nevada



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Buying Intentions

The top five types of software that IT executives intend to buy this year:

1. Content/document management
2. Query/reporting/analysis
3. Project management
4. Web management applications
5. Web analytics

Base: 150 senior IT executives

Barriers To Business Intelligence

What are the biggest challenges of implementing business-intelligence and data warehousing projects in your organization?

1. Budget constraints
2. Data quality
3. Managing expectations
4. Implementation time
5. Culture change
(Tie) Data integration

Base: 1,648 companies in an online survey

Failure Rate

Has your organization experienced any data warehouse project failures?

Base: 142 companies worldwide

MARK HALL

Trust, but Verify

ONCE, BACK IN THE 1990s, I hosted an invitation-only party for my magazine at a trendy bar in Boston. My assistant arranged it all, including hiring a bouncer, whose frightening size was surpassed only by his scary disposition. When I arrived, somewhat late and without a pass, the bouncer blocked my path. I pointed to my picture on the invitation in his hand, but he just shrugged and said, "You don't look like you."

Although the girth and personality need not be similar, I believe that the growing population of "delegated administrators," or data gatekeepers, should have the same innately skeptical nature as that Boston bouncer. Because when you hand over the keys to your data to someone outside IT, you want that person to be extremely selective about who gets to see what data, when and why.

Assigning gatekeeper duties to non-IT workers isn't new. With the advent of networked PCs and the Web, virtually all data entry work moved from IT to end users, and new data permissions had to be part of that change.

These gatekeepers distribute data rights for certain applications inside and, increasingly, outside companies. Say a new employee or manager is hired. The data gatekeeper has to decide what level of data access they get. Or a disgruntled employee is fired. The data gatekeeper turns off his access immediately. The job is usually undertaken by a specific individual inside an organization who adds those duties to his regular tasks. But from IT's perspective, that person's job is a process that can make or break the usefulness of an application. The responsibilities of the data gatekeeper have to be under IT's control and should be restricted to specific applications for a defined group — not the entire user population.

Take access rights. You could design and write a program that connects a biometric database to the corporate HR application to identify users and verify their roles in the company. Next, you could develop a Q&A program to determine which applications those people need. Those results could then be pushed into a database that ties applications to job functions. The three could then be linked to serve up the right software to the right individual.

Most companies don't go to that kind of trouble and expense because it's far more efficient to simply have a trusted person — your systems administrator — give workers access rights. But even your sysadmin can't make the best decisions when it comes to access rights for your customers or other people within your supply chain.

That's why Avnet Inc., a global distributor of high-end computer and network systems in Phoenix adopted this data gatekeeper approach for its Channel Connection application. Hundreds of value-added resellers that acquire products from Avnet use Channel Connection to access real-time data on orders, credit status and other information.

Dave Stuttard, vice president for applications solutions in Avnet's computer marketing group, says IT staffers don't have the level of information about customers to determine who would be best suited to access the Channel Connection application, so Avnet trusts its sales staff to sign up customers and assign them rights to the numerous application modules inside Channel Connection. As data gatekeepers, the salespeople are trusted to make the decisions about who else can be trusted.

But Avnet also heeds that old Russian proverb: Trust, but verify. Every salesperson's recommendations must be approved by an Avnet sales operations manager.

Once given access, the customers designate a data gatekeeper (approved by Avnet), who has broader data-access privileges. For example, as employees' roles change, a customer's data gatekeeper can update the system to swap one user's rights for another.

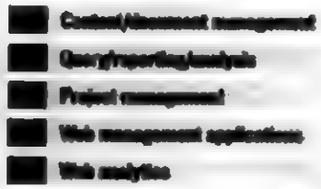
The extension of trust through the data gatekeeper process is essential to making this kind of application work outside a company. But equally vital is having a solid security system in place. Avnet uses Directory Smart, a secure LDAP database from OpenNetwork Technologies in Clearwater, Fla. Stuttard says the product's single sign-in feature makes it easy for users to navigate through the multiple application modules, which means customers actually use the program. And its database gives the data gatekeeper control "down to the page level" by assigning a user's role and privileges, he says.

Of course, a customer's data gatekeeper can't change his company's access rights. Only Avnet's staff can do that. Because, as Avnet knows, the benefits of having someone watch the gate can quickly vanish when your trust is placed in the wrong hands.

SNAPSHOTS

Buying Intentions

The top five types of software that IT executives intend to buy this year:



Base: 150 senior IT executives

SOURCE: ABERDEEN GROUP INC., BOSTON, MARCH 2003

Barriers To Business Intelligence

What are the biggest challenges of implementing business-intelligence and data warehousing projects in your organization?

Base: 1,648 companies in an online survey

SOURCE: IDC, FRAMINGHAM, MASS., JANUARY 2003

Failure Rate

Has your organization experienced any data warehouse project failures?

Base: 142 companies worldwide

SOURCE: CUTTER CONSORTIUM, ARLINGTON, MASS., JANUARY 2003

MARK HALL

Trust, but Verify

ONCE, BACK IN THE 1990s, I hosted an invitation-only party for my magazine at a trendy bar in Boston. My assistant arranged it all, including hiring a bouncer, whose frightening size was surpassed only by his scary disposition. When I arrived, somewhat late and without a pass, the bouncer blocked my path. I pointed to my picture on the invitation in his hand, but he just shrugged and said, "You don't look like you."

Although the girth and personality need not be similar, I believe that the growing population of "delegated administrators," or data gatekeepers, should have the same innately skeptical nature as that Boston bouncer. Because when you hand over the keys to your data to someone outside IT, you want that person to be extremely selective about who gets to see what data, when and why.

Assigning gatekeeper duties to non-IT workers isn't new. With the advent of networked PCs and the Web, virtually all data entry work moved from IT to end users, and new data permissions had to be part of that change.

These gatekeepers distribute data rights for certain applications inside and, increasingly, outside companies. Say a new employee or manager is hired. The data gatekeeper has to decide what level of data access they get. Or a disgruntled employee is fired. The data gatekeeper turns off his access immediately. The job is usually undertaken by a specific individual inside an organization who adds those duties to his regular tasks. But from IT's perspective, that person's job is a process that can make or break the usefulness of an application. The responsibilities of the data gatekeeper have to be under IT's control and should be restricted to specific applications for a defined group — not the entire user population.

Take access rights. You could design and write a program that connects a biometric database to the corporate HR application to identify users and verify their roles in the company. Next, you could develop a Q&A program to determine which applications those people need. Those results could then be pushed into a database that ties applications to job functions. The three could then be linked to serve up the right software to the right individual.

Most companies don't go to that kind of trouble and expense because it's far more efficient to simply have a trusted person — your systems administrator — give workers access rights. But even your sysadmin can't make the best decisions when it comes to access rights for your customers or other people within your supply chain.

That's why Avnet Inc., a global distributor of high-end computer and network systems in Phoenix adopted this data gatekeeper approach for its Channel Connection application. Hundreds of value-added resellers that acquire products from Avnet use Channel Connection to access real-time data on orders, credit status and other information.

Dave Stuttard, vice president for applications solutions in Avnet's computer marketing group, says IT staffers don't have the level of information about customers to determine who would be best suited to access the Channel Connection application, so Avnet trusts its sales staff to sign up customers and assign them rights to the numerous application modules inside Channel Connection. As data gatekeepers, the salespeople are trusted to make the decisions about who else can be trusted.

But Avnet also heeds that old Russian proverb: Trust, but verify. Every salesperson's recommendations must be approved by an Avnet sales operations manager.

Once given access, the customers designate a data gatekeeper (approved by Avnet), who has broader data-access privileges. For example, as employees' roles change, a customer's data gatekeeper can update the system to swap one user's rights for another.

The extension of trust through the data gatekeeper process is essential to making this kind of application work outside a company. But equally vital is having a solid security system in place. Avnet uses Directory Smart, a secure LDAP database from OpenNetwork Technologies in Clearwater, Fla. Stuttard says the product's single sign-in feature makes it easy for users to navigate through the multiple application modules, which means customers actually use the program. And its database gives the data gatekeeper control "down to the page level" by assigning a user's role and privileges, he says.

Of course, a customer's data gatekeeper can't change his company's access rights. Only Avnet's staff can do that. Because, as Avnet knows, the benefits of having someone watch the gate can quickly vanish when your trust is placed in the wrong hands.

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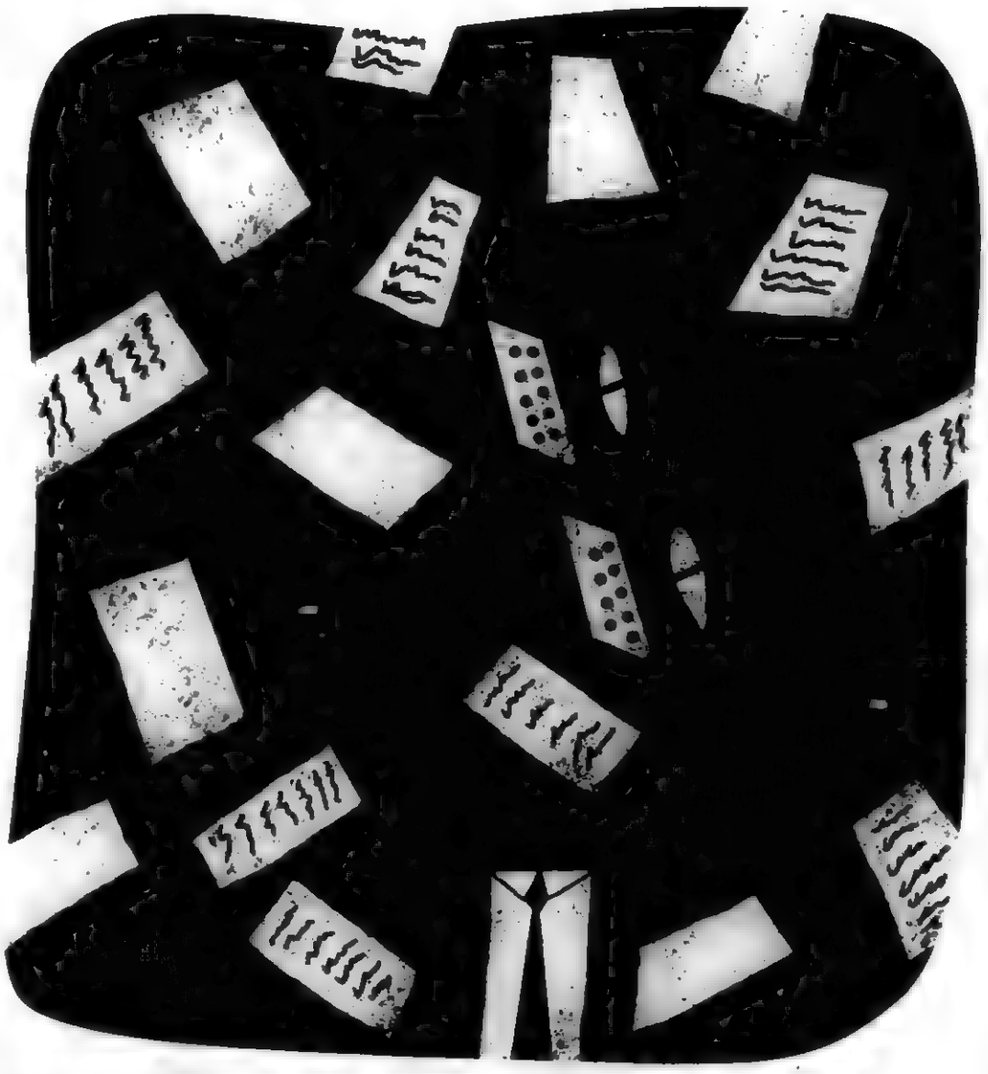
Too Much Of a Good Th



JANE S YANG

Real-time data analysis sounds good, but not if the data is wrong or can't be absorbed by the organization. By Barbara DePompa Reimers

THE NEED to speed up business decision-making to keep from falling behind the competition is driving companies to use real-time analytical tools. With them, they hope to more quickly exploit key corporate transaction data housed in databases, enterprise data warehouses and other data stores.

But the move to instant analytic insights comes with big trade-offs and incremental costs, say analysts and users.

Glib executive orders to provide real-time data feeds everywhere in the company can be counterproductive if the data quality is low or the company doesn't have the processes in place to actually analyze and act on the data. Besides, real-time data analysis may be a high-payoff pursuit in only a few mission-critical areas of the company.

Those negatives don't appear to be quelling interest, however. In a December 2002 survey of 700 IT executives by Evans Data Corp. in Santa Cruz, Calif., 48% of respondents said they were already analyzing data in or near real time, and another 25% reported plans to add real-time analytics this year.

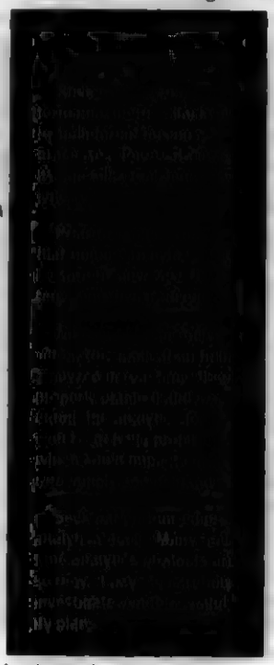
A key issue is how the term *real-time analytics* is defined, because there's confusion about what constitutes real time vs. near-real time vs. not real time. Joe McKendrick, an analyst at Evans Data, says a strict definition of *real-time analytics* is dynamic analysis and reporting based on data entered into an operational system less than one minute earlier. At most businesses, however, analytics is considered real

time if it's conducted on data collected within the past hour, and near-real time is analytics conducted on data collected within the past 24 hours, McKendrick says.

Absorbing the Data

McKendrick says the growing interest in real-time analytics can be attributed to the pressures on businesses to make faster decisions, keep smaller inventories, operate more nimbly and track performance more carefully.

Trouble is, there may be no reason to use real-time analytics if a company can absorb its transaction information only on an hourly, daily or weekly basis. For example, at MBIA Insurance Corp. in Armonk, N.Y., overnight updates work best to feed the OLAP engine used to help the company decipher risk related to mortgages, insurance policies and other services.



"What we've found is that overnight updates are plenty, as long as users can gain immediate access to the information they need to make business decisions quickly during the day," says Lynn Jacobs, associate vice president for IT applications at MBIA. Using the Essbase OLAP tool from Sunnyvale, Calif.-based Hyperion Solutions Corp., business users at the insurer can quickly analyze financial information in order to assess risks and make fast business decisions. The number of financial analysis applications supported by the Essbase tool will be expanded this year from the current 10.

Too Many Iterations

In many traditional business environments, real-time analytics can be overkill. Barton Goldenberg, president of ISM Inc., a CRM consultancy in Bethesda, Md., offers the following example: Three managers meet to discuss business development issues, each armed with sales, market or target information they captured from the system at different times of the day. Each manager has created a snapshot to present an accurate picture, but the numbers won't match. "This situation will hardly help speed decision-making," Goldenberg says.

In other cases, real-time analytics may make it easier to make bad decisions fast, because of faulty data.

Managers at Greeneville, Tenn.-based Forward Air Corp. now can get their hands on real-time information via the company's intranet. Using specialized reporting and analytical tools from Appfluent Technology Inc. in Arlington, Va., they can track things like the amount of freight shipped by various customers. The next goal, says Glenn Adelaar, vice president and CIO at the trucking company that serves the air-freight industry, is to enable department managers to analyze more of the transaction data that's accessible via the real-time analytics tool.

But a manager who wants to track his salespeople's daily contribution will find that timing is a big issue. Right now, about 90% of sales transactions are entered within 20 minutes of completion, Adelaar says. "But that 10% will get some poor salesperson clobbered," he says. Adelaar says that although it's critical to get accurate data to business managers quickly, the business processes that support those data feeds must be made bullet-proof to attain high-quality insights.

Common Pitfalls

So, what do organizations need to understand about real-time analytics before they invest in anything designed to help them speed decision-making?

Although there may be pressure to make everything real time, companies need to be selective and identify which business activities will benefit from real-time data feeds and which won't. Although real-time data feeds may cause problems like the one Adelaar described, they can help many kinds of workers, such as air traffic controllers, stock traders and emergency services providers, make better decisions faster.

Some experts say real-time analytics are most valuable at the point of customer contact so call center personnel can use the data to make personalized offers, upsell or cross-sell. Bell Mobility Inc., Canada's largest wireless carrier, operates two customer service centers staffed by 550 representatives. The company uses San Mateo, Calif.-based E.piphany Inc.'s Real-Time tool to ensure that employees make the right offers at the right time without relying on guesswork, says Derek Pollitt, associate director of CRM strategy and deployment at Bell Mobility in Mississauga, Ontario.

Since the Real-Time tool was implemented in September, sales per hour have increased 18%, and total inbound marketing revenue increased by 16% in the first month. Bell Mobility has also been able to speed the time it takes to create new marketing campaigns by 75%.

Tools and Troubles

The real-time analytical tools now available are primarily from new, small suppliers such as Aleri Inc. in New York or a few more-established providers such as Teradata Corp., Sybase Inc., InterSystems Corp. or E.piphany. These vendors offer tools meant to help companies in specific areas such as customer relations, rapid application development or the need for nonstop operations, says Alex Veystel, an analyst at Aberdeen Group Inc. in Boston.

Meanwhile, larger companies are having trouble finding off-the-shelf tools to extract pertinent information from various systems and transactional databases. So they have to create their own enterprise application integration middleware to extract the data and send it to analyst desktops, Goldenberg says.

For now, the cost to gain instant intelligence via real-time analytics is high. But in the future, analysts say, a faster return on investment for real-time analytics is possible — if companies can change processes and migrate to newer technologies such as XML, J2EE and Microsoft Corp.'s .Net.

As hardware costs plummet, bandwidth expands and storage is increasingly commoditized, it will become far easier and less costly to access and analyze operational data in real time than in any current relational database environment, says Veystel.

Ultimately, analysts say, it's up to each business to seek insights delivered at the right moment to help speed crucial business decisions. Whether that information is updated once an hour, once a day, once a week or once a month will depend on each company's needs.

DePompa is a writer and editor in Germantown, Md. Contact her at bdepompa@comcast.net.

Following the Sun

Need to get that business intelligence report done overnight? A few IT users are starting to depend on offshore outsourcing to get the job done faster and cheaper.

Electronic Data Systems Corp. now has several customers that farm out portions of their business intelligence work to EDS sites in countries such as Ireland and New Zealand, according to EDS consultants Dan Schwartz and Bill Dodds. Schwartz says this works best in two areas: the data integration process, also known as the extract, transform and load (ETL) process; and OLAP reports.

First, EDS consultants work with the clients to establish the specifications for the data reporting effort, and then the job is sent to the offshore assembly line. For example, Dodds says, the first eight-hour shift might handle the ETL work and then pass it to the second shift – perhaps in a different country – to handle the OLAP report and delivery. Taking advantage of time-zone differences, the report can be finished twice as fast, Schwartz and Dodds say.

But in this tough economy, the real reason companies go offshore is to cut costs: Offshore labor costs are 50% to 80% cheaper. But the offshore projects require more overhead to manage the project and establish the specifications, so the net cost savings are closer to 15% to 25%, Schwartz says.

– Mitch Betts

LEGACY BOTTLENECK

Top executives are demanding real-time financial and operational data, but IT shops can't deliver it because of legacy system constraints.

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Dashboards: Not Just For Execs Anymore

When people think of management dashboards, they often think of what used to be called executive information systems (EIS). An EIS provides a fancy computer display of key financial metrics for the corner office. But research by John Hagerty, an analyst at AMR Research Inc. in Boston, indicates that dashboards (also called scorecards) are showing up at all levels of the company and provide data other than financial metrics.

Call it the democratization of dashboards. Hagerty says they're being used in a variety of departments, including customer service, manufacturing, sales, human resources and supply chain management. The big difference is that these dashboards provide operational performance metrics instead of financial statistics.

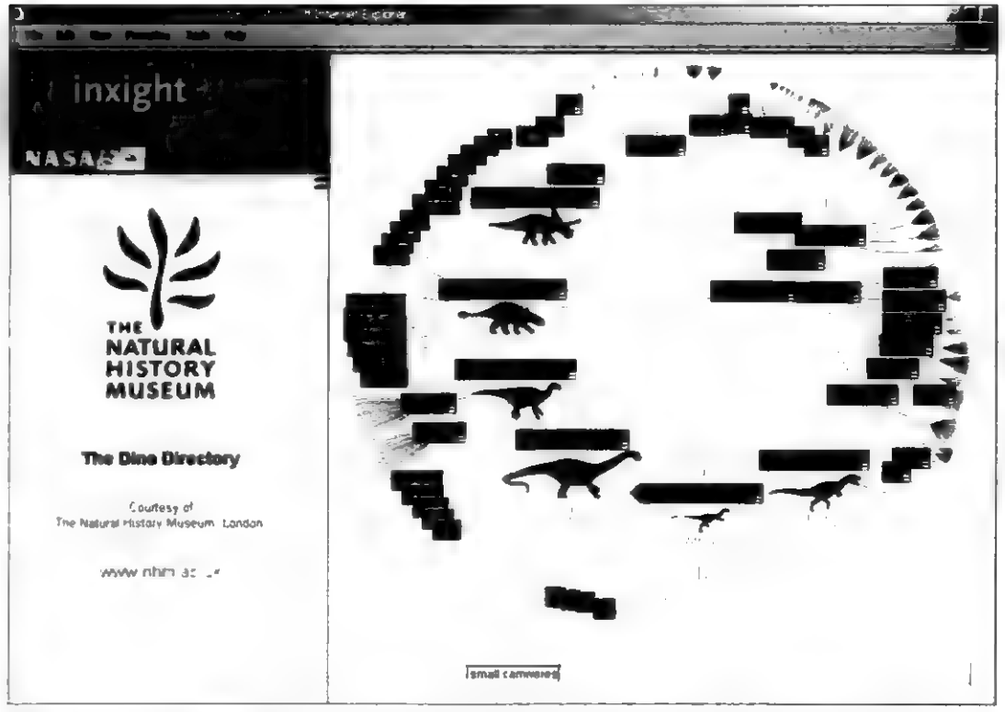
Message to Vendors: Don't Get Too Fancy

Skip the bells and whistles, and just give customers the core business-intelligence capabilities, said Gartner Inc. analyst Bill Hostmann in a recent warning to vendors. "A vendor putting all of its resources into the latest, trendy technology is usually wasting its time and money," he said.

Gartner's study of the business-intelligence software market found that IT managers "are unimpressed by technology hype" and that they want some fairly straightforward things, such as:

- **Ad hoc queries**
- **Access to multiple databases**
- **Scalability**
- **Ease of integration with back-office systems**

In other words, Hostmann says, vendors should steer clear of fads, make scalability and integration high priorities and make ad hoc queries easier to do.



Hub-and-spoke data visualization: The "star tree" graphical user interface – powered by software from Inxight Software Inc. in Sunnyvale, Calif. – helps users navigate large, complex hierarchies of information in a hub-and-spoke fashion. In this case, a user can navigate the taxonomy of dinosaurs by clicking or dragging the information "nodes" to see related species. The same data-visualization technology can be used to navigate Web sites or analyze text databases at intelligence agencies. More examples: *www.inxight.com/products/oem/star_tree/demos.php.*

Data-Quality Perceptions

IT managers are a bit more skeptical than business managers are about the quality of the data in their business-intelligence systems.

How confident are you in the accuracy and reliability of your business-intelligence data?

Corporate management:

Not at all confident	3%
Somewhat confident	35%
Very confident	62%

IT management:

Not at all confident	4%
Somewhat confident	48%
Very confident	48%

Base: Online survey of 121 corporate managers and 363 IT managers.

SOURCE: IDC, FRAMINGHAM, MASS., JANUARY 2003

Patent Watch

A bilingual translation database. The database stores pairs of sentences, one in English and its counterpart in French, for example. When the user enters a text fragment in English, the database retrieves the corresponding text in French. Emmanuel Roche and Yves Schabes at Global Information Research and Technologies LLC, Boston. — *U.S. Patent No. 6,535,842, issued March 18*

A wide-area network of vending machines connected to a host computer, which collects sales and maintenance data in a data warehouse. Thomas P. Howell and Kevin Ward, at The Coca-Cola Co., Atlanta. — *U.S. Patent No. 6,462,644, issued Oct. 8, 2002*

A method of synchronizing two incompatible databases, such as a PC database and a handheld one. David J. Boothby at Pumatech Inc., San Jose. — *U.S. Patent No. 6,532,480, issued March 11*

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Gartner Business Intelligence 2003
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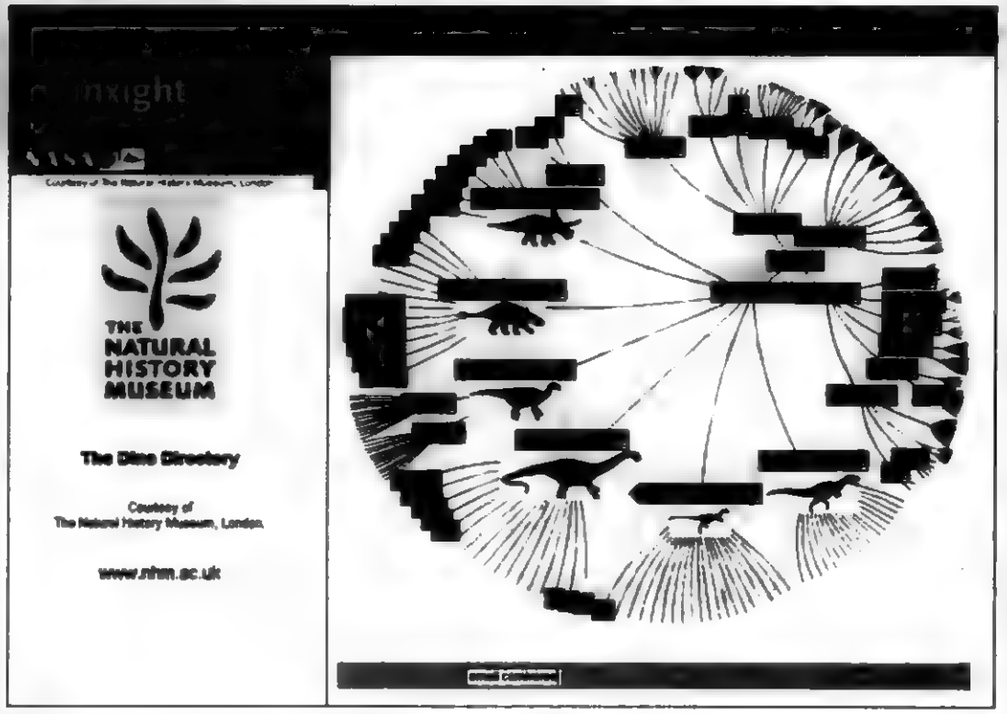

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KATHERINE LAMBERT

When Owens & Minor started internal data mining, "from the beginning, we were aware of security issues around this information

The data about your best customers may be your company's most vital asset. Here's how to make sure business-intelligence data doesn't fall into the wrong hands. By Mark Leon

Keys to the Ki

IT'S NO SECRET THAT in a back room in the typical Fortune 500 company, there's a team of analytical wizards running sophisticated queries that mine for gems such as data about the company's best customers — those top 20% of clients that produce 80% of the company's profits. These jewels can be a business's most valuable intellectual property, which makes them very valuable to competitors.

What's to prevent that data set from walking out the door or falling into the wrong hands?

Sometimes, not much. Many companies lack the internal controls to prevent that information from leaking. The problem is that business-intelligence data is as hard to protect as it is important.

"Securing your business-intelligence information and systems is often an afterthought at best," says Cate Quirk, an analyst at AMR Research Inc. in Boston.

Michael Rasmussen, an analyst at Giga Information Group Inc. in Cambridge, Mass., agrees. "Have most IT shops really thought through the security issues around BI?" asks Rasmussen. "The answer is no."

It Can Be a Business

Owens & Minor Inc. had to think about it. Business intelligence is big business at the Reston, Va.-based medical supplies distributor. A $4 billion company, Owens & Minor counts some of the nation's largest health care organizations among its customers. In late 1996, it started mining data internally using business-intelligence software from Business Objects SA, whose U.S. headquarters is in San Jose.

"From the beginning, we were aware of security issues around this information," says Don Stoller, senior director of information systems at Owens & Minor. "For example, a sales executive in Dallas should only have access to analyses from his region."

Dean Abbott, principal at Abbott Consulting in San Diego, adds, "Don't give access to anyone who doesn't

have a definite need." It is always possible that someone who has legitimate access will abuse that trust, but analysts say you can minimize that potential by strictly limiting access to only those who need it.

To guard against such a breach, Owens & Minor used role-level security functions in the Business Objects application that clearly define who has access to which data. "This meant we had to build a separate security table in our Oracle database," says Stoller.

A few years later, when the company wanted to open its systems to suppliers and customers, security became even more important. In 1998, Owens & Minor moved quickly to take advantage of Web-intelligence software from Business Objects that's designed to Web-enable business-intelligence systems.

The result was Wisdom, a portal that lets Owens & Minor's suppliers and customers access their own transactional data and generate sophisticated analyses and reports from it.

"In [business-to-business transactions], security is key," says Stoller. "We had to make absolutely sure that Johnson & Johnson, for example, could not see any of 3M's information. This meant we had to set up specific customer and supplier security tables, and we had to maintain new, secured universes in Business Objects."

Wisdom was such a success that Owens & Minor decided to go into the intelligence business with the launch of Wisdom2 in the spring of 2000. "We capture data out of a hospital's materials management system and load it into our data warehouse," Stoller explains. A hospital can then make full use of its business-intelligence software to mine and analyze purchasing data. Owens & Minor receives a licensing and maintenance fee for the service.

Administration Nightmare

Layers of security and encryption imply a considerable amount of systems administration overhead. Both Quirk and Rasmussen say that's the main reason security concerns about business intelligence are often swept under the carpet. The issues of authentication (identifying the user) and authorization (what things the user is allowed to do) must be addressed, usually across different applications, Rasmussen says, adding, "Systems administration can be a real nightmare."

"We are going through some of this," says David Merager, director of Web services and corporate applications at Vivendi Universal Games Inc. in Los Angeles. "Our business intelligence needs more security attention."

Vivendi generates business-intelligence reports from two systems: an Oracle-based general ledger database on Unix, and a data entry application for budgets on a Microsoft SQL Server database. The heart of the business-intelligence system consists of Microsoft's OLAP application and software from Comshare Inc. in Ann Arbor, Mich., that provides the Web-based front end for the analytics. "Our budget teams use these reports to do real-time analyses," says Merager.

Rodger Sayles, manager of data warehousing at Vivendi, says one way to secure such a system would be to assign roles to all users within the Microsoft application. Roles determine precisely what a user is allowed to see and do and are usually managed within a directory. If your computing architecture is amenable to a single, centralized directory that supports roles, this may be an attractive solution.

"The problem is that once you have over 40 distinct roles, you run into performance issues, and we have identified about 70 roles," Sayles explains.

He says there's a way around this difficulty. "I think we are going to use a combination of portals and roles. A user would sign on through a particular portal, which would effectively place the user in a role category. This reduces the burden on the application," says Sayles.

Keep It Simple

Dave Stack, manager of corporate financial planning at RSA Security Inc. in Bedford, Mass., employs a similar strategy using some of the same software from Comshare. RSA's business-intelligence applications produce forecasting, budgeting and product reports.

He says good planning has also helped keep systems administration headaches to a minimum. "Comshare gives you about nine types of users," says Stack, "and that is plenty for us."

What makes this small number of profiles possible, he explains, is a good design that uses a hierarchy of four security levels. "These, together with security features in our Microsoft SQL Server database, make it easy for us to create cross-functional roles," says Stack.

But Stack says things would have been a lot more difficult if he had started deploying business intelligence without having a good security plan in place first.

John Schramm, manager of strategic security architecture and engineering at FleetBoston Financial Corp., says a good place to start planning is with a classification system that defines different levels of security for different types of information.

"In order to protect data," says Schramm, "you need to know what the rules are. Our classification system enables us to set the rules that we need to design security around information."

Schramm worked with consultants at Greenwich Technology Partners Inc. in White Plains, N.Y., to define four security levels: highly confidential, which defines data with trade secrets or wire-transfer information; confidential, such as transactional data and credit card numbers; confidential informational, defined as nontransactional data such as customer lists; and company-restricted data like job postings and phone directories.

Security systems, Schramm explains, can include field-level encryption, transport-level security such as Secure Sockets Layer and Secure Copy Protocol, and authentication and authorization. "Combinations of these kick in at different levels in our classification hierarchy," says Schramm.

FleetBoston is a large, distributed enterprise, which makes classification even more important. "We try to maintain these standards across our various lines of business," say Schramm. "They are all different, and one of my primary responsibilities is to integrate them in a secure manner. I need to know what data the different lines of business need."

Complex Profiling

Most companies have thought through network and software security issues, which is why they don't come up that often in discussions about business-intelligence security.

When it comes to such data, the security concerns are more about policies. "It is always possible for someone within the company to abuse security privileges," says Rasmussen. "But the best defense against this and most other breaches is to make sure you have good, strong policies in place — things like authentication and authorization."

Schramm agrees. "The big challenge is in determining the data elements that define the user of a particular [business-intelligence] system. These profiles are a real challenge. As just one example, you may have employees who are also customers.

"You need to know who the actors are," says Schramm.

Leon is a freelance writer in San Francisco. Contact him at mrleon@usfca.edu.

Safe and Secure

- Build in security, such as multilevel access controls, at the outset – not as an afterthought.
- If you have distributed systems with no obvious central directory, consider either a homegrown or a commercial identity management system.
- Don't include information in business-intelligence reports that isn't strictly necessary. At FleetBoston, for example, reports typically don't contain customer identifications.
- Role-level management is a good idea, but try to devise a security hierarchy first. This can help drastically reduce the number of roles you have to deal with.
- Don't think that business-intelligence security is about building a bigger moat or perimeter security. It requires internal policies that specify who can see what.

– *Mark Leon*

ngdom

Data Models

DEFINITION

A **data model** is a plan for building a database. The model represents data conceptually, the way the user sees it, rather than how computers store it. Data models focus on required data elements and associations; most often they are expressed graphically using entity-relationship diagrams. On a more abstract level, the term is also used in describing a database's overall structure — e.g., a relational or hierarchical data model.

BY RUSSELL KAY

IN THE REAL WORLD, we think of data as facts, figures and other bits of knowledge. Put a lot of data items together in a useful form, and you get information — maybe even intelligence.

Often, people can intuitively understand a given piece of data in isolation, but a computer can never do so without help. In computers, we store data in a database — a highly structured, carefully defined and rigidly formatted collection of records — so that we can retrieve it, use it, analyze it and work with it to run our businesses.

In fact, it is only the organization of a database that gives meaning and utility to the data inside it. Without that organization, all we have are undifferentiated ones and zeroes — not numbers, not letters and certainly not knowledge.

Thus a critical step in data processing is the creation of a plan for the database that's simple enough for the end user to understand, yet detailed enough to let the database designer create the actual structure using database software. We call this conceptual plan a data model, though we use this term to describe two related but different ideas.

One, which we can also call a database model, is somewhat abstract in nature and refers to a database's overall structure, or type. The best-known example is the relational model [QuickLink a3000] used by Oracle, DB2 and SQL Server. Others include flat-file, hierarchical, network, object, semantic and dimensional models.

The second type of data model, or schema, takes the overall structure of one of the standard database models and tailors it to a specific application, company, project or task. This type of data model gets down to specific data items, including their names, values, granularity and how they relate to one another.

We can compare these data models to the plans for a new building. An architect designs different types of buildings — a sports arena vs. a four-bedroom house, for example — using quite different materials and techniques (steel girders vs. wood framing, cranes vs. ladders). So, too, do we implement the various types of database models (say, relational vs. object-oriented) quite differently on a computer.

When we build a schema, however, we're working at a detailed, nitty-gritty level; it's more like consulting an interior designer than an architect. The architect plans for a kitchen's space, wiring and plumbing, but the designer helps decide which appliances to buy, how to group lights, where to put the table and chairs, and how many cabinets are needed.

What's in a Model?

To illustrate what goes into a data model, let's assume we're creating a very simple inventory database for a widget-building assembly line. We need to know the following:

- **What data do we include?** Parts numbers for our widget models, the subcomponents they're made from, raw materials and parts suppliers, costs and delivery times, inventory on hand and assembly time.
- **How do data elements relate to one another?** Some suppliers deliver faster than others but charge more.
- **What processes, operations and transformations might we need to do?** Calculate total cost per widget.
- **What kinds of questions will we need to answer?** How much are we paying for parts? How many widgets can we produce next week?
- **What other business processes or activities might use this data?** Accounts payable, product planning and sales.

While building this database, our data model proceeds from conceptual model to logical design to physical implementation:

1. Interview business users.
2. Define the data elements and their relationships.
3. Create a data model.
4. Select the database type and specific database management software (DBMS); often, it will be whatever you're already using.
5. Map data-model elements to tables, and normalize them.
6. Create data type definitions and a database structure.
7. Design the application.

Creating a data model takes a different mind-set than application development does. In Steps 1 through 3, at the conceptual level, we must think about what we're dealing with. In Steps 4 through 6, the focus shifts to how we implement the model. Step 5 marks the transition to logical design and Step 6 to physical design, both of which needed to meet our DBMS's specific requirements. In Step 7, programmers implement the procedures that use and manipulate the data.

Kay (russkay@charter.net) is a Computerworld contributing writer in Worcester, Mass.

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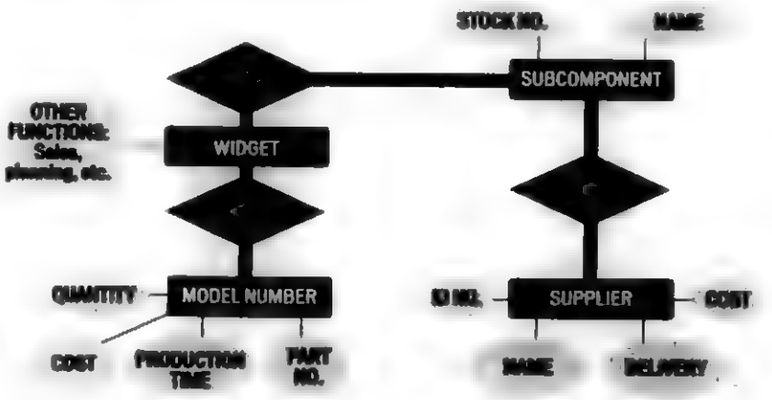
Data Modeling With Entity-Relationship Diagrams

In the following sample diagram, rectangles represent entities, diamonds are relationships, and ellipses are attributes of entities. Note that there are many different conventions used in entity-relationship diagrams; this same model could be represented in several other ways using different notation.



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QUICK STUDY

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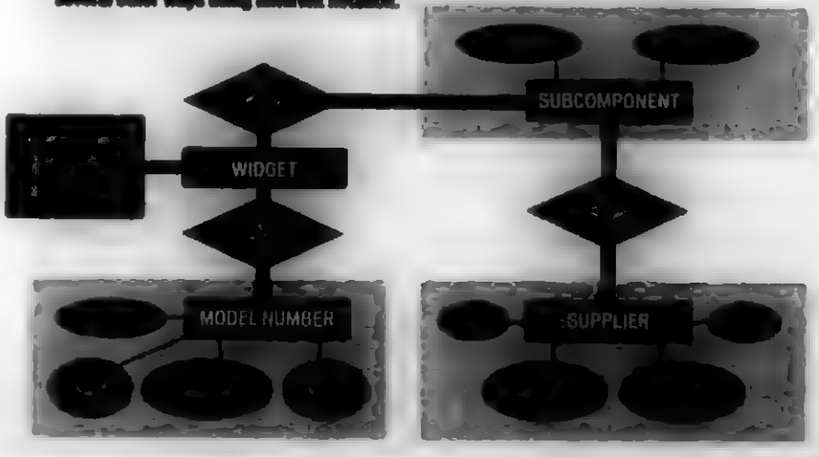

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Data Architects

How to land a job and keep your skills fresh in the field of data architecture. By Stacy Collett

CAREERS

AT RECRUITING FIRM Emerging Technology Services Inc. in Waconia, Minn., recruiter Jenni Laraway sifts through a swelling pile of résumés, looking for the right blend of data warehousing and business skills. The position to be filled is "data architect," and 25 of her clients need one.

Though she's not short on talented job seekers, 70% of her clients want candidates with enterprise-level business experience, not just data modeling for the human resources department. "That's the skill I'm having the most difficulty finding," Laraway says.

Data architects are a rare breed, according to Dave Wells, director of education at The Data Warehousing Institute, a Seattle-based membership group for business intelligence training and education. They are senior-level professionals with seven to eight years' experience who can bring together data from all enterprise systems and put it into a package that's valuable to all parts of the enterprise. Demand for qualified candidates has grown 30% to 40% in the past two years as business intelligence has become more vital to business growth.

Skills

Wells says data architects need to be skilled leaders and mediators between the database staff and business end users. "This job requires the ability to understand business requirements, translate them into technical designs, deal with complexities of integration of disparate systems, investigate the quality of data in those systems and put it all together so it can be accessed, manipulated and turned into information," Wells explains. "It takes a more deep-seated understanding of the business" than database administrator jobs or other data warehousing positions, he adds.

Jean Wells, a data architect at the University of Washington in Seattle, says having a wealth of technical experience is OK, as long as the architect is also a good listener.

"That's probably the most critical thing that I do. When you sit with upper-level administrators, sometimes middle management, sometimes clerical people, you need to take their viewpoints, then sift through them" to come up with the best data design, she says.

Training

"Most of my clients don't require certification [in job candidates]," Laraway says. But they're looking for candidates with solid database skills in DB2, Oracle and Teradata, and experience in extract, transform and load (ETL) tools such as Ascential Software's DataStage and Informatica Corp.'s PowerCenter RT. Skills in modeling, query and reporting tools from Computer Associates International Inc., Cognos Inc. and MicroStrategy Inc. are also in demand.

Eighty-six percent of data architects have a technical background, according to a 2003 Data Warehousing Institute survey of 687 U.S.-based data warehousing professionals. Only 12% come from a business background, and 2% from academia.

Since data architect positions are relatively new, there aren't many certification programs that measure competency, according to Data Warehousing Institute's Wells, though the organization is investigating certification exams in the future.

Salary and Perks

Nationally, data architects earn $75,000 to $120,000, according to Laraway, with the highest salaries in the Northeast and on the West Coast, and the lowest in the mid-Atlantic states.

For the right candidate, most companies offer signing bonuses and performance bonuses of at least 10% to 15%, Laraway says. Many companies help with relocation, too. "I'm working on a director of data warehousing search where the performance bonus is 25% to 44%," she says. "That's amazing!"

Employee Spotlight

- **Hiring manager:** Tom Burzinski
- **Title:** Business-intelligence practice manager for the Wisconsin region.
- **Company:** Greenbrier & Russel Inc. in Schaumburg, Ill., a privately held IT consulting firm that specializes in business intelligence, enterprise solutions and advisory services. It also offers corporate training services in new technologies.
- **Current IT staff:** 379 IT professionals; 55 data warehouse professionals in Wisconsin.
- **Now seeking:** Greenbrier & Russel is looking for a senior consultant to build the technical architecture for a large enterprisewide data warehouse, Burzinski says. This person must have knowledge of the ETL process, various data models and the tools to build these models.

Beyond understanding data warehousing concepts, the position requires business knowledge. "They need an understanding of the various ways data warehousing is used for financial vs. marketing applications," Burzinski says.

This person will also be responsible for managing a team of developers through the construction, testing and implementation phases of the projects, the logical and physical database design, and the implementation, as well as for defining and implementing approaches to load and extract data from the database.

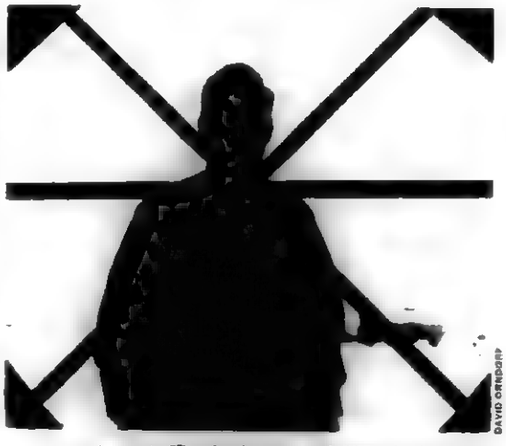
Burzinski is looking for candidates with at least five years' experience in data warehouse implementations, though most of Greenbrier & Russel's data warehouse employees have 10 years' experience.

Other desired skills include designing and optimizing large multiterabyte data warehouses, Oracle, SQL Server or DB2, ETL tools such as Informatica, Microsoft Data Transformation Services, DataStage or Oracle Warehouse Builder. The salary will range from $65,000 to $100,000, depending on experience.

- **Reason for the opening:** Greenbrier & Russel's data warehousing business grew 67% to $5.5 million in Wisconsin in 2002. This year, the firm expects business to grow 30%. "We have several pending client projects starting, but we also do hire for the bench," Burzinski explains. "Right now, as soon as we hire to the bench, within a week they're placed somewhere."

Burzinski says the ideal candidate is a senior consultant with business knowledge as well as IT experience building an enterprisewide data warehouse. "This person is a co-project manager who will work closely with the project manager to run a big part of the project. About 60% of this [pending] project is the ETL part of it."

Personality and leadership also top Burzinski's list of requirements. "People who are not afraid to take the initiative" to help business users improve processes do well in this position, he says. They also must have good listening and guidance skills. "People who can mentor junior people and find a balance between very detailed code and also seeing the big picture – that's the hardest thing to find."



DAVID SANDORF

– Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com.

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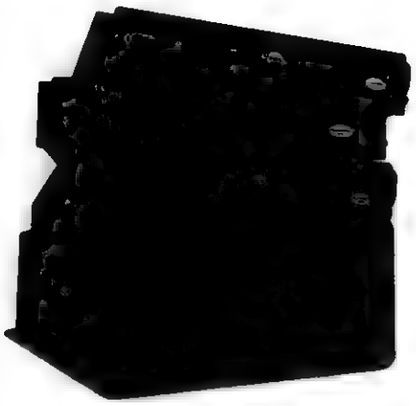

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The Next Chapter

Predictions: Business-intelligence tools will put middle managers out of work. And e-mail will be mined for valuable information.

■ TOTAL AUTOMATION

In 10 years, virtually all operational decision-making within the enterprise will be automated, thus eliminating the need for more than 65% of the middle management workforce. Today, the most innovative business-intelligence technology is able to recommend the optimal course of action based on business rules, representing the first step in automated decision-making. Tomorrow, automated business models and decision-making processes will optimize goal-setting and performance.

■ *Scott Wiener, chief technology officer, Certive Corp., Redwood City, Calif.*

■ PREDICTING EPIDEMICS

Business-intelligence technology will have a big impact in the medical profession. In the next five to 10 years, it will be possible to determine disease susceptibility in humans and create customized medications for individual patients based on their genetic makeup. And by combining data analytics with geographic information systems, it will be possible to predict and visualize disease outbreaks across the globe.

■ *Don Hatcher, vice president of technology strategy, and Anne Milley, director of analytical strategy, SAS Institute Inc., Cary, N.C.*

■ MERGING WITH PORTALS

Organizations usually view portals and business intelligence separately, but in the next few years, the two will become integrated. These technologies can shrink the amount of data that has to be analyzed to make a decision, in an era when people have less time and must focus on the decision criteria that truly make a difference.

■ *Shari A. Rogalski, associate partner, Accenture Ltd., Minneapolis*

■ MINING THE E-MAIL PILE

Companies are just starting to realize the valuable knowledge and intellectual property that can be found in their e-mail archives. Over the next five to 10 years, those archives will become fully indexed, searchable, rich databases that provide insights about business issues, employees and where competitive advantage resides. For example, a CEO could quickly find out what's going on in a plant in Mexico, without ever leaving his office at headquarters.

■ *Greg Arnette, founder and chief technology officer, IntelliReach Corp., Dedham, Mass.*

■ LOCATION MATTERS

Over the next two years, companies will realize that getting a return on their customer relationship management investments will require combining information about the location of competitors, the location of customers, the demographics and purchase behavior characteristics in different neighborhoods, and the location of business assets — whether they're stores, cell towers or kiosks.

■ *Kevin Antram, vice president and general manager of the CRM business unit, MapInfo Corp., Troy, N.Y.*

■ VENDORS CONSOLIDATE

By the end of 2004, the business-intelligence market will morph from its current makeup of way-too-many tools vendors into a smaller universe of best-of-breed, industry-focused vendors. IBM will compete more vigorously with Microsoft's analytics offerings, probably by acquiring an established vendor like Crystal Decisions Inc. or Cognos Inc. More than two-thirds of the business-intelligence tool vendors in business today will evaporate through acquisitions and closures.

■ *Mike Hennel, president and CEO, Silvon Software Inc., Westmont, Ill.*

■ SELF-HEALING WAREHOUSE

The greatest struggle with business intelligence is the continuous need to ensure that the lowest levels of data used in the summarized analytics and dashboards remain clean, consistent and relevant. We need the data warehouse to have a self-healing capability to automatically sense, detect, notify and repair (when possible) any incorrect, missing or unreconciled data elements. But it will take at least two or three years for that to happen.

■ *Scott Hicar, CIO, Maxtor Corp., Longmont, Colo.*

■ DASHBOARDS RULE

By 2006, most managers will make daily decisions from an on-screen intelligence dashboard. This will be driven by the need for greater productivity, the frenetic pace at which business decisions must be made and an extremely overworked and streamlined corporate workforce. This sort of business intelligence will not only change how managers make decisions, but also how corporations and executives are measured.

■ *Brian Gentile, executive vice president, Brio Software Inc., Santa Clara, Calif.*

■ FRAUDBUSTERS

In about two years, we'll be able to catch fraudulent activity nationally and internationally in real time. By analyzing historical fraud activity and tracking present infractions, we can uncover the illegal transport of people, goods and money, as countries share more and more data.

■ *Ron Swift, vice president of Teradata, a division of NCR Corp., Dayton, Ohio*

■ THE AUTOBOTS ARE COMING

I expect data mining "autobots" to be included in analytic software within five years, a critical step for improving the utility of data mining technology. These automated tools for finding important and nonobvious data relationships will reduce or eliminate the need for specialized skills to perform data mining.

■ *Richard Skriletz, national managing principal for business intelligence, RCG Information Technology Inc., Edison, N.J.*

MORE PREDICTIONS

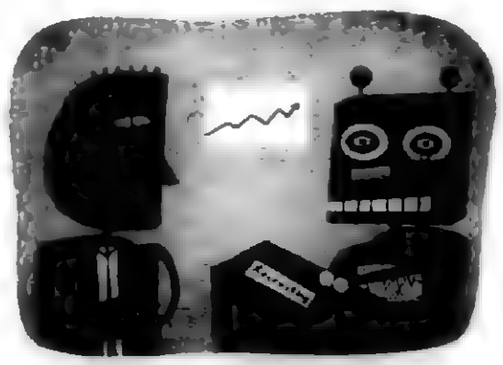
Industry visionaries say the future of business intelligence includes "dashboards for worker bees," as well as expectations of instant information, security and certifiable data quality.

QuickLink 37064
www.computerworld.com

Automated Job Profiling

By early 2004, predictive analytics will be used in the human resources department to determine which job applicants are most likely to remain with an organization for five to 10 years rather than leave after six months. Predictive analytics will also be used to predict which employees will fit in with a team or are better suited to be a manager or in an individual contributor role. They'll also be used to predict which employees will provide the best customer service or be most likely to steal from the company.

– Michael D. Blair, chairman and CEO, Cyborg Systems Inc., Chicago



JAMES YANG

Software Engineer (NY, NY). Perform system analysis & design applic. Formulate syst scope & objectives & prepare specs. Make tech presentations to clients in energy sector, and prototyping & documenting proposals. Design & develop custom Risk Analytic Applications utilizing Visual C++, ASP.NET, C#, SQL Server & Windows NT. Identify problems in existing systems & devise software solutions using ASP.NET and C#. Bach in Comp. Info Syst, Comp Sci, Comp Appl or foreign equiv. & 3 yrs exp in job or 4 yrs in related job of Softwr Dvlpr or Programr Related job must incl exp w/design & devlpmt of Risk Analytic Applications, Visual C++, ASP.NET and C#. Fax resume to 212-888-0055

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IT op. seeks:
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Design/develop logical/physical databases; develop data models describing data elements using knowledge of database mgmt systems incl MS SQL Server, Visual Basic, Active Server Pages, Java, C++. Req M.S. Comp. Sci and 3-5 mos. exp.
Programmer/Analyst
Plan, develop, test and document computer programs/software packages using software logic, prog. languages, statistical programs and Shell/Java Script, AIX, Solaris, Oracle 8x/Forms 6i, Visual SourceSafe. Req. M.S. Comp Sci. Mail resumes to HR, Technion Communications, 1260 N. University Dr., Ste. 200, Plantation, FL 33322

Junior Programmer. Asst in writing program specifications & code commensurate to IDS coding style & standards. w/use of C, C++ and Visual Basic programming on UNIX & Windows operating systems under IDS standards. Req: BS in Comp. Eng., Elect. Eng., or Comp. Sci. 40hrs/wk. Job/Interview Site: LA, CA. Send resume to Integrated Decision Systems, Attn. Dept 30, 11150 W Olympic Blvd., LA, CA 90064

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The successful candidate will be hands-on in the designing, coding, testing and delivery of the software products. A Bachelor's degree in Computer Science or Computer Engineering or working equivalent, and a minimum of five year's experience creating industry leading audio/video communications software is required. Excellent knowledge/experience with C/C++ programming, object-oriented design, software design and development tools, software optimization and real-time software development is required. A solid foundation and working knowledge of audio and video encoding and decoding algorithms and techniques as well as exposure to multiple platforms and networking concepts (PC, Mac, Unix, TCP/IP) is required. Prior experience with developing networking solutions for IP and telecommunication signaling and data protocols including a working knowledge of H.323, ISDN, ATM, SIP, SDP, RTP Superior written and verbal communication skills are also necessary. A proven track record of leading a project from beginning to end is a must. Prior experience working in a shrink-wrapped software environment is a plus.

Only qualified candidates are encouraged to e-mail their resumes in Word format, to resume@wave3software.com. EOE

Systems Analysts to analyze, design, develop s/w for Wireless, Data Communication using J2EE, XML, C, C++, SQL, SMPP, WAP, XHTML, 3G, Oracle, etc. under Oracle Mobile Server 9iAS WE, UNIX, Sun Solaris etc; perform reqs gathering, design process, design reviews, code peer reviews, customize and enhance Prog/Analysts to analyze, design appls using C, C++, Java, HTML, VB, JavaScript, SQL, Oracle, MS Access under Windows, UNIX OS, study, evaluate new technologies/methodologies, gather, document reqs from user community; test/troubleshoot project appl code. Require BS or foreign equiv. in CS/Engg. (any branch) with 2 yrs exp (High Salary. Travel involved. F/T. Apply to: HR, Unitrix, Inc. 4625 Alexander Dr., Ste 110, Alpharetta, GA 30022

F/T Computer Support Specialist. Responsible for scoping, planning and implementing legacy application extension projects and training customer personnel in tool use. 100% travel. Requires in-depth knowledge of J Walk, GUI400, Win Ja and TTT. Must have 3 yrs. of exp. Work background must have included providing technical support services to software and/or network end users and supporting J Walk, GUI400 & TTT customers across a variety of industries. Salary: Competitive. Send Resume to HR-Ref: T8, SEAGULL, 3340 Peachtree Rd., Atlanta, GA 30326. Reference this ad. No phone calls please.

Analyst/Architect sought by NJ based Securities Dealer for Jersey City, NJ office. Must possess Bachelor's degree or equivalent in Computer Science or directly related field and 5 years exp. in software development/design/analysis. Exp. must include C/C++, JAVA. Respond to: Human Resources Department #KFP02-88, Knight Financial Products, 130 Cheshire Lane, Suite 102, Minnetonka, MN 55305.

Consultant Software Engineer (Database Administrator) to develop Oracle & Solaris database applications for entire product life cycle of Co's global online equity trading systems, from product inception to release. Will design, develop, package, monitor production and provide support for these database systems; participate in code & design reviews for each product, perform unit testing and systems testing; write applications in Java; use data modeling development tools including Power Designer; design database models & develop code for stored procedures in SQL database languages; and perform database system application design, modeling and coding in Java and XML. Requires Bachelor's in C.Sc. Engineering, Math, or Physics plus 5 years experience in job offered, OR 5 yrs in database application development. Alternatively, will accept Master's in C.Sc, Eng, Math, or Physics plus 3 years in job offered, OR 3 yrs in database application development. Candidate must also possess demonstrated expertise administering OLTP & data warehousing databases and demonstrated expertise in back-end Oracle database development using PL/SQL, Unix, Shell scripting, Java & XML. Salary: $91,000/yr, M-F 9AM-5:30PM. Send 2 resumes to Case #200116234, Labor Exchange Office, 19 Stanford Street, 1st fl Boston, MA 02114. EOE. Applicants must be workers eligible to accept full-time employment in U.S.

SOLUTION ARCHITECT. Gather & analyze data & info systematically; make timely & sound decisions concerning moderately complex problems that req special understdg of specialized areas of tech knwldge; demonstr knowledge of multi-vendor ntwrk, applicatn & platfm solutns; monitor local & nat'l training needs to dev & deliver training solutns; install & configure ntwrks, applicatns & platfms using variety of industry products & techniques (TCP/IP, computer HW (driver) devlpmt proces & QC proces); create clear & concise tech proposals/docums for internl & extrnl sources; using knwldge & tech resrces of compny in general & IT industry to provide assistnce in enhancing techntgy for Help Desk operatns, Sys Mngmt or Ntwrk Mngmt; & plan & execute variety of task & dlvrgs details for compls projcts. Req: Bach degr or foreign equiv* in CS, CE, EE or rltd + 4 yrs exp in job offrd or in rltd occupatns as Tech Consultant, Product Specialist, Engrg or rltd. Knwldge &/or exp w/following: TCP/IP, QC proces, computr HW (driver) devlpmnt & tech suppt for L series computrs. *If no degr or unrltd degr, comp will accpt 3 yrs exp in job offrd or in rltd occupatns for ea yr not compltd toward req degr. Sal: $79,388/yr. Jobsite: Omaha, NE. 8am-5pm, 40 hrs/wk. Send resume to Attn: Medhavi Shedbhade, Job Order # SBAN6-KTTX3-62414, NE Workforce Devlpmt, P.O. Box 94600, Lincoln, NE 68509. Must have proof of legal authority to work in U.S.

Digital Nervous System, Inc. seeks Actuate Developer. Responsible for functioning as part of a 3 member team, which carries the responsibilities of designing, developing, and implementing all reporting functionality within Callidus commissioning program. Responsible for mentoring and instructing the full time team. Requires experience with Actuate, Sql server, SOL, SQL LOADER, DB2, C, Oracle, and HTML. Requires a Bachelor's degree in Engineering or related field plus four (4) years experience. Full time. Please send resume to DNS - 932 Patterson Ave., Ste. 160, Mooresville, NC 28117. EOE.

Principal Consultant Software Engineer/Developer to analyze, architect, and design n-tiered products/applications using Java 2 Enterprise Edition Technology. Will utilize UML Modeling language in performing object-oriented (OO) analyses and application design. Will serve as Technical Lead in analyzing, architecting, designing, and implementing applications involving Java Messaging Service (JMS) Technology over IBM's MQ Series. Will provide direction to Design and Development Team in adopting appropriate technologies, techniques, and methodologies, and work with team to re-engineer applications so that they use the appropriate technologies. Requires Bachelor's degree in Computer Science, Engineering, Mathematics or Physics plus five (5) years experience in Job Offered OR five (5) years experience in client/server applications development OR, in the alternative, Master's degree in Computer Science, Engineering, Mathematics or Physics plus three (3) years in Job Offered OR three (3) years experience in client/server applications development. Candidate must also possess demonstrated expertise developing n-tier web-based distributed systems in Java and C++, demonstrated expertise in object-oriented analysis and design of applications/products using UML modeling language, and demonstrated expertise integrating n-tier systems with back-end legacy systems. Salary: $90,000/yr. M-F, 9AM-5PM. Send 2 resumes to Case #200200469, Labor Exchange Office, 19 Stanford St. 1st fl Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

CONSULTING ENGINEERS. Support customers for the analysis and design problems in the fields of structure, fluid flow, heat mass transfer and material processing. Develop, implement and maintain computer-aided engineering software in modeling creep-related fatigue and other structural, fluid flow, heat mass transfer and material processing problems, using finite element coding, Patran PCL language and FEA software systems (multiple openings). Requires M.S. in Mechanical Engineering, experience or education must include numerical modeling of creep-related fatigue problems, evidenced by Masters Thesis work or at least on publication in the field, finite element coding in the fields of structural, fluid flow and heat mass transfer, and use of Patran software, Patran Customization Language (PCL) and Finite Element Analysis (FEA) software systems. Must have current authorization to be permanently employed in the United States. Send resume with Social Security Number to Sreen Ecar, Technalysis, Inc., 7168 Zionsville Rd., Indianapolis, IN 46268

Prog Analysts to analyze, design, maintain appls using C, Java, HTML, VBScript, ASP, MS SQL, Rational Rose under Windows OS design, implement GUI and RDBMS using VB. Dev 2000, Oracle, MS Access, SQL Server. Require: BS or foreign equiv. in CS/Engg (any branch) & 2 yrs of exp in the field. S/W Enggs to design, develop, test, implement appls using C, C++, Oracle, SQL Server, MS Access on Windows, Unix; design, develop web appls using HTML, Java, ASP, JDK, CGI, JScript; provide training and user support for the systems appls software/hardware to team and clients; debug and modify existing software. Require: M.S. or foreign equiv. in CS/Engg. (any branch) with 1 yr exp in the field. High salary. F/T. Travel involved. Resume to: Infosmart Technologies, 385 Leatherman CtAlpharetta, GA 30005.

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SYSTEMS ANALYST. IT company requires System Analyst to develop full-life cycle software for large multinational telecommunication company, maintain repository conferencing data using Java, CORBA, C/C++, Rational Rose, Websphere and ORACLE RDBMS. Perform graphical user interface creation, architecture upgrade, testing, and production support, using Visual Cafe, Rational Rose (UML), Developer 2000, Optimizeit, Windows 2000 and UNIX. Experience in audio and Net conferencing system is a must. Master's degree in computer science engg. or related field and relevant experience. Send resume to Vivian Fernandes, Manager Resources, MBT International, Inc., 1155 Kelly Johnson Blvd. Suite 111, Office #11, Colorado Springs, CO 80920 or email at career@us.mahindrabt.com

Opening for a Software Engineer to design, develop, test internet appls using VB, HTML/DHTML, ASP, Javascript, VBScript, ActiveX, IIS, etc. under Windows OS, evaluate new methodologies and develop plans for improving existing systems, customize and modify appls per user reqs, maintain documents and prepare programming specs, train users in application usage. Require: MS or foreign equiv. in CS/ Comp Engg & 2 yrs exp in IT F/T position. Salary commensurate with experience. Resume to: HR, Learning Express, Inc., 29 Buena Vista Street, Ayer, MA 01432.

IT Consulting Firm has multiple positions open:

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Programmer Analyst needed w/exp in s/w systems using COM/DCOM technology w/Object Oriented Programming languages using C++. Define & develop interfaces using ATL. Develop User Interfaces w/VB, ASP, DHTML & VBScript. Send resumes to: Advanced Computing Technologies, Inc., 3355 Breckinridge Blvd., Suite #128, Duluth, GA 30096. No in person resumes/interviews, only respond by mail

Programmer Analyst needed by Lawrenceville, Georgia based Company - Bachelors degree with 1year of experience in job. Exp. in Skill sets incl Java, JSP, Servlets, JDBC, HTML, XML, UML, NT, Visual Basic 6.0, and ASP 1.2, Business Objects, Crystal Reports 5.0, SQL Server, JavaScript, XML, and C++. Fax resumes to 770-963-1465.

Programmer-Analyst: Design, develop & implement application software using Oracle Developer, Reports, etc. Plan, develop and test programs. Req: 2 yrs. exp. in job offered or 2 yrs exp. in a related position with same duties & 2 yrs college ed. in Computer Science or a related field. EOE. Send resume to: Computer Services of America, 4640 Jefferson Davis Hwy #1, N. Augusta, SC 29841

Programmer/Analyst, Telecommunications co. Must have Bachelor's in related field or its functional equiv. in training, educ., and exp., and min. 2 yrs. exp. Analyze and design user requirements and objectives, design, develop, configure, and code applications, computer systems and subsystems. Perform unit and system testing. 40 hrs/wk, 9AM-5PM. Competitive salary. Send resume to: Global Connection, ATTN: HR, 3957 Pleasantdale Rd., Atlanta, GA 30340

S/W Graphic Designer to design, modify, maintain existing/new web sites using HTML, CSS, ASP, XML, Flash, under Mac and PC envir. Create/refine conceptual designs and ideas into computer/images using Photoshop, Illustrator, Dream Weaver; create layouts based on layout principles, design concepts; conduct req. analysis/performance testing. Require: B.S. or foreign equiv. in CS/Graphic Design/Fine Arts with 2 yrs exp. Competitive salary. Mt. travel involved. Apply to HR, Mindspan Systems, Inc., 6050 Peachtree Pkwy, Ste 240-214, Norcross, GA 30092.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with either Java, JSP, EJB or J2EE, and writing applications that interface with relational databases (either Oracle, Sybase, SQL Server or Teradata) also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Senior Web Developer: 2 yrs exp in web-based applic dvlpmt. & programming. Must be able to dsgn., dvlp., implement & test web-based computer applications/programs. BA/BS in CS, EE or closely related field. Relational d/base dsgn., stored procedures,DTS packages,& data normalization. Visual Basic, Java Script, VBScript, ASP,XML, HTML, DHTML, COM/DCOM/MTS Applications/Platforms/Protocols: SQL Server, IIS,FTP, STMP & SSL Mail resume to: M. Barry, Memberworks Inc., 9 W. Broad St., Stamford, CT 06902.

Sr. Software Engineer needed w/exp to research, analyze, dsgn, perform functional analysis, dvlp & maintain compliance web applics using VB, COM, COM+, MTS, ASP, XML & XSL. Dsgn, dvlp & test comp s/ware systms in conjunction w/hardware product dvlpmt using IIS, Java Script, VB Script, HTML, Sybase & SQL Server. Provide tech support. Send resumes to: Fidelity Investments, HR, 82 Devonshire St, Boston, MA 02109.

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Programmer Analysts to analyze, develop, maintain software appls using Oracle Applications, Oracle, PL/SQL, Dev 2000, etc. under Windows/UNIX OS; conduct functional testing and debugging; perform data conversions, customize Forms/Reports using Oracle Applications standards, document, maintain & update development process. Require: BS or foreign equiv. in CS/Engg. (any branch) or related field & 2yrs of exp. in IT. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America,Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

Programmer/Analyst:
Central Illinois domestic livestock farm seeking candidate to design, develop and support the maintenance of a control system to monitor and analyze the behavior of domestic livestock. Must have Bachelor's degree and two years experience in Computer Programming or equivalent with biology minor. Practical experience with domestic livestock is preferred. Send resume to Matti Shalev, Forrest Farms, 703 N. Center Street, Forrest, IL 61741.

Computers

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Software Engineers to analyze, design, develop/customize business appls using Oracle Fin. and Manuf. Appls, Oracle, SQL, PL/SQL, Dev 2000, Designer 2000 etc. under Windows, UNIX and Sun Solaris envir; interact with end users, gather and document reqs; prioritize functional specs formulated from user reqs; evaluate product functionality and design to assure quality. Require: Masters or foreign equiv. in CS/Engg.(any branch)/Science/Bus. Mgmt. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America,Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

LLEORNA Enterprises, a provider of software consulting services, seeks:

Senior Systems Integration Engineer. BS or equivalent in Computer Sci, Engineering or related + 6 yrs exp in SW engrng, programming or related. Also 2 yrs exp in Windows & Unix systems admin; knowledge/backgrnd in: RDBMS; CGI; and Perl, C++ or Java; backgrnd in power utilities/energy industry. Mail resume to: 2243 Shannon Dr., South San Francisco, CA 94080.

Mezztech Systems, Inc is hiring all levels of software engineers. Send resumes to Mezztech Systems, Inc, 1825 De La Cruz Blvd, Suite 201, Santa Clara, CA 95050. May be placed at unanticipated client sites nationwide.

Sr. S/ware Engr. wanted by a s/ware develop. Co. in Sacramento, CA. Will develp and customize Co. s/ware prod. for far eastern Pacific-Rim mkts. Req. Bach deg in CS or Comp. Engr. with fluency in written and spoken Japanese & understanding of Japanese & eastern Asian lang. character code sets. Mail resume to: HR, Unify Corporation, 2101 Arena Blvd., Ste 100, Sacramento, CA 95834.

System Administrator needed w/Bachelors degree in Comp. Sce. or Engg. or Math. Must have exp to install & maintain Intel based servers w/OS of Windows NT, 2000 & Unix/Linux. Configure & route Cisco, Linksys routers & switches. Watch Guard & Proxy Firewalls. Maintain NFS, FTP, DNS, WINS, DHCP & RAID Array System. Provide maintenance & backup/restore for servers using Arc Serve, Legato & Backup Exec. Install & administer on line proofing software. Send resumes to: The Printery, 2405 S. Moorland Rd, New Berlin, WI 53151. No in person resumes/interviews; only respond by mail or e-mail at Donnam@printeryw.com

Programmer wanted by Application Systs Dvlpr Co in CA. Perf analysis, design and program software appl products; design & implement customized bus solutions; analyze & write design and prog specs, assist in design & code reviews; troubleshoot. Bach in Comp Sci or Comp Engineering & 2yrs exp in job offered req. Respond to: Office Mngr/Plaid Bros, 26 Technology Dr, Irvine, CA 92618.

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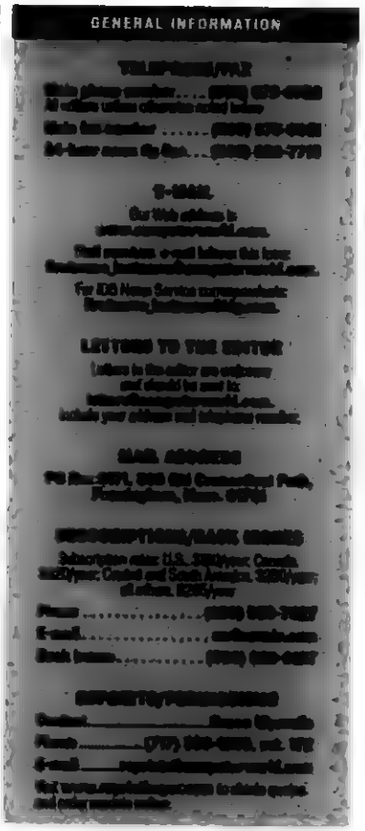

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Finance Law

at some companies. "We're looking at a whole series of governance and compliance issues related to IT for Sarbanes-Oxley," said David Klementz, chief financial officer at Progress Rail Services Corp. in Albertville, Ala.

For example, the act requires CEOs and chief financial officers to attest that annual and quarterly financial reports contain no material errors or omissions.

Jonathan Karpoff, a finance professor at the University of Washington in Seattle, said executives whose necks are now on the line at report-signing time will demand systems that are more timely and accurate. "What I'm hearing quite a bit is that firms can use Sarbanes-Oxley as an impetus to completely overhaul their control, monitoring and reporting processes," Karpoff said.

That's what's going on at Progress Rail. The supplier of railway products and services recently scrapped a combination of manual procedures and spreadsheets for consolidating the books of its subsidiaries and installed a set of financial-data integration and analysis software from SAS Institute Inc. in Cary, N.C.

Progress Rail is also using SAS Balanced Scorecard, a tool that gives Klementz near-real-time financial-performance metrics. That could tip him off to business problems that might otherwise go undetected until a quarterly audit is done, he said.

Those steps, which cost about $500,000, are just the beginning. Klementz said Sarbanes-Oxley and other new SEC regulations are prompting Progress Rail to do a top-to-bottom examination of other systems that can affect its financial results, such as inventory control. In addition, the company faces higher labor costs.

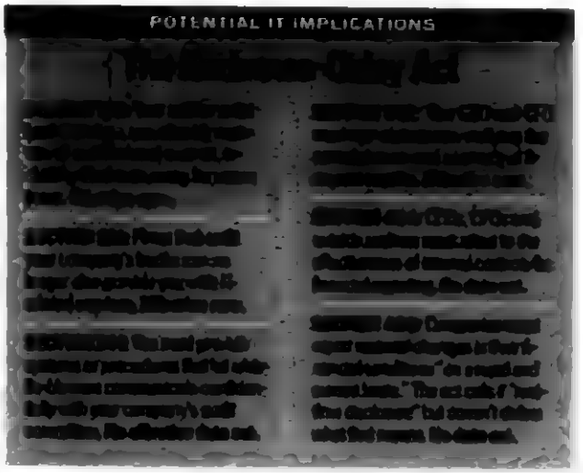
"We're greatly increasing IT staff in order to make sure I'm comfortable that systems and controls are in place," Klementz said, adding that he's also hiring IT and regulatory-compliance consultants.

Another key provision in Sarbanes-Oxley stipulates that outside auditors must examine and verify the effectiveness of a company's internal financial controls. "Some aspects of that are typical [information systems issues], such as access controls, and we'll have to look at those things a little more strenuously," said Irving Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa.

Tyler warned other IT managers to brace themselves for tough requests from auditors. "I remember an auditor once recommending that we have 28-digit alphanumeric passwords that changed monthly," he said. "Things like that, which maybe in the past you decided not to pursue because you didn't see the justification, you might have to be more aware of now."

Some companies hope to avoid many compliance problems by outsourcing management of the issue. Hibernia Corp. in New Orleans outsources all of its core financial systems. David Harrison, the bank's audit director, said he's relying on the outsourcer's legal staff to ensure that the systems comply with laws like Sarbanes-Oxley.

But Harrison acknowledged that the new law raises questions he has to deal with, such as how to satisfy a requirement that corporate whistle-blowers be able to communicate confidentially with the company's audit committee. "I could set up telephone reporting or intranet reporting, but employees may feel that neither of these provides sufficient privacy," he said. "We haven't decided one way or the other."



REGULATORY RISKS

CIOs themselves may face legal liability as a result of Sarbanes-Oxley.

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GEIS to Centralize Data for Product Design, Manufacturing

Looks to cut costs, improve efficiencies

BY JAIKUMAR VIJAYAN

GE Industrial Systems (GEIS), a $5 billion subsidiary of General Electric Co., is implementing a major product lifecycle management (PLM) project that it hopes will reduce product development time, improve supply chain efficiency and cut costs.

The company last week announced that it's using PLM technology from MatrixOne Inc. in Westford, Mass., to develop a collaborative environment for planning, development, sourcing and program management.

When the project is fully implemented in about two years, more than 10,000 GEIS employees worldwide will be able to log onto a central portal site to collaborate on a variety of activities.

"There are several business issues that we are trying to address," said Eric Reed, manager of the My Workplace portal site at Plainville, Conn.-based GEIS. Centralizing the millions of engineering, manufacturing, marketing and project management documents associated with the products GEIS builds, and making the repository accessible from anywhere via the portal, will give the company greater flexibility in where it designs and builds systems, Reed said. Eventually, the environment will also be linked with suppliers, he added.

Return on investment will come through faster product development times and greater efficiency, Reed said, declining to elaborate on the savings. The PLM system will allow for closer collaboration with GEIS suppliers, which can then be more directly involved in the product development process, he added.

The project hasn't been without its hurdles. For instance, migrating nearly 15 million product-related documents from legacy systems into the MatrixOne environment has been a time-consuming task, Reed said. Meeting the specialized document management requirements of the engineering community was especially challenging, as was getting user buy-in during the early stages when there was little immediate benefit to demonstrate, he added.

A growing number of companies are looking into such PLM capabilities, said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. "But we are not seeing quite as high an adoption as we had expected," Moore said. Part of the problem is the complexity involved in rolling out a PLM capability, he said. Large companies like GEIS with highly structured business processes stand a better chance of implementing PLM compared to those that don't, he added.

The customization involved in integration functions as varied as marketing, design and manufacturing groups can also be a huge challenge, Moore said. "PLM can also be somewhat of a difficult sell at this time" because of the cost associated with such projects, he added.

GEIS declined to disclose the cost of its project.

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Finance Law

at some companies. "We're looking at a whole series of governance and compliance issues related to IT for Sarbanes-Oxley," said David Klementz, chief financial officer at Progress Rail Services Corp. in Albertville, Ala.

CIO IRVING TYLER warns that auditors will be making tough requests.

For example, the act requires CEOs and chief financial officers to attest that annual and quarterly financial reports contain no material errors or omissions.

Jonathan Karpoff, a finance professor at the University of Washington in Seattle, said executives whose necks are now on the line at report-signing time will demand systems that are more timely and accurate. "What I'm hearing quite a bit is that firms can use Sarbanes-Oxley as an impetus to completely overhaul their control, monitoring and reporting processes," Karpoff said.

That's what's going on at Progress Rail. The supplier of railway products and services recently scrapped a combination of manual procedures and spreadsheets for consolidating the books of its subsidiaries and installed a set of financial-data integration and analysis software from SAS Institute Inc. in Cary, N.C.

Progress Rail is also using SAS Balanced Scorecard, a tool that gives Klementz near-real-time financial-performance metrics. That could tip him off to business problems that might otherwise go undetected until a quarterly audit is done, he said.

Those steps, which cost about $500,000, are just the beginning. Klementz said Sarbanes-Oxley and other new SEC regulations are prompting Progress Rail to do a top-to-bottom examination of other systems that can affect its financial results, such as inventory control. In addition, the company faces higher labor costs.

"We're greatly increasing IT staff in order to make sure I'm comfortable that systems and controls are in place," Klementz said, adding that he's also hiring IT and regulatory-compliance consultants.

Another key provision in Sarbanes-Oxley stipulates that outside auditors must examine and verify the effectiveness of a company's internal financial controls. "Some aspects of that are typical [information systems issues], such as access controls, and we'll have to look at those things a little more strenuously," said Irving Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa.

Tyler warned other IT managers to brace themselves for tough requests from auditors. "I remember an auditor once recommending that we have 28-digit alphanumeric passwords that changed monthly," he said. "Things like that, which maybe in the past you decided not to pursue because you didn't see the justification, you might have to be more aware of now."

Some companies hope to avoid many compliance problems by outsourcing management of the issue. Hibernia Corp. in New Orleans outsources all of its core financial systems. David Harrison, the bank's audit director, said he's relying on the outsourcer's legal staff to ensure that the systems comply with laws like Sarbanes-Oxley.

But Harrison acknowledged that the new law raises questions he has to deal with, such as how to satisfy a requirement that corporate whistle-blowers be able to communicate confidentially with the company's audit committee. "I could set up telephone reporting or intranet reporting, but employees may feel that neither of these provides sufficient privacy," he said. "We haven't decided one way or the other."

POTENTIAL IT IMPLICATIONS

The Sarbanes-Oxley Act

SECTION 103: Your auditor must (and therefore, you should) maintain all audit-related records, including electronic ones, for seven years. **Effective now.**

SECTION 201: Firms that audit your company's books can no longer also provide you with IT-related services. **Effective now.**

SECTION 301: You must provide systems or procedures that let whistle-blowers communicate confidentially with your company's audit committee. **No effective date set.**

SECTION 302: Your CEO and CFO must sign statements verifying the completeness and accuracy of financial reports. **Effective now.**

SECTION 404: CEOs, CFOs and outside auditors must attest to the effectiveness of internal controls for financial reporting. **No date set.**

SECTION 409: Companies must report material changes in their financial conditions "on a rapid and current basis." The act calls it "real-time disclosure" but doesn't define what that means. **No date set.**

REGULATORY RISKS

CIOs themselves may face legal liability as a result of Sarbanes-Oxley

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GEIS to Centralize Data for Product Design, Manufacturing

Looks to cut costs, improve efficiencies

BY JAIKUMAR VIJAYAN

GE Industrial Systems (GEIS), a $5 billion subsidiary of General Electric Co., is implementing a major product lifecycle management (PLM) project that it hopes will reduce product development time, improve supply chain efficiency and cut costs.

PLM TECHNOLOGY

The company last week announced that it's using PLM technology from MatrixOne Inc. in Westford, Mass., to develop a collaborative environment for planning, development, sourcing and program management.

When the project is fully implemented in about two years, more than 10,000 GEIS employees worldwide will be able to log onto a central portal site to collaborate on a variety of activities.

"There are several business issues that we are trying to address," said Eric Reed, manager of the My Workplace portal site at Plainville, Conn.-based GEIS. Centralizing the millions of engineering, manufacturing, marketing and project management documents associated with the products GEIS builds, and making the repository accessible from anywhere via the portal, will give the company greater flexibility in where it designs and builds systems, Reed said. Eventually, the environment will also be linked with suppliers, he added.

Return on investment will come through faster product development times and greater efficiency, Reed said, declining to elaborate on the savings. The PLM system will allow for closer collaboration with GEIS suppliers, which can then be more directly involved in the product development process, he added.

The project hasn't been without its hurdles. For instance, migrating nearly 15 million product-related documents from legacy systems into the MatrixOne environment has been a time-consuming task, Reed said. Meeting the specialized document management requirements of the engineering community was especially challenging, as was getting user buy-in during the early stages when there was little immediate benefit to demonstrate, he added.

A growing number of companies are looking into such PLM capabilities, said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. "But we are not seeing quite as high an adoption as we had expected," Moore said. Part of the problem is the complexity involved in rolling out a PLM capability, he said. Large companies like GEIS with highly structured business processes stand a better chance of implementing PLM compared to those that don't, he added.

The customization involved in integration functions as varied as marketing, design and manufacturing groups can also be a huge challenge, Moore said. "PLM can also be somewhat of a difficult sell at this time" because of the cost associated with such projects, he added.

GEIS declined to disclose the cost of its project.

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FRANK HAYES ■ FRANKLY SPEAKING

Self-defeating Prophecy

LAST WEEK, RICHARD CLARKE had finally had enough. Testifying Tuesday before a congressional subcommittee, Clarke blasted the White House and the Department of Homeland Security for failing to keep cybersecurity at the top of their agendas. Clarke's the man who should know: Before he retired from the job in February, he was the federal government's infrastructure security czar and came up with the national strategy for protecting cyberspace.

Clarke has a reputation as a loose cannon who despises bureaucracy and loathes government regulation of business. He reportedly quit in February because he wasn't offered a job in the new Homeland Security Department with as much clout as he had before. He's certainly no shrinking violet.

And when it comes to cybersecurity, Clarke decidedly is an alarmist.

But that's not exactly a problem when it comes to cybersecurity. Right now, cybersecurity could use a few more alarmists.

Think of the year-2000 problem circa 1995, back when CEOs were clueless and even many techies were in denial about what was needed. People with calm, reasoned explanations didn't get those folks off the dime. But Y2k alarmists did. Clear, rational arguments failed to get corporate boards to greenlight Y2k projects — but stories of impending catastrophe in the face of an immovable deadline got their attention.

Sure, the alarmists were wrong — but only because we *made* them wrong. The fear they generated created an opening for the pragmatists, who found ways to fix the problem. Call it a self-defeating prophecy if you like. But the threat was real. And if it hadn't been for the alarmists' willingness to spread that fear, they might well have been right predicting catastrophe after all.

Now imagine Y2k with no immovable deadline, with millions of unknown security holes to fix instead of a single well-understood two-digit-date bug, and happening in the middle of a recession instead of an economic boom. *That's* the cybersecurity problem today.

So we still need alarmists like Clarke. But this time around, they won't be nearly enough to get the attention needed to start the cybersecurity ball rolling.

There's too much inertia and not enough urgency. There's no obvious deadline, no undeniable threat after years of viruses, worms and vandalism that have barely risen above the level of an annoyance for most organizations.

And there's no single problem to fix. The security holes and threats keep changing. Cybersecurity will always be a moving target.

And, not least, there's no money for a Y2k-style drive to solve the cybersecurity problem, and there may not be for years.

Which means there won't *be* a Y2k-style drive — not unless there's a major cybersecurity catastrophe. And that's exactly what everyone who understands the threat, from high-profile alarmists like Clarke down to the lowliest IT grunt, is trying to avoid.

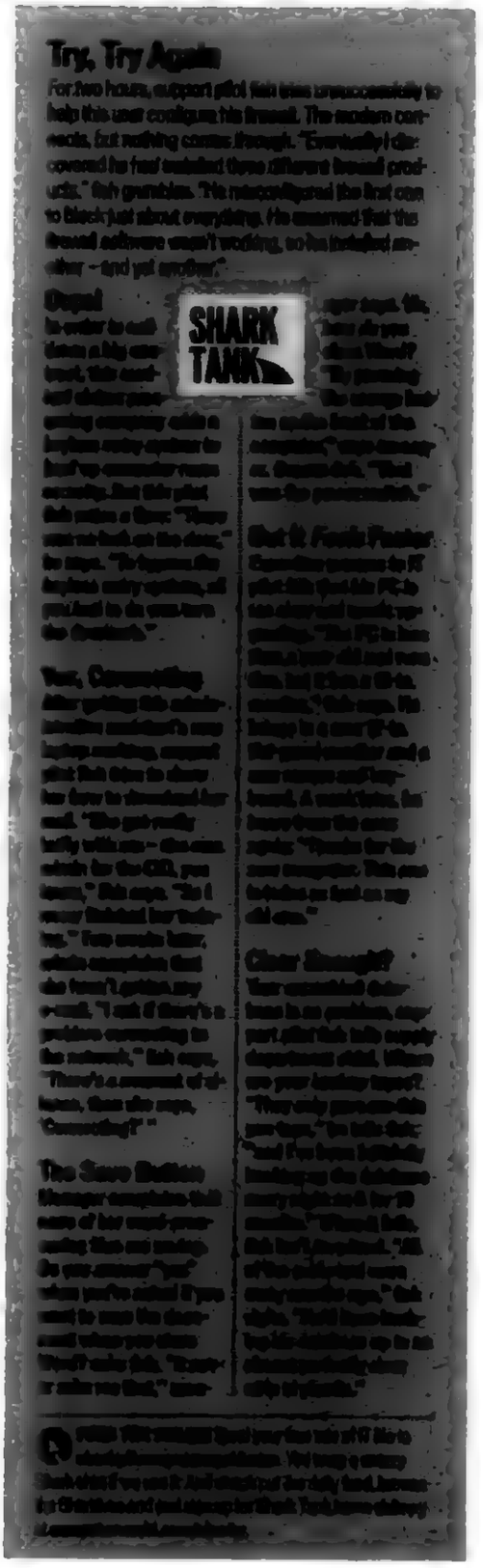
So if we want to make our systems and networks and IT infrastructures secure, we'll have to do it the hard way.

No big budgets. No massive push. No heroic efforts. No national agenda. Just an endless effort to improve security. That means constant pressure on vendors to clean up their products. And continuous education of users about the importance of following security rules. And a deep-rooted understanding on the part of all IT people that security is a crucial part of every IT job — whether it has *security* in the title or not.

And yes, a few alarmists to keep blasting away at the people who still don't get it.

But we can't count on them for results. If we want to make cybercatastrophe another self-defeating prophecy, all we can do is keep improving IT security at every level, one bug and one threat at a time.

And hope that's enough. ◗



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Get Off the Backup Treadmill

Sony AIT data storage solutions help companies of any size automate tape backups, delivering real ROI through IT time savings.

Government regulators are requiring organizations from financial to health care to keep copious long-term records. Disaster recovery and business continuity requirements are more stringent than ever, as organizations try to prepare for the worst. And all the while, IT organizations are stretched to the limit, struggling to meet these basic day-to-day demands.

Clearly, it is imperative for any organization to routinely back up valuable data, but it's not imperative that they spend an inordinate number of IT hours doing it. Let's say it takes a single IT administrator 15 minutes to load, unload and check a backup tape, and that person has to deal with just two tapes each day. That's at least 10 hours of IT time per month spent juggling tapes—hours that could be dedicated to more strategic endeavors.

Automated tape systems can get organizations off the backup treadmill. Such systems allow you to consolidate multiple drives into one solution that can be loaded with enough tapes to handle backups for days or weeks. All the required backups and tape rotations are handled on a predefined schedule, without human intervention.

Once a luxury for only large organizations with big budgets and large IT departments, automated tape storage solutions such as those in the Sony Advanced Intelligent Tape™ (AIT) automation family are now cost-effective solutions for small and midsize organizations. Indeed, the fastest growing segment in the tape automation market is for systems with 20 cartridges or less. Even small companies, workgroups or departments with individual Digital Data Storage (DDS) tape backup systems can gain significant business benefits. Larger organizations can leverage the performance, capacity and reliability of a Sony AIT library to enable up to 30 days of unattended backup, boosting cartridge utilization and simplifying management.

Traditionally, many organizations use individual tape drives to back up critical servers, adding additional drives as demand dictates. Consequently, these tape drives are often deployed in a decentralized fashion, requiring that someone physically load fresh tapes into each drive daily or weekly, and to verify that backups complete successfully. With data volume doubling or tripling every year or two, it is difficult to keep up as the number of cartridges grows. Before long, multiple administrators are collectively spending an inordinate amount of time swapping tapes and attending to other mundane chores. This is particularly burdensome in systems with limited tape cartridge capacity.

While such organizations clearly need an automated tape solution, even those with only one tape drive can benefit. Single-drive tape autoloaders and multiple-drive tape libraries are integrated solutions that have space for anywhere from eight to hundreds or even thousands of tapes, along with a mechanism to automatically replace or rotate the tapes on a preset schedule.

When using an automated solution, an administrator loads the tape drives with the appropriate tapes and uses backup software to specify when tapes should be switched, what files should be backed up and how often. Most systems notify the administrator if something is wrong, such as if a tape runs out of space. Otherwise, the administrator simply needs to check the unit at the end of the cycle, be it seven days or 30, and load new tapes. Consider the time savings compared with manually configuring the backup each day, swapping tapes and making sure each backup is complete. Then, consider that the time savings and increase in reliability are even more dramatic when it comes to retrieving data, when time is even more critical.

Sony AIT

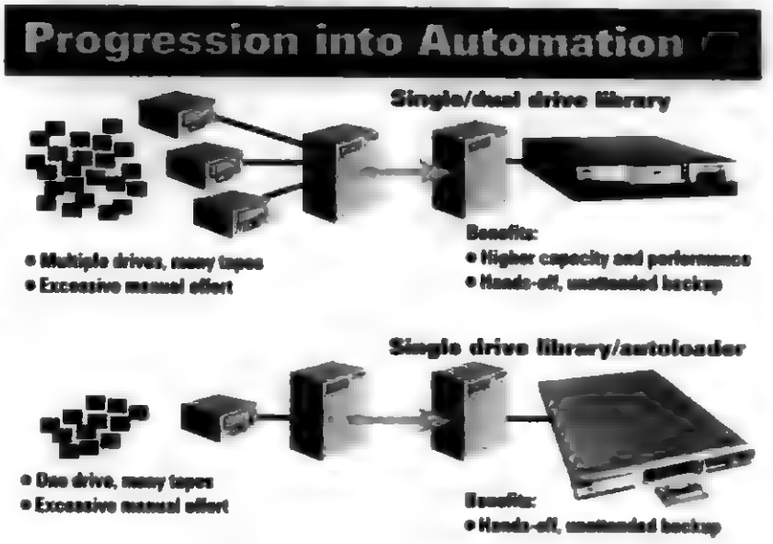
Sony's AIT tape drives and libraries were designed from the ground up for automation, with a range of models that allow organizations to centralize their backups and upgrade existing library capacity. For example, Sony's LIB81, the first 1U autoloader in the industry, has one tape drive and capacity for eight cartridges. The flexible range of capacities supplied by Sony AIT-1, AIT-2 and AIT-3 tapes offer enough for a week's worth of backups, with room to spare for a head cleaning cartridge or a copy of a previous week's or month's backup tape. Sony's LIB162 is a larger unit with space for two tape drives and up to 16 individual tapes, all within a 2U rack-mountable design that can fit in a limited space. Its storage capacity of 0.8 terabytes (TB) native and 2.08TB compressed puts it among the leaders in terms of storage density per cubic foot.

In addition to rack-mountable storage systems, Sony has desk-side tape libraries that allow users to load up to 15 cartridges in a single removable magazine. This provides enough capacity for two weeks worth of tapes. Sony also offers 30-cartridge units that can provide up to one month or more of hands-free backups.

All of Sony's automated tape libraries include a number of important capabilities and characteristics, including:

- **Remote administration:** Sony's tape libraries all have the capability to be controlled and monitored from a remote location.
- **High reliability:** Sony AIT-3 drives are rated at up to 400,000 hours mean time between failure (MTBF) at 100% duty cycle—far exceeding most other types of traditional backup drives.
- **Fast file access:** Sony drives were the first in the industry to include the Memory in Cassette (MIC) feature, which provides 64K-bit flash memory within the tape cartridge to index information and the location of data on the tape. The feature speeds data access and retrieval, making AIT one of the fastest tape formats in terms of data retrieval.
- **Future growth path:** Currently in its third generation, AIT has a defined and proven roadmap that has seen performance and capacity double with each new generation. In addition, all three generations of AIT drives available today are both read and write backward-compatible.
- **Industry support:** AIT drives work with all major operating systems, including Windows, Linux and Unix, as well as with the majority of backup software packages, including Computer Associates' CA BrightStor ARCserve, Veritas Software's Veritas Backup Exec and NetBackup, Legato Systems' NetWorker and IBM's Tivoli Storage Manager.

Progression into Automation



Sony's AIT automated tape backup solutions are also ideally suited to address the growing need for networked backup. Rather than installing and managing dedicated tape drives or libraries near each server, an organization can consolidate all storage functions and back up data from various servers across the network, further reducing deployment complexity and improving IT productivity.

Whatever the configuration, high-speed, high-capacity AIT tape systems can reduce the pressure on your backup window by cutting down on the time it takes to complete a backup or restore. Automating your daily or weekly backups provides even more benefits—more reliable backups performed without manual intervention, freeing up valuable IT hours that can be spent on projects that contribute to the bottom line.

Learn More About
Sony AIT Solutions

Download the free white paper, "Doing More Through Automation," and learn more about Sony storage solutions.
Visit www.nwfusion.com/sony/AUTOCW

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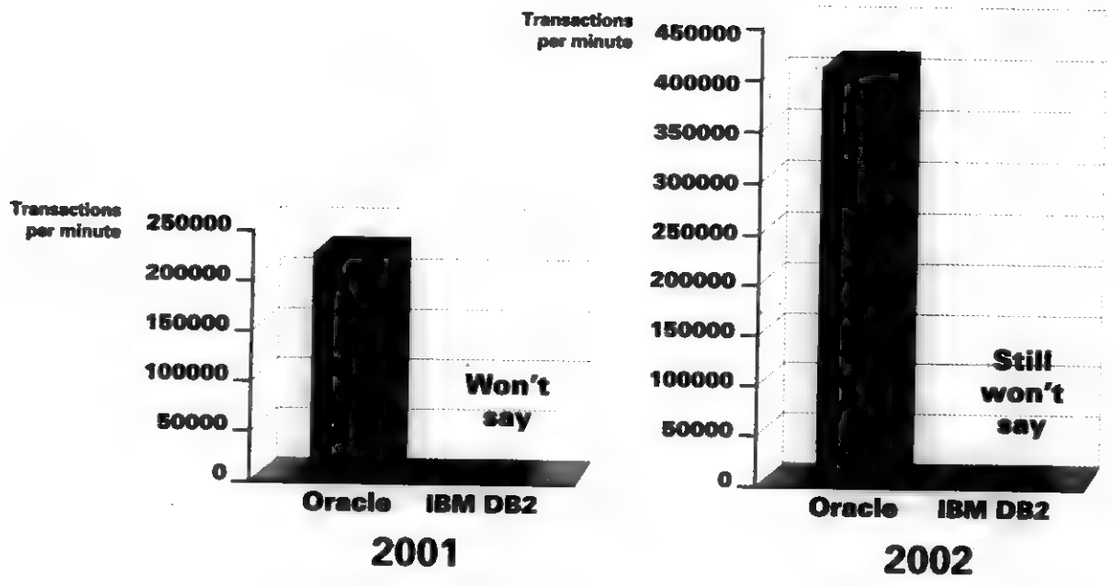

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It's time to revise corporate crisis management

Future Watch: Data integration through the Semantic Web.

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CHRIS HARTLOVE

The Best of Both Shores

ALLSTATE, AVON AND GXS are among several Fortune 500 companies that are slashing labor costs while retaining control over IT staffs and project quality through offshore insourcing. Tasos Tsolakis at GXS (above) estimates that he has saved $16 million a year under this emerging model by shifting work to offshore employees. **PAGE 37**

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Users Back Novell Plan for NetWare-to-Linux Path

NetWare 7 release will put services on both OS kernels as means of providing migration option

BY DON TENNANT
SALT LAKE CITY

With the announcement last week that Novell Inc. has tapped Linux as the migration path for NetWare, users said they finally have reason to believe that the folks in Novell's executive suite are as savvy as its engineers.

At its BrainShare 2003 user and partner conference here, Novell announced that NetWare 7 will be a set of services sitting on top of both the NetWare and Linux kernels. NetWare 7 is due to succeed NetWare 6.5, which entered public beta-testing last week.

"We are not dropping NetWare; we are adding Linux," said Jack Messman, Novell's chairman and CEO, in a keynote speech to BrainShare attendees. "This is not a departure from NetWare. We will not abandon you, and you need not abandon us."

ONE ON ONE
Now NetWare users know they won't "get stuck." CEO Jack Messman says:
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That's just what many NetWare users wanted to hear.

"The way they're migrating the operating system — going to a modular format — makes a lot of sense," said Michael Gardner, a senior systems engineer at Munder Capital Management, a financial services firm in Bloomfield Hills, Mich. NetWare "has always stood there as one of the more

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IT Managers Ready to Start Storage Virtualization Push

Savings eyed as top vendors begin to offer data-pooling tools

BY LUCAS MEARIAN
PHOENIX

With major vendors starting to offer storage virtualization technology, many IT managers at last week's Storage Networking World conference here said they're ready to begin testing the waters in hopes of increasing their storage capacity utilization rates and automating more operations.

For example, Lynn Neal, a senior systems integrator at Sprint Corp., said she's pushing the idea of virtualization

to upper management because of its potential to create a more automated way of provisioning storage on the company's 160TB storage-area network.

Neal added that she's particularly interested in network-based virtualization technology that could let users reach across a myriad of storage de-

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Slow Uptake For Windows Server 2003

Users see benefits, but many have just upgraded to Win 2k

BY CAROL SLIWA

Few corporate IT departments are expected to race to adopt the long-delayed Windows Server 2003 operating system that Microsoft Corp. will launch this week.

Several IT managers contacted last week by *Computerworld* said they have no plans to migrate to the new operating system this year — especially those who have recently finished or are in the process of completing a move to Windows 2000 Server.

"We tend to lag behind on upgrades. It allows a shake-in period and means less risk," said Bob Farrugia, director of application delivery at London

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The Best of Both Shores

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OUTSOURCING WATCH

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INSIDE

■ SNW attendees say senior execs are making it difficult to get funding for SAN technology. Page 16

■ Our take: Lean hard on your storage vendors to ensure interoperability, says editor in chief Maryfran Johnson. Page 20

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Amid the hoopla, Microsoft is also launching Visual Studio .Net 2003. Page 48

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AT DEADLINE

Microsoft, U.S. File Settlement Report

Microsoft Corp. and the U.S. government said in a joint status report that the company has taken a series of steps to comply with the antitrust settlement deal approved by a federal judge in November. The actions include training for about 10,000 of Microsoft's employees and the formation of an internal committee to manage compliance efforts.

Dell Retakes PC Lead, IDC Says

Dell Computer Corp. regained the lead in worldwide PC shipments from Hewlett-Packard Co. in the first quarter, capitalizing on a shift in buying from consumers to corporate users, according to IDC. Dell shipped about 6 million PCs, compared with 5.5 million for HP, IDC said. The Framingham, Mass.-based market research firm added that total shipments increased 2.1% year over year to 34.6 million PCs.

Homeland Agency Taps Privacy Chief

The U.S. Department of Homeland Security has named Nuala O'Connor Kelly as its first privacy officer. O'Connor Kelly, who will be responsible for ensuring that the technologies used by the agency don't erode the privacy of U.S. citizens, previously held a similar position at the Department of Commerce.

Short Takes

President Bush has nominated Maj. Gen. Steven Boutelle to become the U.S. ARMY'S CIO. Boutelle, who would also be promoted to lieutenant general, currently is director of information operations, networks and space for the Army. . . . Poway, Calif.-based GATEWAY INC. reported a $107.7 million first-quarter loss on revenue of $844.4 million. Revenue was down 20% from the year-earlier level of $1.06 billion.

Struggling Baan Put Up for Sale – Again

Invensys seeks to divest business apps vendor

BY MARC L. SONDINI

FOR the second time in three years, business applications vendor Baan Co. is on the auction block, a development that drew mixed reactions from users and analysts last week.

ERP SOFTWARE

Parent company Invensys PLC announced that it has put Baan up for sale as part of a plan to jettison two-thirds of its assets. Invensys, a London-based maker of manufacturing control systems and other products, bought Baan in August 2000 for $709 million and has pumped another $100 million into the Barneveldt, Netherlands-based software vendor since the acquisition.

But Invensys has been hit by a drop-off in revenue and profits, and the company singled out Baan as a weak performer during a business update in February. At the time, Invensys said Baan's financial performance in the fiscal year that ended March 31 would likely be "materially worse" than expected, despite efforts to cut costs and improve customer service.

Dave Wangler, senior vice president of global marketing at Baan, said officials at the software vendor are talking to several interested buyers and are looking to close a deal within months. "We're hoping we can make it a quick process, and as far as customers are concerned, it's business as usual," Wangler said.

But Todd Roeller, e-business technology manager at Flowserve Corp. in Irving, Texas, said the maker of liquid flow-control products is in a wait-and-see position on Baan. "It's a little disconcerting thinking you're leveraged to a vendor's product that may be in trouble," Roeller said.

Flowserve runs a number of Baan applications, including one that lets its customers configure products and get pricing data online. The applications "need more investment to satisfy our requirements," Roeller said. "Being on the chopping block will likely delay or eliminate the future developments we're counting on."

Invensys made a mistake by announcing the planned sale before it had a buyer lined up, because the uncertainty could be a cause of concern for some users, according to John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. "Customers will be worried, whether or not they should be," he said.

However, Moore noted that Baan currently enjoys the highest customer satisfaction ratings it has had in years and that it has been largely successful in retaining existing users. Those factors, along with the quality of Baan's product line, should make it attractive to potential buyers, Moore said.

"If it's the right buyer, this could be a very good thing," said Keith Bearden, CIO at dental equipment maker A-dec Inc. in Newberg, Ore. But he said he would be concerned if Baan is acquired by a venture capital firm that puts profits above product quality.

"I hope that Baan is allowed to continue some of the moves they have started," Bearden said, adding that the software vendor's focus on customer satisfaction and continued development of its next-generation Gemini applications are "critical to the long-term success of the company."

Baan's March to The Auction Block

SEPTEMBER 2002: Invensys CEO Rick Haythornthwaite says **his top priority at a Baan user conference will be** to "assuage fears" about the software vendor's future.

NOVEMBER 2002: Invensys discloses that **the financial results of Baan and two related software businesses were down** "considerably" in the first half of its fiscal year.

FEBRUARY: The company says that **Baan's performance has worsened significantly** and adds that it plans to review the value of its investment in the software vendor.

APRIL: Invensys **puts Baan up for sale** along with a group of business units that sell energy management products.

Lawson Sticks to Product Strategy, Despite Losses

Company plans software updates, eyes acquisitions

BY MARC L. SONDINI
ORLANDO

Looking to overcome a drop-off in revenue that has led to three straight quarterly losses, Lawson Software Inc. plans to continue to make incremental additions to its line of business applications.

Last week, at its annual user conference here, Lawson outlined a strategy to enhance existing product lines, by both acquisition and internal development. "We're going to be around for a long time," Jay Coughlan, Lawson's president and CEO, told attendees.

In addition to announcing an expected application outsourcing program at the conference [QuickLink 37685], St. Paul, Minn.-based Lawson said it's working with New York-based Deloitte & Touche LLP to offer a consulting service designed to help CIOs analyze the efficiency of their IT departments.

That sort of offering could help CIOs talk to CEOs and chief financial officers in business terms, said Jeffrey Pullen, team leader of financial systems at Lafarge North America Inc., a maker of construction materials in Herndon, Va.

A half-dozen users, including Pullen, said they're satisfied with Lawson and its product direction and expect the company to remain viable.

But Larry Kerr, director of enterprise resource planning for the city of Greensboro, N.C., noted that he encountered a series of software bugs during an implementation of Lawson's Series 8 human resources, finance and payroll applications. The project began last August and was completed in January.

Lawson upgraded some of the applications five times to fix the bugs, Kerr said, adding that the city had to pay additional consulting fees because of the upgrades. But the applications are now stable, he said.

A Lawson spokesman said the company has resolved the initial stability problems in the Series 8 software, which became available in 2001. About 40% of Lawson's installed base has migrated to the Web-enabled Series 8 applications, he added.

NO NEED TO WORRY

Lawson's CEO says the company's financial health "is not even an issue." Read more.

QuickLink 37828
www.computerworld.com

War, Terrorism Fuel Fed's IT Budget Growth

Projected to grow 8.5% a year, IT spending could hit $68B in 2008

BY DAN VERTON
WASHINGTON

Stimulated by the war in Iraq, increased threats of terrorist attacks and the formation of the U.S. Department of Homeland Security (DHS), the federal IT market could top $68 billion by 2008, a new study predicts.

While the anticipated recovery of commercial IT markets never quite materialized in 2002, "the federal government remains an attractive marketplace based on its sheer size and consistent spending patterns," according to the "Federal IT Market Forecast" released last week by Chantilly, Va.-based Input. "Projected increases of 13% in [fiscal] 2003 spending over [fiscal] 2002 mean that the government is actually an engine of growth," the report stated.

Homeland security and e-government initiatives remain the highest IT priorities for federal agencies, said Payton Smith, manager of federal market analysis at Input. These two areas are driving significant near-term increases in spending, he said.

According to Input, government spending on IT products and services will increase at a compound annual growth rate of 8.5%, from $45.4 billion in fiscal 2003 to $68.2 billion in fiscal 2008.

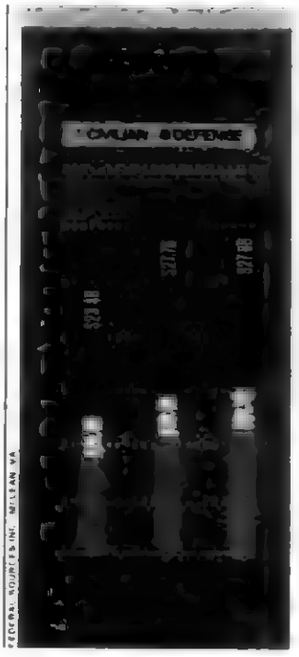
Big Budget

Driving much of that estimated growth is the recent formation of the DHS. The size of the DHS IT budget is second only to that of the Department of Health and Human Services among civilian government agencies, according to a market forecast by McLean, Va.-based Federal Sources Inc. For fiscal 2003, the DHS commanded a $3 billion IT budget. Federal Sources projects that figure will increase to $4 billion next year.

"The DHS is large enough and expected to grow fast enough to rival the military services in terms of IT spending" by 2008, according to the Input forecast. And if Federal Sources' estimates are accurate, that would place the DHS IT budget above the $6.5 billion mark, which is the current estimate for U.S. Air Force IT spending for fiscal 2004.

The "DHS is off the charts, with an IT [budget] gain of $745 million" from fiscal 2003 to fiscal 2004, said Jim Kane, president and CEO of Federal Sources.

Input's forecast concluded that the growth in federal IT spending will be greatest for outsourcing services, as opposed to spending on hardware, software and telecommunications. In addition, outsourcing of government IT is expected to reach a high of nearly 87% in 2008.



The anticipated retirement of a large portion of the federal IT workforce, the critical lack of IT skills and the Bush administration's stated preference to partner with the private sector are all contributing factors to the anticipated growth in outsourcing, according to the Input study.

Kane recommended that companies take specific measures to ensure that they are positioned to take advantage of the new federal IT market.

For example, companies should map their product and service offerings to agency enterprise architecture plans and overall mission statements. In addition, business development managers should study the government's use of business-case scoring, which in addition to setting certain security standards ensures that all new IT investments provide a return on investment that's equal to or greater than alternate uses of the same funding. It also requires that all such spending goes to products and services that directly support an agency's mission.

On Board Sun's Corporate Jet, McNealy Talks Mobility

BY PATRICK THIBODEAU

Sometimes Scott McNealy wishes he didn't have a corporate jet.

Instead of leaving early from San Jose for a five-hour flight to Orlando to attend Sun's iForce partner conference, the CEO of Sun Microsystems Inc. is getting out of his office late. He says on the way to the airport that had he taken a commercial flight, he would have been forced to leave at a more reasonable hour and wouldn't be checking into his hotel at 2 a.m.

Sun's revenue is down for the quarter that ended March 30, off 10% from the same period a year earlier. However, the company posted a $4 million profit on $2.79 billion in sales. Meanwhile, competition from Hewlett-Packard Co., IBM and Intel Corp.'s 64-bit Itanium chip is accelerating. If McNealy is bothered by any of that, he doesn't show it as he boards his corporate jet.

His casual style — blue jeans and open collar in the mold of the Silicon Valley culture — belies his intensity. As the plane lifts off for Orlando, McNealy doesn't pause for a second. He picks up his cell phone to make a point.

"This is ultimately what we think is the big winner in the thin-client computing marketplace," he says. "It goes with you, and it's always on, and you take it everywhere."

McNealy built his company, founded in 1982, on a philosophy that the network is the computer. He sees ubiquitous networked devices, from cell phones to browsers on shopping carts connected to shopping lists at home, as the future.

McNealy talks animatedly about client-side applications, such as those being used in sales automation, written for Java-enabled devices — 100 million of which he says are already in use.

Sun, he says, is adding voice-over-IP technology to its Sun Ray thin-client workstations. That means once a user logs onto a terminal with a Java card, the phone recognizes that user. This summer, Sun will release a software stack running on Linux code-named Mad Hatter to boost its desktop offerings.

The total package is a direct attack on the desktop PC. Does Sun see itself as an alternative to Microsoft Corp.?

"It depends on who you are," McNealy says. "For the hundreds of thousands of Sun Ray users, we already are. For those who want their PC, they may hope never.

"We don't build a strategy based on what our competitors are doing," he says. "We build a strategy based on what our customers want."

Microsoft is moving deeper into the enterprise on the strength of its desktop dominance, and Sun officials say their client strategy will help boost enterprise sales. But while company officials claim that they can chip away at Microsoft, they aren't making any bold predictions or even offering safe bets.

"We're not trying to beat Microsoft; we're not trying to challenge Microsoft," McNealy says. "We're trying to solve a problem . . . and give people mobility with security."

When the plane lands in Orlando, a car to pick up the CEO has yet to arrive. McNealy seems almost amused by his sudden lack of mobility.

Meeting with his iForce partners the next day, McNealy is as outspoken as ever. If he's tired, he hides it well. He touts the company's $5.3 billion in cash reserves. "We're doing just fine operationally," he says, unable to refrain from taking one more stab at Microsoft: After all, he says, Sun has a cash position above everyone who "isn't a convicted monopolist."

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WASHINGTON

Stimulated by the war in Iraq, increased threats of terrorist attacks and the formation of the U.S. Department of Homeland Security (DHS), the federal IT market could top $68 billion by 2008, a new study predicts.

While the anticipated recovery of commercial IT markets never quite materialized in 2002, "the federal government remains an attractive marketplace based on its sheer size and consistent spending patterns," according to the "Federal IT Market Forecast" released last week by Chantilly, Va.-based Input. "Projected increases of 13% in [fiscal] 2003 spending over [fiscal] 2002 mean that the government is actually an engine of growth," the report stated.

Homeland security and e-government initiatives remain the highest IT priorities for federal agencies, said Payton Smith, manager of federal market analysis at Input. These two areas are driving significant near-term increases in spending, he said.

According to Input, government spending on IT products and services will increase at a compound annual growth rate of 8.5%, from $45.4 billion in fiscal 2003 to $68.2 billion in fiscal 2008.

Big Budget

Driving much of that estimated growth is the recent formation of the DHS. The size of the DHS IT budget is second only to that of the Department of Health and Human Services among civilian government agencies, according to a market forecast by McLean, Va.-based Federal Sources Inc. For fiscal 2003, the DHS commanded a $3 billion IT budget. Federal Sources projects that figure will increase to $4 billion next year.

"The DHS is large enough and expected to grow fast enough to rival the military services in terms of IT spending" by 2008, according to the Input forecast. And if Federal Sources' estimates are accurate, that would place the DHS IT budget above the $6.5 billion mark, which is the current estimate for U.S. Air Force IT spending for fiscal 2004.

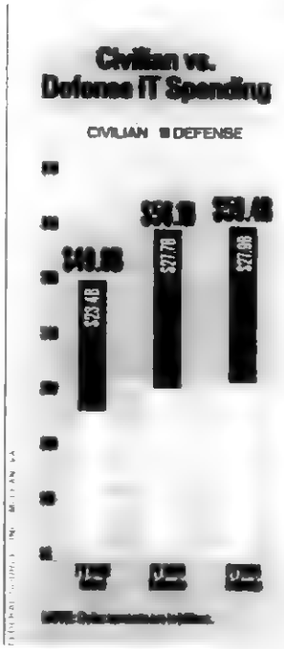
The "DHS is off the charts, with an IT [budget] gain of $745 million" from fiscal 2003 to fiscal 2004, said Jim Kane, president and CEO of Federal Sources.

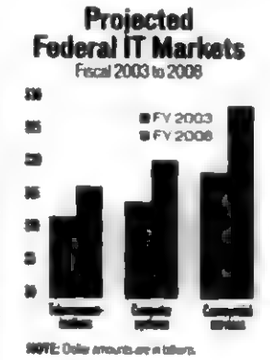
Input's forecast concluded that the growth in federal IT spending will be greatest for outsourcing services, as opposed to spending on hardware, software and telecommunications. In addition, outsourcing of government IT is expected to reach a high of nearly 87% in 2008.

The anticipated retirement of a large portion of the federal IT workforce, the critical lack of IT skills and the Bush administration's stated preference to partner with the private sector are all contributing factors to the anticipated growth in outsourcing, according to the Input study.

Kane recommended that companies take specific measures to ensure that they are positioned to take advantage of the new federal IT market.

For example, companies should map their product and service offerings to agency enterprise architecture plans and overall mission statements. In addition, business development managers should study the government's use of business-case scoring, which in addition to setting certain security standards ensures that all new IT investments provide a return on investment that's equal to or greater than alternate uses of the same funding. It also requires that all such spending goes to products and services that directly support an agency's mission.





On Board Sun's Corporate Jet, McNealy Talks Mobility

BY PATRICK THIBODEAU

REPORTER'S NOTEBOOK

Sometimes Scott McNealy wishes he didn't have a corporate jet.

Instead of leaving early from San Jose for a five-hour flight to Orlando to attend Sun's iForce partner conference, the CEO of Sun Microsystems Inc. is getting out of his office late. He says on the way to the airport that had he taken a commercial flight, he would have been forced to leave at a more reasonable hour and wouldn't be checking into his hotel at 2 a.m.

Sun's revenue is down for the quarter that ended March 30, off 10% from the same period a year earlier. However, the company posted a $4 million profit on $2.79 billion in sales. Meanwhile, competition from Hewlett-Packard Co., IBM and Intel Corp.'s 64-bit Itanium chip is accelerating. If McNealy is bothered by any of that, he doesn't show it as he boards his corporate jet.

His casual style — blue jeans and open collar in the mold of the Silicon Valley culture — belies his intensity. As the plane lifts off for Orlando, McNealy doesn't pause for a second. He picks up his cell phone to make a point.

"This is ultimately what we think is the big winner in the thin-client computing marketplace," he says. "It goes with you, and it's always on, and you take it everywhere."

McNealy built his company, founded in 1982, on a philosophy that the network is the computer. He sees ubiquitous networked devices, from cell phones to browsers on shopping carts connected to shopping lists at home, as the future.

McNealy talks animatedly about client-side applications, such as those being used in sales automation, written for Java-enabled devices — 100 million of which he says are already in use.

Sun, he says, is adding voice-over-IP technology to its Sun Ray thin-client workstations. That means once a user logs onto a terminal with a Java card, the phone recognizes that user. This summer, Sun will release a software stack running on Linux code-named Mad Hatter to boost its desktop offerings.

The total package is a direct attack on the desktop PC. Does Sun see itself as an alternative to Microsoft Corp.?

"It depends on who you are," McNealy says. "For the hundreds of thousands of Sun Ray users, we already are. For those who want their PC, they may hope never.

"We don't build a strategy based on what our competitors are doing," he says. "We build a strategy based on what our customers want."

Microsoft is moving deeper into the enterprise on the strength of its desktop dominance, and Sun officials say their client strategy will help boost enterprise sales. But while company officials claim that they can chip away at Microsoft, they aren't making any bold predictions or even offering safe bets.

"We're not trying to beat Microsoft; we're not trying to challenge Microsoft," McNealy says. "We're trying to solve a problem . . . and give people mobility with security."

When the plane lands in Orlando, a car to pick up the CEO has yet to arrive. McNealy seems almost amused by his sudden lack of mobility.

Meeting with his iForce partners the next day, McNealy is as outspoken as ever. If he's tired, he hides it well. He touts the company's $5.3 billion in cash reserves. "We're doing just fine operationally," he says, unable to refrain from taking one more stab at Microsoft: After all, he says, Sun has a cash position above everyone who "isn't a convicted monopolist."

McNEALY says ubiquitous network devices are the future

BRIEFS

Microsoft Offers Cautious Outlook . . .

Microsoft Corp. reported a $2.79 billion net profit on revenue of $7.84 billion for its third quarter, which ended March 31. Revenue was up 8% from $7.25 billion a year ago. But Microsoft offered a cautious outlook, saying there is no sign that corporate IT spending or overall demand for PCs is picking up. Microsoft expects its fourth-quarter revenue to be similar to the third-quarter total.

. . . And Agrees to Settle Florida Suits

Microsoft also said it has agreed to pay up to $202 million to settle class-action lawsuits that accused the company of violating Florida's antitrust and unfair-competition laws. The money will be distributed in the form of vouchers that can be used to buy desktop or portable PCs running any operating system.

IBM Q1 Earnings Up But Below Plan

IBM fell short of Wall Street earnings expectations but still reported year-over-year profit and revenue growth for the first quarter. The company said it had net income of $1.38 billion on total revenue of $20.07 billion. Among other top vendors reporting first-quarter results, SAP AG said its profit nearly doubled year over year to $291 million, despite an 8% drop in revenue.

Short Takes

WORLDCOM INC. filed a proposed financial reorganization plan with the U.S. Bankruptcy Court and said it will now use MCI as its brand name. . . . IT services firm ACCENTURE LTD. said it's cutting about 750 of its 75,000 employees. . . . SIEBEL SYSTEMS INC. announced an upgrade of its Universal Application Network software, which ties the company's CRM applications to other systems.

Tools Promise Better Security Management

New products allow centralized administration

BY JAIKUMAR VIJAYAN
SAN FRANCISCO

CENTRAL management of multivendor security systems and the data they generate can lead to better risk management and auditing capabilities, users said at last week's RSA Conference 2003 here.

And vendors are lining up to tap into that opportunity, with new products offering single-point administration of activities ranging from threat identification and mitigation to identity management, access control and configuration of security systems made up of products from multiple vendors.

Conference host RSA Security Inc. rolled out identity and access management software called Nexus that's designed to allow central administration of all of RSA's security products. With it, users will be able to centrally manage user and access policies, validate the authenticity of digital certificates and enforce consistent security policies, according to Bedford, Mass.-based RSA.

Such integration would be "nirvana," said Luis Suarez, vice president and manager of PKI and encryption key management at Wachovia Corp. in Charlotte, N.C.

The goal is to make management of disparate technologies "more transparent and seamless," said David Young, IT program director at Geisinger Health System in Danville, Pa. "It is something we have been trying to get our hands around for some time."

Competing Moves

Making a similar announcement was Computer Associates International Inc., which said it will launch its eTrust Security Command Center later this quarter. The product, which is in the final stages of beta testing, will give users a browser-based interface for centrally administering multivendor security infrastructures, according to CA.

A week earlier, ArcSight Inc. in Sunnyvale, Calif., announced that it has expanded the number of products supported by its ArcSight 2.1 risk management software. The product can now collect, correlate and centrally report security event data from more than 60 products, such as firewalls, intrusion- and spam-detection software and identity management tools, company officials said.

Driving the need for such tools is the growing complexity of managing a robust security infrastructure, said Karl Jackson, a systems engineer at Brigham Young University in Provo, Utah.

Companies typically have an aggregation of firewalls, host- and network-based intrusion-detection systems (IDS), anti-spam and antivirus software, and access-control and identity-management tools. On top of all that is the data; a single firewall, for instance, can generate more than 1GB per day. And IDS sensors can log nearly half a million entries daily.

"There are so many different products and so many different ways of looking at things. If I could put everything in one place, it's going to make my life so much easier," said Jackson, who for the past month has been beta-testing CA's Command Center — a product he's pleased with. "It's been great," he said. "It kind of centralizes everything, where before you would have to run all sorts of different applications."

Tools with the ability to gather and quickly correlate information from multiple devices allow companies to prioritize and manage security incidents from a single console, said Michael Rasmussen, an analyst at Forrester Research Inc. in Cambridge, Mass.

They also provide the ability to comply with regulations such as the Health Insurance Portability and Accountability Act, Rasmussen said. ▶

NEW PRODUCTS

Here's a sampling of newly available security management products:

PRODUCT	SUPPLIER	DESCRIPTION
■ Nexus	RSA Security	Allows central management of RSA's integrated identity- and access-management software.
■ Security Information Management	NetForensics Inc.	Collects and correlates real-time security event information from firewalls, IDSs, antivirus tools and operating systems.
■ Tivoli Risk Manager	IBM	Provides a central console for identifying and managing security threats.

Vendors to Promote Integration of IT, Physical Security

SAN FRANCISCO

Computer Associates is leading a multivendor initiative to define common standards for integrating the management of physical and IT security systems.

Under the Open Security Exchange effort, CA will work with HID Corp. in Irvine, Calif., Gemplus International SA in Luxembourg and Tyco Fire & Security in Boca Raton, Fla.

HID manufactures physical access control systems, Gemplus makes smart cards, and Tyco is an integrator of physical security systems.

The group has already drafted initial specifications for common administration of users and privileges, common authentication to IT systems and physical facilities, and centralized management and auditing of both functions.

Going forward, the Open Security Exchange will make the interoperability specifications available to standards bodies for consideration as open standards, said CA Vice President Russell Artzt.

Integrating physical and IT security can give companies a more comprehensive view of risk and how to manage it, said Luis Suarez, vice president and manager of PKI and encryption key management at Wachovia. The bank is piloting a project that will enable users to access physical facilities and IT networks via smart cards.

But a lot depends on the extent to which additional vendors support such efforts, said Adam Stanislaus, vice president of physical security at First Data Corp. in Overland Park, Kan.

First Data is testing a CA technology called eTrust 20/20 to see if the product can centrally manage the financial firm's physical and IT access control databases.

For the technology to be really useful to First Data worldwide, it would need to support many more physical access control technologies from more vendors, Stanislaus said.

"We would like to see more partners involved. We hope it is an open architecture and not just [limited to] three or four companies," he said.

– Jaikumar Vijayan

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FBI Begins Knowledge Management Face-lift

With Phase 1 of Trilogy network done, bureau tackles data mining, info sharing

BY DAN VERTON
WASHINGTON

THE FBI last week began focusing its attention — as well as tens of millions of dollars from its fiscal 2004 budget request — on improving its data warehousing and mining capabilities.

The bureau announced that it awarded a contract to New York-based ClearForest Corp. to deploy business intelligence software that supports a new FBI data warehouse that consists of a Terrorism Intelligence Database and an Information Sharing Data Mart. FBI agents are currently training on ClearForest's software, which will enable them to analyze multiple document repositories that house more than 1 billion documents.

Barak Pridor, CEO of ClearForest, said the same technology has been used for years at large Global 2,000 firms such as The Dow Chemical Co., Thomson Financial and Ford Motor Co.

The FBI's focus on data mining follows the March 28 completion of the initial rollout of an enterprisewide network known as Trilogy. The $400 million infrastructure program has so far yielded the deployment of 21,000 desktops, more than 3,000 printers and nearly 1,500 scanners, and it links 622 FBI offices via high-speed data connections. In addition, Trilogy will form the transport layer for the FBI's new Virtual Case File and an integrated data warehouse that will eventually link 31 FBI databases through a single Web portal, said FBI Director Robert Mueller, speaking April 10 at a Senate Appropriations Committee hearing. The Virtual Case File database is slated to be fully deployed by year's end.

"We are now focused on implementing a data warehousing capability that can bring together our information into databases that can be accessed by agents throughout the world as well as our analysts as soon as a piece of information is developed," Mueller said.

Long-range Plans

But getting to this point hasn't been easy, Mueller said. In addition to having to come up with $138 million for the first phase of Trilogy out of an existing budget that didn't cover it, the bureau had to rewrite the original deployment plan, which Mueller said had provided little long-term vision for technology refreshment.

The original plan called for the addition of a new graphical user interface, without providing for upgrades to the FBI's central databases, said Mueller. Simply "putting lipstick on a pig . . . would not enable us to use the analytical tools we needed," he said.

In the aftermath of a recent report by the Justice Department's inspector general that criticized the FBI for spending "hundreds of millions of dollars" on failed IT projects, Mueller said he's tightening his grip on the bureau's IT purchasing. "I am looking at the information technology dollars with a view to making certain that every one of those dollars is spent wisely," said Mueller, referring to the $82 million he's requesting in this year's budget specifically for IT refreshment and maintenance. "It makes no sense for us to have and put into place that which will be obsolete in two years."

"One of the things we still hear is that agents in the field don't have e-mail addresses or access to individual machines because the technology just isn't as widely available as it would be in a corporate setting," said William Harrod, director of the Investigative Response division at TruSecure Corp. in Herndon, Va. Harrod spent 14 years in the FBI.

James Williams, director of security solutions at managed security services firm Solutionary Inc. in Omaha and a former FBI agent, said upgraded core database systems are among the most critical needs of the FBI. "The speed at which you could obtain information was strikingly slow, and you would get on one system and not be able to get to another," said Williams, referring to his experience using the older automated case-file system. "It's the most important piece of infrastructure that the bureau has."

FBI Has Made Major Progress, Former IT Chief Says

For the past 18 months, the FBI has been frantically trying to dig itself out of a knowledge management sinkhole created by years of mismanaged IT projects. And according to the bureau's former IT chief, progress to date has been astonishing.

Robert Chiaradio, managing director of homeland security at McLean, Va.-based BearingPoint Inc., spent 18 years in the FBI. He left the bureau last July after serving for 18 months as executive assistant director for administration. In that capacity, Chiaradio was one of four officials who reported directly to FBI Director Robert Mueller and was responsible for the bureau's entire IT budget.

According to Chiaradio, years of deploying IT systems without a view toward an enterprisewide architecture resulted in an "improvised" IT infrastructure of more than 50 stovepiped applications written in various languages and running on disparate systems.

"What they ended up with was a critical shortfall in knowledge management," Chiaradio said. "That became obvious very quickly after Sept. 11, 2001."

However, a three-part modernization effort, started under former director Louis Freeh, includes the deployment of the Trilogy network, deployment of upgraded desktop hardware and servers, and a user application component that focuses on Web-enabling a handful of the most important investigative databases and systems. The most important of those systems is the Automated Case File system.

"Web-enablement really was the issue," said Chiaradio. But after Sept. 11, "Mueller immediately recognized that there was no time to wait, and he ordered that the three-year timeline for the modernization project be truncated to 'as soon as technically possible.'"

Several weeks after the attacks, Mueller asked Chiaradio to return to FBI headquarters from his position as the agent in charge of the Tampa, Fla., field office, to help push the modernization effort into overdrive. Chiaradio met with the FBI director at 6 a.m. on Oct. 1, 2001. The meeting lasted three hours, after which Chiaradio devised the concept for the Virtual Case File system.

Developing the System

Within days, Chiaradio had put together a team of FBI "practitioners" and had begun developing a prototype of how the new system should work. What he found was that the FBI was predominantly a paper-based organization that was losing intelligence as fast as it was collecting it.

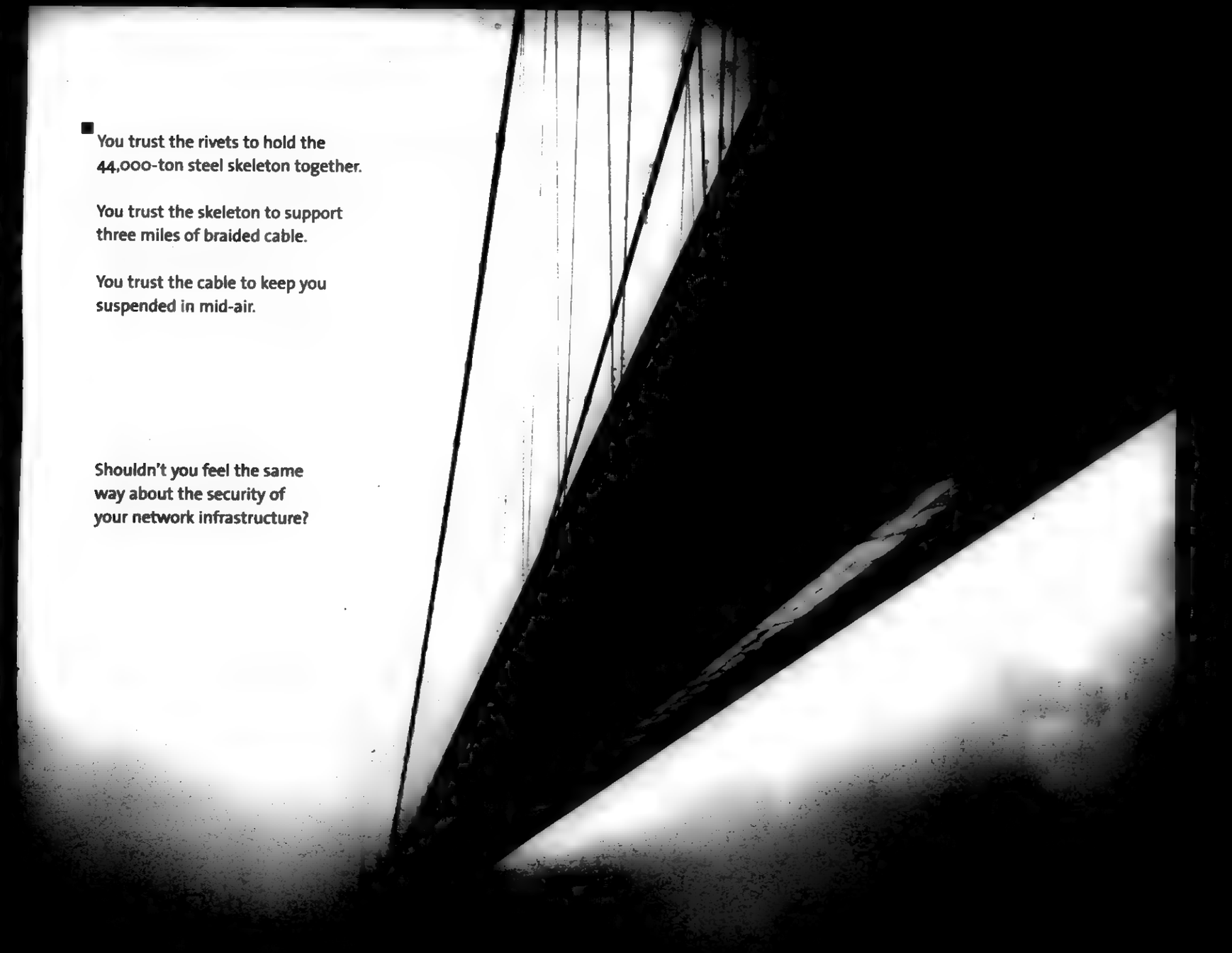
"The new system was built with the capability to automate and scan all paper-based information into a relational database that can be mined. An intelligence-gathering organization needs to know what it knows," Chiaradio said.

By all accounts, the initial work was a major redesign. But the work is far from over. Mueller will need more money for what Chiaradio calls the cleanup phase, during which all of the data repositories that have yet to be redesigned for Trilogy will be either re-engineered or replaced.

Several hundred back-office systems must also be put through the same process, said Chiaradio. One of those is the financial system, which the FBI plans to replace with a unified financial management package.

"The back-office applications are as important to the mission as anything else," Chiaradio said. "They are the logistics train."

—Dan Verton



You trust the rivets to hold the 44,000-ton steel skeleton together.

You trust the skeleton to support three miles of braided cable.

You trust the cable to keep you suspended in mid-air.

Shouldn't you feel the same way about the security of your network infrastructure?

Switch-based Wireless LAN Market Heats Up

Networking vendors prep for launches

BY BOB BREWIN

EXTREME NETWORKS Inc. and Trapeze Networks Inc. last week introduced switch-based enterprise wireless LAN products to get a jump in a market that analysts expect to get crowded — and soon.

Another five vendors that declined to be identified plan to launch competing products by the start of the Networld+ Interop conference in Las Vegas April 27. Similar switch-based systems were launched by Nortel Networks Ltd. last month [QuickLink 37435] and by Symbol Technologies Inc. last year [QuickLink 32531].

Older Wi-Fi hardware puts all the intelligence technology, such as security and the radio frequency (RF) modules, into a ceiling-mounted piece of hardware called an access point (AP). The newer switch-based architecture reduces the AP to a dumb terminal containing just RF modules, with security and management housed in a rack-mounted switch.

Gemma Paulo, an analyst at In-Stat/MDR in Scottsdale, Ariz., said this approach allows enterprises — which must install tens if not hundreds of APs to cover a corporate campus, manufacturing plant or warehouse — to buy relatively inexpensive APs. Companies can then put their money into switches that provide IT managers with more control over their wireless networks than they could achieve with an older-generation "smart" AP.

Aaron Vance, an analyst at Synergy Research Group Inc. in Phoenix, said the large number of companies vying to enter the market represents the continuing boom in the WLAN industry and a sense of untapped opportunities in the enterprise WLAN market.

Despite this growth, Paulo said the market might not be able to support so many new products as well as older systems, such as the smart AP-based systems from Proxim Corp. in Sunnyvale, Calif., and Cisco Systems Inc.

She also said Cisco, the dominant player, could put heavy pressure on its competition by introducing a similar switched-based architecture.

Paulo stressed that not all switched-based WLAN products are equal, adding that Extreme Networks' entry stands out. Its product combines the functionality of a 48-port 10/100 Ethernet wired switch with a system that can manage dumb wireless APs that operate under the 802.11b, 802.11g and 802.11a standards.

Vipin Jain, vice president of the WLAN access group at Santa Clara, Calif.-based Extreme Networks, said all WLAN management is built into the switch. The Extreme Networks Summit 300-48 switch sells for $6,495, while a dumb AP sells for $595.

Paulo said WLAN switch-based products from Symbol and those introduced last week by Pleasanton, Calif.-based Trapeze Networks lack the tight integration between wired and wireless networks offered by the Extreme Networks system.

But according to Vance, they do provide easier centralized management than older APs, which need an upgrade in firmware if network managers want to beef up security. Trapeze has also built in the ability to detect unauthorized users and rogue APs on the network.

MORE ON THIS TOPIC

For comprehensive coverage of wireless LAN systems, visit our Mobile/Wireless Knowledge Center.

QuickLink K1000
www.computerworld.com

BMC Looks to Simplify Mainframe Management

Software targets IT workers lacking mainframe skills

BY MARC L. SONSINI

In a bid to help mainframe-dependent companies protect their investments, BMC Software Inc. is rolling out software designed to simplify and automate big-iron systems management processes for a wider group of IT workers.

Houston-based BMC today plans to announce System Advisor for z/OS, the first in a planned line of Java-based tools that it said will let IT staffers who lack mainframe skills manage mainframe computing resources. For example, network or Unix specialists will be able to use the software to manage mainframes via a streamlined graphical user interface (GUI).

Calvin Guidry, vice president and general manager of enterprise systems management at BMC, said keeping mainframes running smoothly could become more of a challenge as companies face a predicted shortage of mainframe-savvy IT workers [QuickLink 37362].

Typically, mainframes are managed through 3270 green-screen terminals or specialized interfaces, Guidry said.

PRODUCT DETAILS

System Advisor For z/OS

KEY FEATURES:

- Built around a browser-based, Windows-style GUI.
- Includes the ability to manage mainframe clusters and storage systems.

PRICING AND AVAILABILITY:

- Starts at $17,000 and is shipping now.
- Prices vary depending on how it's configured.

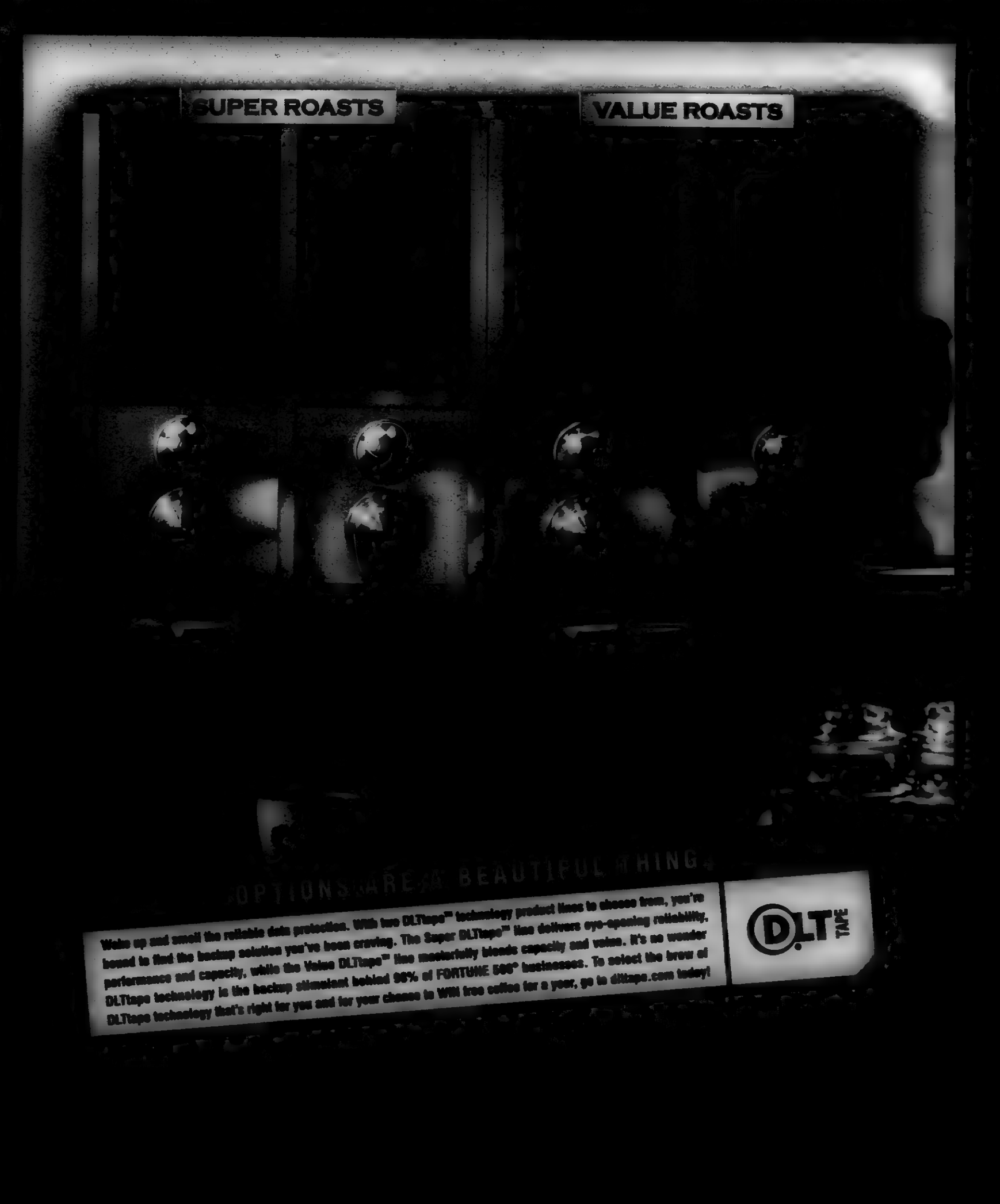
Among other features, the System Advisor GUI uses text messages to help simplify systems configuration and application service management tasks, he noted. Systems managers will also be able to use the software to set performance thresholds, restart systems and oversee workload management, data integrity and storage operations, according to BMC.

Given the graying of the mainframe workforce, that sort of point-and-click tool could help younger IT staffers get up to speed on mainframes, said Larry Riggen, a principal technology consultant at Cinergy Corp., a Cincinnati-based utility and energy services firm.

At Cinergy, which runs BMC's Mainview mainframe management software and its tools for managing DB2 databases, there is also tremendous pressure to cut costs, Riggen said. The utility will probably consider BMC's new offering as a potential way to meet those goals, he added.

Computer Associates International Inc. and IBM's Tivoli Software unit have also recognized the anticipated thinning of the mainframe talent pool, said Richard Ptak, an analyst at Ptak & Associates Inc. in Amherst, N.H. He said both CA and Tivoli will likely make similar product announcements in the near future.

CA said it already sells several Windows-based tools like System Advisor to ease mainframe job management, automation and security administration for IT staffers trained on other systems. Tivoli said it is shipping a mainframe management application that can be used by various IT workers and is developing portal software to provide integrated mainframe monitoring.


SUPER ROASTS
VALUE ROASTS
OPTIONS ARE A BEAUTIFUL THING
Wake up and smell the reliable data protection. With two DLTtape™ technology product lines to choose from, you're bound to find the backup solution you've been craving. The Super DLTtape™ line delivers eye-opening reliability, performance and capacity, while the Value DLTtape™ line masterfully blends capacity and value. It's no wonder DLTtape technology is the backup stimulant behind 98% of FORTUNE 500® businesses. To select the brew of DLTtape technology that's right for you and for your chance to WIN free coffee for a year, go to dlttape.com today!
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BRIEFS

Bank of Ireland Picks HP to Run IT

The Bank of Ireland said it has chosen Hewlett-Packard Co. for a seven-year IT outsourcing contract worth about $600 million, pending final negotiations with HP. A spokeswoman for the Dublin-based bank said it will likely take four to six months to agree on the full terms of a contract. About 500 of the bank's IT workers are due to be transferred to HP as part of the deal.

Intel Puts 3-GHz Processor on Hold

Intel Corp. halted shipments of a 3-GHz Pentium 4 processor, just hours after formally announcing the chip. Intel said that it had found an unspecified "anomaly" in a small number of the devices. HP, Dell Computer Corp. and Gateway Inc. introduced desktop systems that use the new processor, but all three said they were unsure how the shipment hold would affect their deliveries.

EMC Sees Profits For Rest of 2003

EMC Corp. reported a first-quarter profit of $35 million and said it expects to stay in the black for the rest of the year. The Hopkinton, Mass.-based storage vendor said it had revenue of $1.38 billion in the first quarter, up 6% from the year-earlier level of $1.3 billion. EMC also acquired Astrum Software Corp., a Boston-based vendor of storage resource management software.

Short Takes

QUANTUM CORP. in Milpitas, Calif., and STORAGE TECHNOLOGY CORP. in Louisville, Colo., filed dueling lawsuits. They have charged each other with infringing on patents related to tape drives. . . . PEOPLESOFT INC. in Pleasanton, Calif., announced a set of 13 business applications tailored for mid-size users with annual revenue of up to $500 million.

AMD Readies Rollout Of 64-bit Server Chip

Microprocessor will also support 32-bit applications

BY TODD R. WEISS

CHIP MAKER Advanced Micro Devices Inc. will formally launch its 64-bit Opteron server processor tomorrow, and some software and hardware vendors have been quick to jump on the bandwagon.

For example, SuSE Linux AG plans to make available this week a version of its Linux distribution for use on Opteron-based systems. Nuremberg, Germany-based SuSE has created a release of the open-source operating system that lets users run 32-bit applications as well as 64-bit ones, said Markus Rex, SuSE's vice president of development. SuSE built the release out of the same code it uses for servers based on Intel Corp.'s Itanium and x86 chips and IBM's mainframe, midrange and Unix systems, which should make it easier for vendors to develop applications for Opteron systems Rex said.

Red Hat Inc. in Raleigh, N.C., said it plans to have an Opteron-enabled version of its Linux operating system ready in the fall. Meanwhile, Microsoft Corp. earlier this month said it will start beta-testing 64-bit versions of Windows XP and Windows Server 2003 for Opteron and AMD's upcoming Athlon 64 desktop processor by midyear.

IBM said it will have an Opteron version of its DB2 Universal Database ready this summer, initially supporting SuSE's Linux software. Oracle Corp. confirmed that it's also developing a release of its Oracle9i database that will run on Opteron-based systems.

Sunnyvale, Calif.-based AMD said it's talking with top server vendors about using Opteron in their systems.

Opteron Facts

Some smaller server makers, including Polywell Computers Inc., M&A Technology Inc. and Penguin Computing Inc., have already signed up to use the new chip. In addition, Nvidia Corp. in Santa Clara, Calif., said it plans to announce an Opteron-optimized graphics motherboard chip set for high-end workstations.

Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, said Opteron gives AMD a potential advantage over Intel's 64-bit Itanium chips because of its support for 32-bit applications. "With Itanium, you have to port them, and it's not necessarily an easy port," he said.

The support for both 32- and 64-bit applications is where "AMD is really starting to show some muscle," said Ted Schadler, an analyst at Forrester Research Inc. in Cambridge, Mass. "That's pretty powerful, and obviously a decision Intel didn't make."

Continued from page 1

NetWare

stable operating systems; it just wasn't as usable. Now they're making it more usable with Linux."

Gardner acknowledged that his company, a steadfast Novell user, had some concerns about NetWare's future.

Although there is no official ship date for NetWare 7, Messman said Novell will follow its standard timeline of approximately 18 months between NetWare releases.

Messman said users who are paying maintenance fees will have the option to eventually migrate from the NetWare kernel to Linux. "It's a good migration path for NetWare users who were worried about where we were going with NetWare," he said.

Ensuring that file, print, storage, directory, Web development, resource management and other NetWare services will be available for the long haul "gives customers comfort," Messman added.

"I think it's a good strategy," said Elizabeth Lenzi, manager of IT at Prevent Child Abuse America. Officials at the Chicago-based nonprofit organization "had a lot of concern" about where Novell was heading with NetWare, she said. "It seems like they're coming back strong, hopefully."

Even some users who said they lacked such worries are supporting the Linux strategy.

"It sounds like a great idea," said Victor Ponelis, a NetWare technologist at the University of Wisconsin–Madison. "For my part, there's no concern that NetWare is going to go away. We will simply adapt as the industry adapts." If the NetWare kernel goes away, he added, "the services will be running on something else."

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Announcements at BrainShare

- A plan to release Java-based Linux and Macintosh clients for GroupWise later this year.
- The Novell Forge Web site (http://forge.novell.com), to be for open-source developers.
- The launch of a Certified Linux Engineer certification program.

MORE ONLINE

Novell Vice Chairman Chris Stone discusses the internal "food fights" that yielded the Linux strategy

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BRIEFS

Bank of Ireland Picks HP to Run IT

The Bank of Ireland said it has chosen Hewlett-Packard Co. for a seven-year IT outsourcing contract worth about $600 million, pending final negotiations with HP. A spokeswoman for the Dublin-based bank said it will likely take four to six months to agree on the full terms of a contract. About 500 of the bank's IT workers are due to be transferred to HP as part of the deal.

Intel Puts 3-GHz Processor on Hold

Intel Corp. halted shipments of a 3-GHz Pentium 4 processor, just hours after formally announcing the chip. Intel said that it had found an unspecified "anomaly" in a small number of the devices. HP, Dell Computer Corp. and Gateway Inc. introduced desktop systems that use the new processor, but all three said they were unsure how the shipment hold would affect their deliveries.

EMC Sees Profits For Rest of 2003

EMC Corp. reported a first-quarter profit of $35 million and said it expects to stay in the black for the rest of the year. The Hopkinton, Mass.-based storage vendor said it had revenue of $1.38 billion in the first quarter, up 6% from the year-earlier level of $1.3 billion. EMC also acquired Astrum Software Corp., a Boston-based vendor of storage resource management software.

Short Takes

QUANTUM CORP. in Milpitas, Calif., and STORAGE TECHNOLOGY CORP. in Louisville, Colo., filed dueling lawsuits. They have charged each other with infringing on patents related to tape drives. . . . PEOPLESOFT INC. in Pleasanton, Calif., announced a set of 13 business applications tailored for mid-size users with annual revenues of up to $500 million.

AMD Readies Rollout Of 64-bit Server Chip

Microprocessor will also support 32-bit applications

BY TODD R. WEISS

CHIP MAKER Advanced Micro Devices Inc. will formally launch its 64-bit Opteron server processor tomorrow, and some software and hardware vendors have been quick to jump on the bandwagon.

For example, SuSE Linux AG plans to make available this week a version of its Linux distribution for use on Opteron-based systems. Nuremberg, Germany-based SuSE has created a release of the open-source operating system that lets users run 32-bit applications as well as 64-bit ones, said Markus Rex, SuSE's vice president of development. SuSE built the release out of the same code it uses for servers based on Intel Corp.'s Itanium and x86 chips and IBM's mainframe, midrange and Unix systems, which should make it easier for vendors to develop applications for Opteron systems Rex said.

Red Hat Inc. in Raleigh, N.C., said it plans to have an Opteron-enabled version of its Linux operating system ready in the fall. Meanwhile, Microsoft Corp. earlier this month said it will start beta-testing 64-bit versions of Windows XP and Windows Server 2003 for Opteron and AMD's upcoming Athlon 64 desktop processor by midyear.

IBM said it will have an Opteron version of its DB2 Universal Database ready this summer, initially supporting SuSE's Linux software. Oracle Corp. confirmed that it's also developing a release of its Oracle9i database that will run on Opteron-based systems.

Sunnyvale, Calif.-based AMD said it's talking with top server vendors about using Opteron in their systems.

Some smaller server makers, including Polywell Computers Inc., M&A Technology Inc. and Penguin Computing Inc., have already signed up to use the new chip. In addition, Nvidia Corp. in Santa Clara, Calif., said it plans to announce an Opteron-optimized graphics motherboard chip set for high-end workstations.

Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, said Opteron gives AMD a potential advantage over Intel's 64-bit Itanium chips because of its support for 32-bit applications. "With Itanium, you have to port them, and it's not necessarily an easy port," he said.

The support for both 32- and 64-bit applications is where "AMD is really starting to show some muscle," said Ted Schadler, an analyst at Forrester Research Inc. in Cambridge, Mass. "That's pretty powerful, and obviously a decision Intel didn't make."

Continued from page 1

NetWare

stable operating systems; it just wasn't as usable. Now they're making it more usable with Linux."

Gardner acknowledged that his company, a steadfast Novell user, had some concerns about NetWare's future.

Although there is no official ship date for NetWare 7, Messman said Novell will follow its standard timeline of approximately 18 months between NetWare releases.

Messman said users who are paying maintenance fees will have the option to eventually migrate from the NetWare kernel to Linux. "It's a good migration path for NetWare users who were worried about where we were going with NetWare," he said.

Ensuring that file, print, storage, directory, Web development, resource management and other NetWare services will be available for the long haul "gives customers comfort," Messman added.

"I think it's a good strategy," said Elizabeth Lenzi, manager of IT at Prevent Child Abuse America. Officials at the Chicago-based nonprofit organization "had a lot of concern" about where Novell was heading with NetWare, she said. "It seems like they're coming back strong, hopefully."

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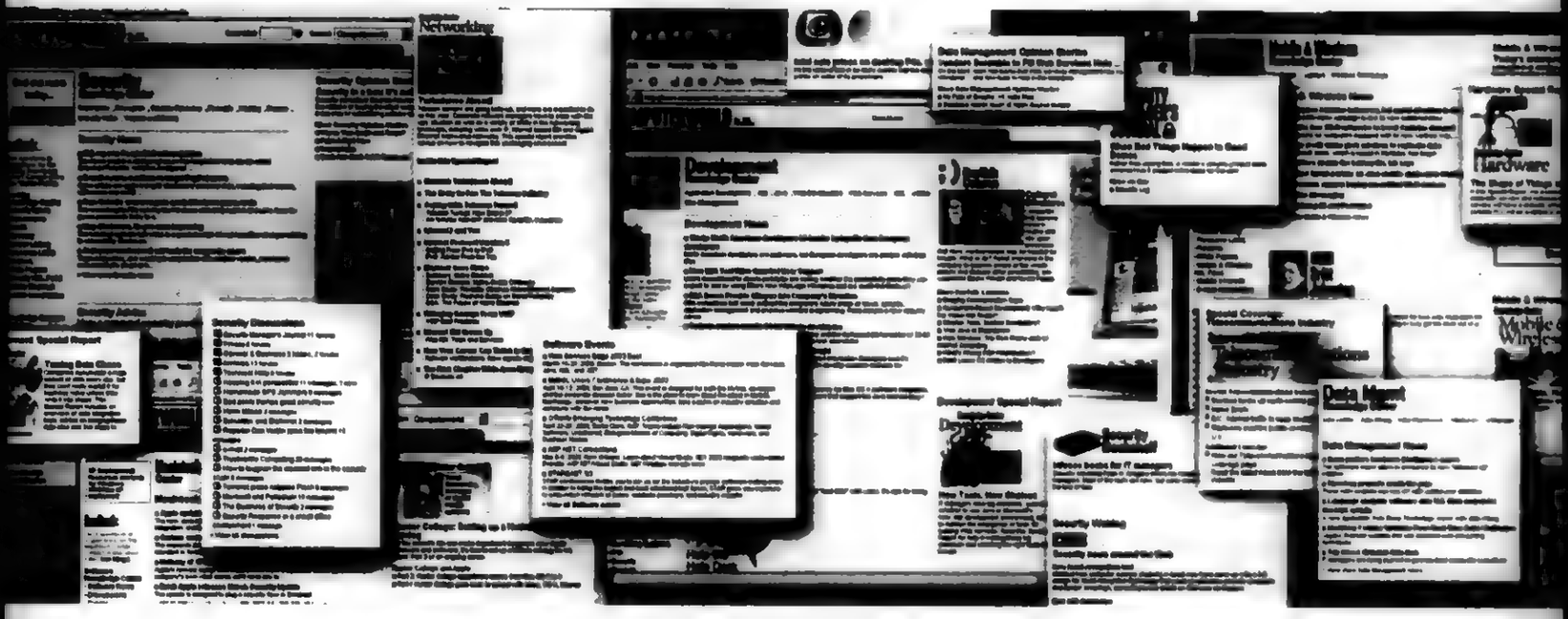

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COMPUTERWORLD

Tight IT Budgets Put Crimp in SAN Plans

Storage managers look to add tools to automate tasks

BY LUCAS MEARIAN
PHOENIX

DARYL BLACK, a storage architect at Telus Communications Inc., last week said the biggest challenge he will face this year is trying to manage the company's 170TB of storage following layoffs that cut Telus' IT staff from 1,300 people to 750.

With only 30TB of networked storage in place, Black said, increasing the amount of disk capacity that resides on Vancouver, British Columbia-based Telus' storage-area network (SAN) represents the lowest-hanging fruit for him.

Black was one of many Storage Networking World attendees who said they're looking to increased automation and storage consolidation as ways to do more with fewer resources.

But some attendees said they're getting push-back from higher-level executives who are still reluctant to spend money on emerging SAN technologies.

STORAGE NETWORKING WORLD

John Dias, a systems engineer at Hibernia Corp. in New Orleans, said he and other IT staffers there had to contend with budget cutbacks that forced them to rejustify technology investments previously approved by officials at the bank. "We're not able to buy everything we wanted," Dias said.

In November, Dias deployed a storage resource management tool that lets him see what data is being stored where on Hibernia's 25TB SAN. But Dias noted that he still can't convince upper management that performing incremental rather than full backups of servers would help the company conserve storage space.

Gary Pilafas, a senior storage and systems architect at UAL Loyalty Services Inc., a unit of United Air Lines Inc. that manages the company's frequent-flier program, said business managers are tired of seeing his face every quarter. "Whether it's for $100,000 for storage or a million . . . the first question out of their mouth is, 'How do we really know how you're using it?' " Pilafas said.

Pilafas in December was able to deploy a SAN management tool developed by Longmont, Colo.-based CreekPath Systems Inc. that uses predefined policies to automate storage reporting, provisioning and security, greatly reducing the time IT workers need to devote to those formerly manual tasks.

Yet Pilafas said he still wrestles with business management to get them to understand that United needs to take more steps to ensure that things won't break down as the SAN grows. "You need to be proactive in establishing what could potentially happen if we don't do this," he said.

Glenn Exline, manager of advanced technologies at Patrick Air Force Base in Cape Canaveral, Fla., said funding allowed him to deploy a SAN last September to replace the base's direct-attached storage. The storage network has let the base's IT staff consolidate servers and cut its data backup window from 14 hours to just two, Exline said. Now he hopes to buy a storage resource management tool to give him and other IT managers a better view of what's being stored on the SAN. ◗

Continued from page 1

Storage

vices from different vendors. "That will be where we'll be able to achieve the functionality we want," she said.

One potential roadblock is corporate reluctance to spend money on new technologies (see story above). But virtualization software, which makes the storage space on different disks look like a single pool, is becoming the cornerstone of efforts to develop more automated storage infrastructures.

Most products now on the market support virtualization on a single disk array or server. Network-based virtualization promises to allow disk storage devices across an entire SAN to be centrally managed as a single entity.

Cisco Systems Inc. and Brocade Communications Systems Inc. are both building network-based virtualization capabilities into their storage switches. Meanwhile, Hewlett-Packard Co., Sun Microsystems Inc. and IBM are shipping or will soon ship products that support virtualization approaches, though initially for their own storage devices only.

Rod Lucero, chief IT architect at Conseco Finance Corp. in St. Paul, Minn., said virtualization tools are helping the company save money. That's particularly important as Conseco Finance seeks to emerge from Chapter 11 bankruptcy protection, which it filed for in December along with parent company Conseco Inc.

Last year, Lucero installed a virtualization appliance made by Fort Lauderdale, Fla.-based DataCore Software Corp. to pool together 70TB of storage on EMC Corp.'s Symmetrix and Clariion arrays. Since the rollout, Lucero said, storage utilization rates on the SAN have increased from about 55% to 85%. In addition, the time it takes to provision storage space for new applications has been cut from four days to one hour.

The $190,000 that Conseco Finance paid for the DataCore software has already been recouped by the company threefold through cost savings, Lucero said. For example, it was able to postpone plans to buy an additional 3TB of capacity, saving about $280,000. "The next thing to move toward . . . is the ability to have a single interface that allows me to see my infrastructure from end to end," Lucero added.

Currently, no top-tier vendors sell network-based virtualization products that support rival storage devices. But HP and EMC have both said that they plan later this year to make their storage management software available on new switches made by San Jose-based Brocade that support virtualization on multivendor SANs. ◗

Storage Group Releases Proposed Management Software Standard

After years of foot-dragging by vendors, the storage industry is finally coming together around an open storage management software interface that's expected to reduce the complexity of managing multivendor SANs.

The Storage Networking Industry Association (SNIA), which represents about 300 vendors, announced at Storage Networking World that it has published for public comment Version 1.0 of the Storage Management Initiative Specification (SMI-S), a 350-page set of interface guidelines formerly known as Bluefin.

SMI-S will provide storage management vendors with common application programming interfaces. The specification uses two related standards: an object-oriented storage management framework called the Common Information Model (CIM), and Web-Based Enterprise Management, which defines an interface layer for sharing CIM data between products.

During a presentation at the conference, SNIA Chairman Sheila Childs called on users to insist that vendors make their storage management software compliant with SMI-S. The specification is expected to be finalized by October, she said.

Joel White, a business technologist and storage architect at Allstate Insurance Co. in Northbrook, Ill., said that once SMI-S is adopted by vendors, he should be able to use a single management application to control mixed storage installations. "That's going to help us ensure our investment in legacy hardware," White said.

—*Lucas Mearian*

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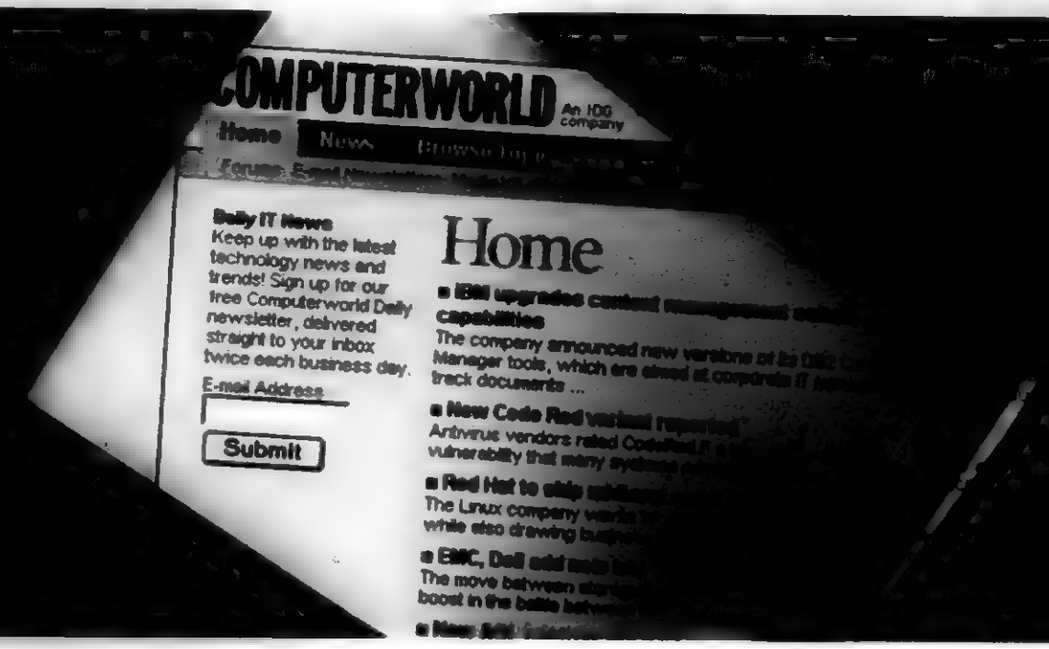

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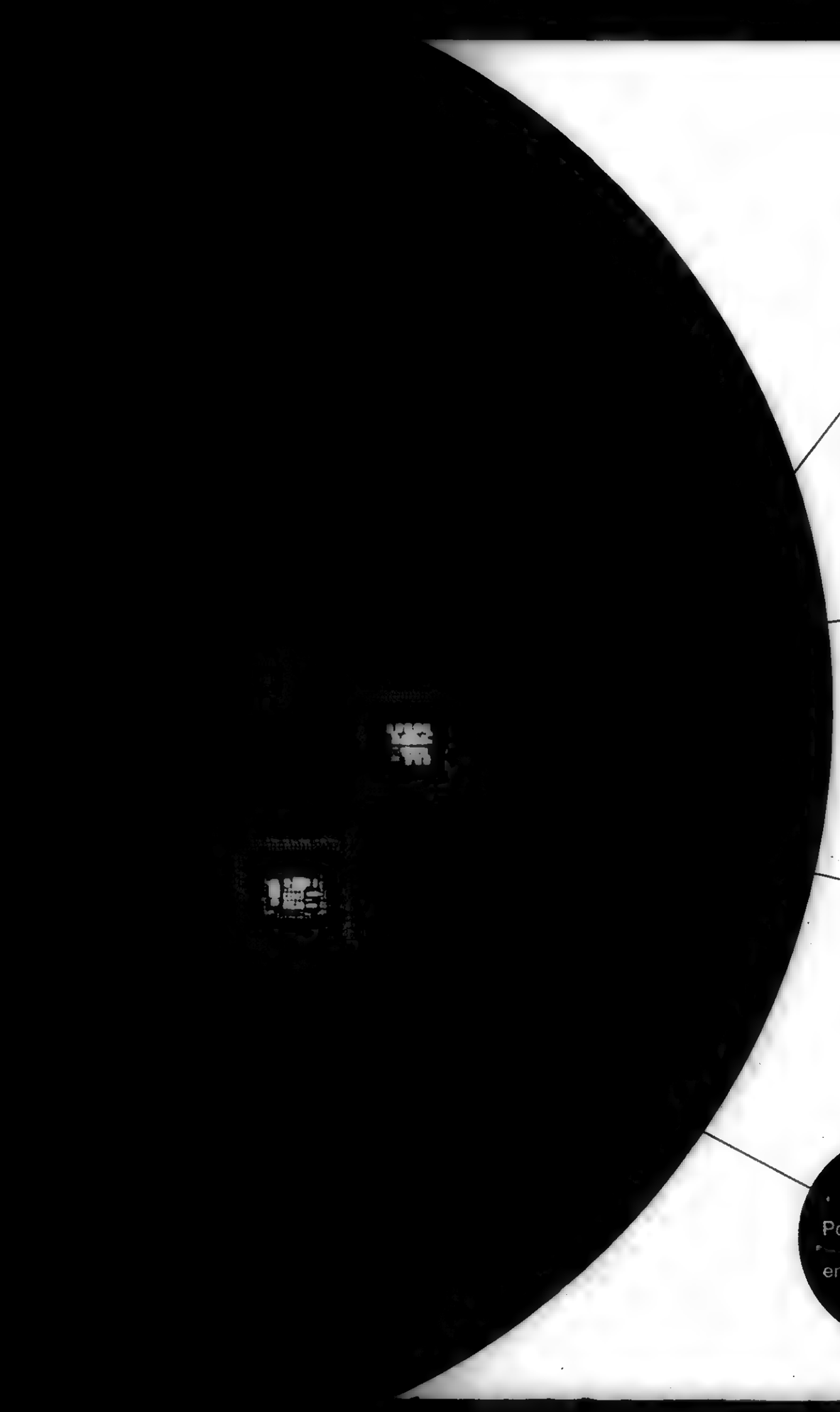

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MARYFRAN JOHNSON

The Accordion Effect

GARY PILAFAS CALLS what the storage industry is experiencing right now the "accordion effect," referring humorously to the way the old-fashioned musical instrument makes music only when all that hot air is squeezed out. As a senior storage architect at UAL Loyalty Serv-

ices Inc., the e-commerce arm of financially stressed United Air Lines, Pilafas has a front-row seat for this particular concert. "It's the march to consolidation," he said last week at *Computerworld*'s Storage Networking World conference in Phoenix. "It's happening now, and it's a good thing."

Consolidating storage resources to cut costs and streamline management was a dominant chord struck at the gathering of 1,800 IT professionals, storage managers and vendors. When audience members were polled about what the top benefits of storage networking technologies are, consolidation was the top pick, beating out cost savings and improved functionality. IDC estimates that consolidating access and data management into a single location can slash storage management costs by up to 70%.

"Everybody into the resource pool" was another popular tune. That one refers to the flurry of virtualization software offerings now showing up to audition for skeptical users, who are rightly figuring that this technology has miles to go before its promises will be kept. Virtualization software holds out the hope of making disk space on different servers appear as a single storage pool, to be dipped into and divvied up as needed across the network.

But if this accordion effect is making music from consolidation and virtualization, what's getting squeezed out as so much hot air? The once-stunning profits from storage hardware sales and the future of proprietary or closed storage architectures.

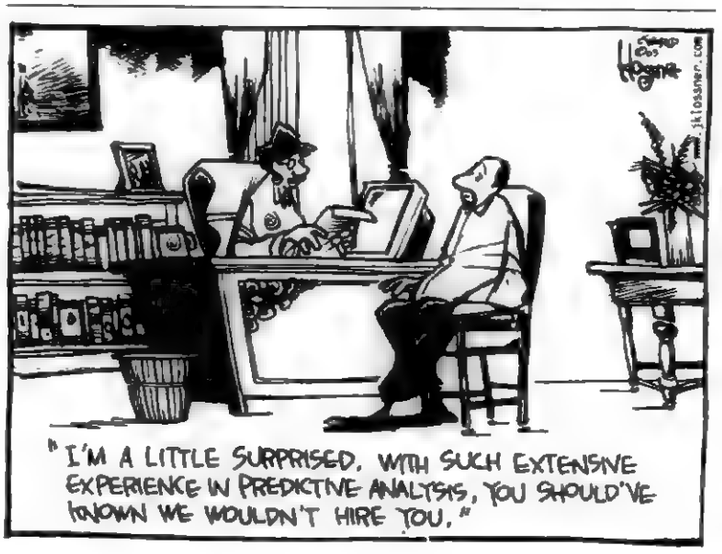
The storage industry is sliding fast down the slope of hardware commoditization, sending vendors scrambling for new ways to make money as old business models slip away. Sales of disk storage fell from $17.4 billion in 2001 to $13.3 billion last year, according to IDC. That sales decline also reflects the steadily dropping price of a megabyte of storage, which has plummeted at least 40% in the past few years. Meta Group predicts that while storage-related costs will constitute 70% to 80% of server purchases through 2004, storage hardware sales will decline 30% or more as the emphasis shifts to software, services and storage-area networks (SAN).

As this spending shift accelerates, so too will the migration toward open architectures and standards. If last week's conference is any indication, users will be dragging their vendors there by the hair. Storage managers ultimately want storage infrastructures to be as reliable, highly available and standardized as Ethernet networks.

"Standards have now gotten to the point where customers have been able to force some interoperability onto the vendors," noted Pierre Baudet, business systems manager at New Balance Athletic Shoe Inc. and a conference speaker.

Making a virtue out of that necessity, the Storage Networking Industry Association last week unveiled specifications for its long-anticipated Bluefin technology. This open management software interface standard — designed to help users apply central controls to enterprisewide SANs — already has the backing of dozens of storage vendors, including IBM, EMC, Hitachi, Sun and Veritas Software. Renamed as the Storage Management Initiative, or SMI, this specification is the storage industry's first giant step toward an interoperability standard.

So as we wait for the next chorus to begin, users should lean hard on their storage vendors to incorporate this emerging standard in upcoming products. And vendors should be asking themselves, "Do I want to make music or just blow hot air?"



PIMM FOX

Web Services: Been There, Done That

THE THING TO DO when evaluating requirements for a new computing environment is to learn a little history.

In the new era of distributed Web services, you're expected to manage things you don't control. Sure, there's lots of simplicity and clarity, with architectures (such as SOAP) that make it easier to connect things together, but that shifts the burden to the management of these services. For example, how do you distinguish requests from different customer groups? Or how do you identify breaks in a Web service request?

But we've been here before, with the management of databases and applications. And, not so strangely, some of the players have remained the same as well. At Oakland, Calif.-based AmberPoint Inc., several members of the executive team are veterans of Ingres and Forte, where they tackled similar issues. Ingres started out with a relational database system, and Forte offered tools to build distributed applications with apportioning and partitioning. Even the venture backers remain constant; Palo Alto, Calif.-based Sutter Hill Ventures invested in all three companies.

This continuity of venture capital investment is important because it sends two signals: first, that the vendor experience is mature and linear, and second, if Sutter Hill's histories with Forte and Ingres are examples, that you can be reasonably assured that longevity is built into the company's business plan. Both Ingres and Forte were around for a decade before being acquired by Computer Associates and Sun Microsystems, respectively.

But understanding the operational requirements your company faces should get your attention when opting for Web services. Right now, you've got three basic approaches to Web ser-

vices, each of which requires its own management method.

First, there's the Web service you internally build in Java or .Net and for which you maintain the source code. Second, there are packaged Web services from the likes of PeopleSoft, SAP and Microsoft (things that you install but don't have the source code for and that are therefore out of your control). Finally, there are the external Web services that your company or department uses although it has little say when it comes to versioning or upgrades. Chances are, most companies will have a mixture and still be faced with the prospect of keeping everything up and running.

As more Web services show up in application servers, plan to investigate tools that can look at messages and manage them based on what's in the message. Also, select vendors with deep IT management experience, realistic financial backing and a willingness to admit that the problems of today aren't the problems that will need to be addressed a year from now.

ARI KAPLAN

Legal Links For Your Supply Chain

FOR THE PAST FEW weeks, my mother-in-law has been eyeing a certain technology stock, waiting for it to reach her strike price. To monitor the markets, she uses a tracking service that streams quotes on her cellular phone. If you offer a service like this — one that requires data from an unrelated third party — be sure to structure your arrangement wisely to ensure your protection and your customers' satisfaction, especially if you count my mother-in-law among them.

IT managers aren't always involved in these business or legal discussions. But they should be, especially when data access is at issue.

Before these talks begin, a nondisclosure agreement must be signed. This will preserve confidentiality and protect trade secrets, which may include the design of your proprietary systems to which the data feeder may have access.

If copyrighted data is being offered to you, require proof that your counterpart owns all of the intellectual property that's subject to the transaction. And while you're at it, secure a warranty on the functionality of the application being shared or accessed. Make sure it's scalable, too. (This is key for emerging growth companies that could have 1,000 users one month and 100,000 the next.)

In your agreement with the third party, clearly state who owns the final application. Ownership of the end result can be tricky because some programs require extensive maintenance, which may prove difficult for a limited in-house team to handle. Nevertheless, possession has significant control-related advantages.

If you're offering your customers data that they will rely on to make important decisions such as stock purchases, you could expose your company to certain liabilities. (I don't want to even think about the call I would get from my mother-in-law if she bought her stock at the wrong price because of a misquote.) CIOs should therefore require assurances against, as well as indemnification for, any incorrect data (not including market fluctuations, of course) in any contracts they sign.

Supply chain pacts should require that the networks on which information travels are secure, and they should contain more detailed provisions that outline cyberterrorism contingencies specific to your business. In the event of a cyberattack, try to obtain preferences for your systems so you will be the first to get the data once the feed has been repaired.

Be aware that developers can build time-activated codes or periodic reauthorizations into their work. This is designed to give them the option of turning off the feed when you don't live up to your end of the bargain. Although it's typically a last resort and requires notice of its use, it can happen. You should, therefore, address such limits upfront.

Disagreements can also arise, so include a dispute-resolution provision. In the modern environment, cost- and time-conscious CIOs may want to consider online alternatives. They can be faster, more efficient and don't require long-distance travel or litigation.

Perhaps most important in managing risk is obtaining comprehensive insurance that provides for all contingencies. Companies should also build redundancy into their systems so that they always have a backup supplier of critical items.

Ultimately, entering negotiations in good faith and with reasonable expectations is the key — anything to avoid that call from my mother-in-law.

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READERS' LETTERS

New Buzzwords Are Just Old IT Ideas

THE LATEST "real-time enterprise" hype from Gartner is just classic IT from the last decade repackaged with a new set of buzzwords ["Gartner: Change Management Needed Before Real-Time Data Can Flow," QuickLink 37350]. There's no doubt that it's a good thing; it's just not a new thing, except for the latest enabling technology, Web services and portals — and even those aren't that new anymore.

The concept of leveraging technology to reduce processing time is as old as IT itself. I agree that change management is a critical component of ensuring the success of any investment in real-time data flow. But that's the case with introducing any new capability to a business.

Haven't we figured that out with the past decade of taking brick-and-mortar companies online? As you introduce new technology, the management team needs to be on board with how to run the business differently to fully leverage it.

And it doesn't logically follow that there's an "increased need . . . to get real-time applications and interfaces built quickly." Gartner is stretching quite a bit to use its "real-time enterprise" concept to justify rapid development. You could conceivably take a long time to develop a real-time enterprise application, and it will still get you the data in real time once it's up and running.

Scott Marean
Assistant vice president of program management services, First Penn-Pacific Life Insurance Co., Schaumburg, Ill.,
scott_marean@firstpenn.com

More Hiring Needed

IN ALL BUT the most gigantic enterprises, the problem is even worse than described in the article "Gartner: Change Management Needed Before Real-Time Data Can Flow." My example comes from the health care industry, but I saw the same problems in state government, where I worked for seven years.

Many health care organizations are having to embrace electronic patient records, electronic insurance-claims processing and submission, and other systems pursuant to HIPAA. However, they are trying to do it without following IT best practices in any sense of the words. They don't staff positions such as computer operator, programmer or systems analyst; they just plain don't hire any more IT people than they had before they went to electronic records. They do hire well-trained and competent people, but they want programming and systems analysis out of the guys they're forcing to sit at the help desk all day.

Am I the only one who thinks programming, systems analysis and similar disciplines require sustained focus?

Geof Rarick
Database/network/telecom administrator, Thoracic & Cardiovascular Institute, Lansing, Mich., grarick@tciheart.com

What Iraq Needs

ALTHOUGH COMPUTERWORLD is dedicated primarily to computer technology and its impact on the world, I think your writers could use a bit of a wider view on the topic of war in Iraq ["Postwar Iraq May Be Big IT Market," QuickLink 37179]. In postwar Iraq, there will *not* be an immediate need for an IT infrastructure. There will be immediate needs for a stable government, assurance of continued food and potable water supplies, decent health care, freedom from the potential of intertribal conflict, ease of transportation and all other aspects of life necessary for a stable society.

The people of Iraq will have suffered enough from Hussein's depredations. Let's see how technology can help clean up that mess first, before the megacorporations start slavering over their next rounds of profits.

P.D. Levin
R&D systems engineer, Pittsburgh

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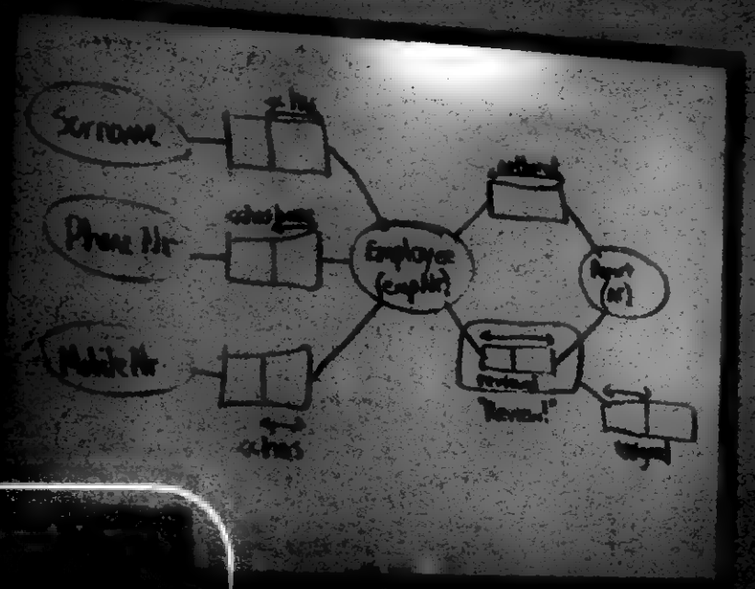

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Q&A
Nothing but 'Net
Carol Ptak, PeopleSoft's manufacturing-industry strategist, talks about Internet architecture, technology that makes money for both the customer and the vendor, and Post-it notes. **Page 32**

FUTURE WATCH
The Web's Next Leap
With the Semantic Web, Tim Berners-Lee, the inventor of the World Wide Web, leads the drive to infuse intelligence into his creation and open the door to new services. **Page 34**

SECURITY MANAGER'S JOURNAL
The Battle Against Pornography Continues
When Vince Tuesday looks into automated mail filtering, he finds that one vendor's pornography-detection software works better than he expected. **Page 35**

ENTERPRISES WIDEN THE SEARCH NET

ENTERPRISE SEARCH ENGINES IMPROVE PRODUCTIVITY BY ALLOWING SEARCHES ACROSS DISTRIBUTED, DISPARATE DATA SOURCES. BY DREW ROBB

RICHARD BORRIE

INTRANET PORTALS can offer a single point of access to all of a company's documents, but employees may still waste time trying to find what they need among those thousands — or millions — of documents. By interpreting user queries, searching across different data stores and presenting the most relevant results, enterprise search engines (ESE) simplify the task of finding the right information in the right context, regardless of the source.

Search-and-index technologies are built into many applications, but they let you find data only within the associated application and can't hunt through the many data repositories an organization might have. ESEs typically search both structured and unstructured information in many different formats and across all the devices on the corporate network.

The sheer volume of documents at Anadarko Petroleum Co. drove Bob Downing, manager of business systems, to deploy an ESE. "Our engineers, geologists and geophysicists were spending about 50% of their time searching for information among over 2 million documents on our intranet," he says. The Woodlands, Texas-based oil company installed Vienna, Va.-based Convera Corp.'s RetrievalWare to index and search its content repository. Anadarko's ESE indexes all of the company's SQL databases, its intranet, Windows file-server directory structures and everything stored in its content management system from Pleasanton, Calif.-based Documentum Inc., as well as several online news sources. Downing estimates that the engineering group now saves 78,000 hours annually by using the new search functions.

Bag of Tricks

ESEs use a mix of technologies to find the right result, and the products continue to improve. "A lot of the technology has been around for a while, but we are now starting to see practical applications . . . in the business realm," says Laura Ramos, an analyst at Cambridge, Mass.-based Giga Information Group Inc.

ESEs have the same core elements as Internet search engines: They spider enterprise content (locate documents by following hypertext links), index it and

Continued on page 28

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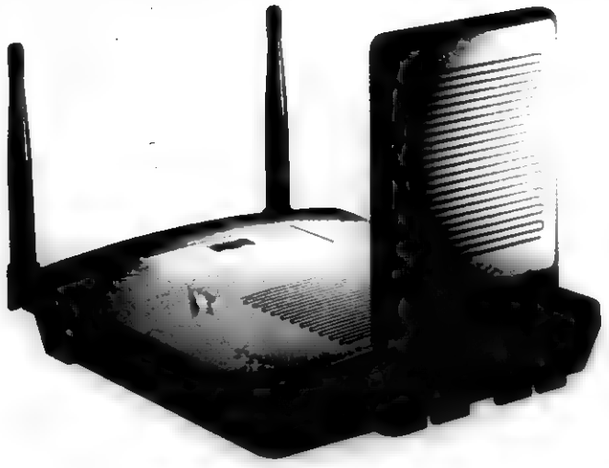

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ENTERPRISES WIDEN THE SEARCH NET

Continued from page 25

present it in response to user queries. However, the indexes can be quite large. Washington-based law firm Dickstein Shapiro Morin & Oshinsky LLP has nearly 1,000 employees and several million documents: 2 million managed with Fulcrum KnowledgeServer from Hummingbird Ltd. in Toronto and millions more that it accesses using specialized litigation software. The firm's database includes files saved as Word and WordPerfect documents, as well as PDFs. The firm also has content in its proprietary CRM database and in documents in still more formats received from clients and litigation opponents. Since the attorneys need to do word-proximity searches, the index required by the search engine adds 60% to the total document store size, says Keith Berkland, the firm's application development manager.

After the initial spidering and indexing, search engines use various techniques to determine a document's relevance (see box).

"The first generation of search engines is about the mechanics of getting a lot of stuff into the index," says Ramos. "The second is, How do I understand what the users' intentions are and more proactively deliver content they are looking for?"

"The main problem we were running into was the relevance of search results," says Brad Hochhalter, director of the Permanente Knowledge Connection, the clinical library site of Kaiser Permanente Health Plan Inc. in Oakland, Calif. "With medical knowledge, there is a lot of ambiguity for what terms mean and a lot of synonyms, so it is difficult to quickly bring up relevant material for the clinicians."

The site provides the health maintenance organization's 11,000 physicians and 50,000 support staffers with access to nearly 40,000 internal documents, the content of more than 170 medical journals, plus textbooks and other content.

Hochhalter says search software from Verity Inc. in Sunnyvale, Calif., was returning unsatisfactory results, and users were abandoning searches.

"We could tweak the algorithms with the Verity engine, but it becomes a crapshoot deciding which things to weight," he says, adding that tuning the engine "was very time-consuming and labor-intensive for us."

To improve the results, Kaiser spent $28,000 to buy a search appliance from Google Inc. in Mountain View, Calif. The HMO installed the box in a rack at its secure data center in Corona, Calif. Hochhalter says installing the box required hooking up two cables and plugging them in. One staffer set up the basic search functions and tweaked the results over a few weeks.

The appliance soon produced significantly better results, but it does have one drawback: The Verity engine lets Kaiser set up external metadata to describe a document, whereas Google requires that metadata be embedded within each document. With Verity, Hochhalter can add metadata without opening every document. Verity remains the corporate standard, but Hochhalter says Google is still the better choice for searching through clinical library papers.

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> **BOB DOWNING**, MANAGER OF BUSINESS SYSTEMS, ANADARKO PETROLEUM CO.

Another option for finding the right information is to use a natural-language search engine, which lets users ask questions rather than search for keywords. San Diego-based LPL Financial Services (Linsco/Private Ledger Corp.) uses a natural-language search engine from iPhrase Technologies Inc. in Cambridge, Mass., to deliver portal content to its 4,300 agents in 2,100 branch offices nationwide. The product delivered 60% relevant results out of the box, but LPL spent several months inputting company-specific terms and tuning the results, boosting the relevancy rate to 80%.

"Our goal in putting the tool on the portal was to deflect some of the calls that were coming into the call center over to the Web site," says Rochelle Putnam, senior vice president for LPL's service center. "But we are also finding that internal staff are using it to improve their consistency in handling queries and spend less time calling supervisors to get the answers."

In addition to providing faster access to the existing content on the portal, LPL staffers use iPhrase to improve that content. Putnam says they can view the questions brokers ask on a daily basis and see if the site has the content they need. If not, they can create content and add it to the site.

"We take those queries and throw them at the search tool and see what it returns," Putnam explains. "This helps us tune the content and will enable us to drive some of the content development." LPL also uses queries to ensure that the FAQ page contains the answers to the questions that are asked most frequently.

TECHNIQUES FOR TUNING SEARCHES

Here are various ways to improve search-result relevancy:

1. **TAXONOMY/ONTOLOGY.** A single word can have many meanings, so the ESE must be able to distinguish between them. If the person searches for the word *plane*, is he looking for an airplane design or a tool to smooth wood?
2. **MORPHOLOGY.** The search engine must understand how a word is used in the query sentence. It must be able to discern the difference between "when horses fall" and "when he hones his tail."
3. **SYNONYMS.** When searching the word *plane*, the ESE should recognize that documents containing words such as *jet*, *airplane* and *747* may also be relevant.
4. **VOTING.** Many search engines include a feedback mechanism that improves searches by letting users rank the usefulness of the results.
5. **HUMAN REVIEW.** Search engines can be tuned to the user organization's business needs by reviewing search results and adjusting them to improve relevancy.
6. **CONTEXT ANALYSIS.** The ESE may analyze the type of user and application at the time of the search. In a criminal database, for example, searching the word *fight* might first bring up people who jumped bail, whereas the same search in a corporate travel database would pull up airline schedules.
7. **PERSONALIZATION.** The ESE might weight results based on assigned or survey preferences for individuals or workgroups or by learning preferences over time based on the types of answers the person clicks on in response to a query.

Searching for ROI

Justifying an ESE purchase requires showing productivity improvements, but that can be hard to calculate when the savings are measured in minutes or seconds saved here and there throughout the day. "The return is very specific to the individual business needs, and there is no measurement that works globally," says Giga's Ramos.

Downing was able to justify the cost of Anadarko's system by demonstrating huge time savings in its engineering department. The company also saved 700 man-hours recently when searching through 10 years of e-mail records to produce evidence in a legal matter. LPL measures the return on investment by calculating the reduction in calls coming into its service center. But for Kaiser and Dickstein Shapiro, the payoff comes from keeping their highly paid doctors and lawyers happy by helping them work faster.

Although those results are largely anecdotal, Kaiser's Hochhalter says he does have one measure of savings. "The main ROI is that I have a high-functioning search engine and I am spending one-fifth of what I was spending before. Now I can put those IT dollars somewhere else," he says.

Ultimately, ESEs have the biggest return where users are well educated — doctors, attorneys, brokers, engineers — and where a large number of documents must be searched regularly. In organizations with fewer documents and lower skill levels, analysts say the search engines or directories that come with operating systems and applications may be good enough.

Robb is a freelance writer in Tujunga, Calif. Contact him at drewrobb@attbi.com.

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802.11g Speeds Ahead of IT Needs

Outlook: Promised advantages of 802.11g wireless LAN devices won't make a lick of difference in most companies, but you'll probably end up buying it anyway. Here's why.
By Robert L. Mitchell

EMERGING TECHNOLOGIES

TO THE UNINITIATED, the evolution of wireless LAN standards might look like an alphabetic soap opera. PC cards and access point hubs based on the 11Mbit/sec. 802.11b WLAN standard were just moving into the mainstream last year when vendors introduced the 54Mbit/sec. technology known as 802.11a. Now vendors are offering a third alternative, 802.11g, which they claim delivers 802.11a speeds over longer distances, while supporting backward compatibility for 802.11b devices — something 802.11a technology failed to do.

But don't rip out that 11b infrastructure, users and analysts say. PC cards and access points using 11g are still immature and provide few real-world benefits today. By this time next year, though, you'll probably end up buying it anyway because the technology will be built into most hubs, or access points.

The benefits of 802.11g derive from the limitations of its two predecessors. Released first, 802.11b uses a transmission technology called direct sequence spread spectrum, or DSSS. Each access point supports up to 11Mbit/sec. over three channels in the 2.4-GHz frequency range (see table). But the technology has a few drawbacks. Having only three channels increases the likelihood of cochannel interference between neighboring access points. And, as with all WLAN technologies, actual throughput is at best only about half the published data rate and drops as distance and the number of users per access point increase. WLANs also face interference from microwaves, mobile phones, Bluetooth devices and even Pentium processors operating in the relatively crowded 2.4-GHz band.

With its higher bandwidth (best case of about 26Mbit/sec.) and up to 13 channels (with 11 more likely to gain regulatory approval in the next two years), 802.11a is a better choice for areas with a high density of users or for applications that require higher data rates. It operates in the less crowded 5.2-GHz frequency band, but it has a shorter range, and its modulation technique, called orthogonal frequency division multiplexing, or OFDM, won't support 802.11b devices. To support both 11a and 11g client types, corporations must buy more expensive, dual-mode access points.

As for 802.11g, it addresses the backward-compatibility issue — sort of. It adapts OFDM to allow 54Mbit/sec. operation in 802.11b's 2.4-GHz band,

D-Link's DWL-7000AP a/b/g access point sells for $270.

■ PRODUCTS

Vendors Offer G in a Flash

Devices based on 802.11a got off to a slow start last year, in part because only one vendor offered a chip set and the Wi-Fi Alliance wouldn't certify Atheros Communications' design until a competing design was available to test against. This time around, Atheros' AR5001X faces competition from Broadcom Corp.'s 54g and Intersil Corp.'s Prism GT chip sets, with additional designs from Cisco Systems Inc. and Intel Corp. in the works. Early products are already in retail stores.

Most 802.11g access points and cards now shipping suffer from two big drawbacks: They're typically consumer-grade devices that lack enterprise-class manageability features, and all are based on a draft specification that will require device driver, firmware and/or flash memory updates when the final specification is ratified – and that won't happen before the summer. "We're probably looking at July," says Brian Grimm, a spokesman for the Wi-Fi Alliance. His group will begin testing products shortly thereafter, but the first products carrying Wi-Fi interoperability certifications aren't likely to arrive much before late summer.

Devices based on 802.11g sell for a premium of 50% or more over 802.11b devices, but vendors say that should drop to 10% or less by next year as shipment volumes increase. Early 802.11g cards and dual-mode 802.11a/g hubs are available from D-Link Systems Inc., Linksys Group Inc. and several others, but vendors of enterprise-class WLAN equipment are holding off until the 802.11g standard is final. In some cases, existing enterprise-class access points have

■ TECH SPECS

Wireless LANs

	802.11b	802.11b	802.11a	802.11g
Maximum link throughput				
Frequency				
Transmission technology				
Channels/access points				
Date approved				

*802.11g hubs supporting 802.11b clients must run in protected mode, which can cut throughput by as much as 40%, according to Atheros Communications.

**Number of nonoverlapping channels supported.

***Both 802.11a and b specs were approved at the same time, but because of the complexity of 802.11a, b products shipped first. Volume shipments of 802.11a products didn't begin until 2002.

while supporting 802.11b devices. "It gives you three more channels of 802.11a," says Rich Redelfs, vice chairman of WLAN chip-set maker Atheros Communications Inc. in Sunnyvale, Calif. But does that matter? Probably not, he says, because most corporate uses don't yet require the bandwidth.

"We're having this technology burst that is delivering technologies in excess of demand," says Ken Dulaney, an analyst at Gartner Inc. That's certainly the case at Embarcadero Systems Corp. in Alameda, Calif., which uses pole-mounted 802.11b access points on its loading docks. "Range matters, while our bandwidth requirements are not high," says Chief Technology Officer John Montgomery.

Montgomery says that in a few areas in the yard where workers tend to congregate, having higher bandwidth might be beneficial. The 802.11g standard promises higher bandwidth than 11b, with comparable range. But with current 11g devices based on a draft specification and lacking Wi-Fi Alliance interoperability certification, the decision was a no-brainer: "We will pass on [802.11g] and use 802.11a," he says.

"If you're trying to put these in an indoor office space, range is not an issue," says Redelfs. Network administrators need to maximize bandwidth for each user. One way to do this is to place access points closer together, but that increases the likelihood of cochannel interference, he says. The best solution for 802.11b users in this situation is to move to 802.11a/b hubs. "The beauty of 802.11a is you have so many channels you don't have to worry about interference between access points," he says. Another option for 802.11a devices is to "dial down the power" in order to more closely group access points, he says. The IEEE is working on a standard, 802.11h, that will support adjusting 802.11a power levels and changing channels on the fly to avoid interference with other access points and devices operating in the 5-GHz range, such as radar. But that standard, also called Spectrum Managed 802.11a, is still in committee.

One area where 802.11g could eventually shine is streaming video, says Dulaney. But acceptable quality will require solidification of the emerging 802.11e quality-of-service draft standard, which has progressed slowly in committee. And while video streaming over a WLAN connection may work for home users, today's throughput rates still may not be enough to support it in a business environment, where many users share an access point, he says.

For now, Dulaney says, corporate IT shouldn't get too far ahead of the curve. "Buy b now and then switch over to buying a/g at the end of the year," he says.

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Holtsville, N.Y.-based Symbol Technologies Inc., which sells heavy-duty WLAN devices used in warehouses and delivery trucks, is even more cautious. Symbol Vice President Ray Martino says the vendor won't ship products until early to mid-2004, with PDA client support coming sometime thereafter. "Going forward, especially with those enterprises which are deploying wireless for the first time, g may have some promise for higher-bandwidth applications."

■ COMPATIBILITY

Why Faster G Means Slower B

Got 802.11b? If so, installing 802.11a/g access points will actually slow throughput rates for existing clients and throttle back the performance of newer 802.11g clients as well, vendors and analysts say. How big an impact will this have at the individual client level? The final answer won't come until sometime in 2004, once more mature, second-generation devices arrive and enterprises begin field-testing products.

The performance issue arises from the way in which the 802.11g standard provides for backward compatibility with 802.11b devices. While 802.11g access points can communicate with both client types over the same frequency band, each uses a different communication protocol. Since a and b devices can't see each other, the default collision-avoidance scheme for managing who gets to talk doesn't work. To solve that, 802.11g access points supporting mixed clients go into "protected mode" and coordinate traffic using a request-based protocol that adds to network overhead. "You're running two different protocols and time-sharing them," says Atheros Vice Chairman Richard Redelfs.

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Vendor tests of protected-mode performance vary. Tests by Intersil Corp. and Atheros show that rate declines could be 40% or higher in some situations. But those aren't real-world tests. Gartner analyst Ken Dulaney expects the degradation of throughput to the client in the range of 10%. "You will slow it down a little bit," he says, adding that he doesn't think most users will notice. "The bottom line is it doesn't matter," he says, because most clients aren't constricted by bandwidth.

Redelfs is less optimistic. "If you're concerned about bandwidth [for 11b users], you're much better putting an a/b access point up, because you won't touch the b users at all," he says. Alternately, users can force access points to run in 11g mode only. That's technically out of specification and leaves no arbitration for b and g nodes, so collisions will increase with network traffic loads. But devices will probably still be interoperable, Redelfs says.

The throughput limitations of protected mode are also likely to decrease as more mature designs appear, Redelfs claims. Initial 802.11a chip sets, for example, fell short of expectations. Second-generation designs have fared better. "We've dramatically improved the range and throughput of a," he says. He expects similar gains in future 802.11g designs. "There are still huge advances we can make in range and throughput," he adds.

■ TECH SPECS

Wireless LANs

	802.11	802.11b	802.11a	802.11g
Maximum link throughput	1 to 2Mbps/sec.	11Mbps/sec. 5Mbps/sec.	54Mbps/sec. 24Mbps/sec.	54Mbps/sec. 22Mbps/sec.*
Frequency	2.4 to 2.4835 GHz	2.4 to 2.4835 GHz	5.250 to 5.350 GHz	2.4 to 2.4835 GHz
Transmission technology	DSSS, Frequency Hopping	DSSS	OFDM	OFDM, DSSS
Channels per access point**	3	3	12 (24 planned)	3
Date approved	1997	1999	1999***	2003 (projected)

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Vendor tests of protected-mode performance vary. Tests by Intersil Corp. and Atheros show that rate declines could be 40% or higher in some situations. But those aren't real-world tests. Gartner analyst Ken Dulaney expects the degradation of throughput to the client in the range of 10%. "You will slow it down a little bit," he says, adding that he doesn't think most users will notice. "The bottom line is it doesn't matter," he says, because most clients aren't constricted by bandwidth.

Redelfs is less optimistic. "If you're concerned about bandwidth [for 11b users], you're much better putting an a/b access point up, because you won't touch the b users at all," he says. Alternately, users can force access points to run in 11g mode only. That's technically out of specification and leaves no arbitration for b and g nodes, so collisions will increase with network traffic loads. But devices will probably still be interoperable, Redelfs says.

The throughput limitations of protected mode are also likely to decrease as more mature designs appear, Redelfs claims. Initial 802.11a chip sets, for example, fell short of expectations. Second-generation designs have fared better. "We've dramatically improved the range and throughput of a," he says. He expects similar gains in future 802.11g designs. "There are still huge advances we can make in range and throughput," he adds.

Nothing But 'Net

PeopleSoft's chief manufacturing industry strategist tells why her company has bet on a pure Internet architecture. By Tommy Peterson

CAROL PTAK *is in the thick of PeopleSoft Inc.'s efforts to transform itself from, as she puts it, "that HR company that, oh, by the way, does some supply chain" to a major player in ERP and analytics software. Ptak learned manufacturing from the ground up, starting out as an assembler on a plant floor. From there, she went on to plant management and then established her own consulting firm before joining IBM's worldwide ERP solutions group. In addition, in 2000, Ptak served as president and CEO of APICS — The Educational Society for Resource Management. She joined Pleasanton, Calif.-based PeopleSoft last year and now has worldwide responsibility for the company's manufacturing industry strategy across its entire product line.*

Ptak recently spoke with Computerworld's *Tommy Peterson about how her company and others are responding to customers' needs.*

What sorts of technological issues do you see PeopleSoft having to address? I see it from two sides: There's what customers tell us they need, and then there's the flip side. Take the example of Post-it notes — which is, until it comes out, customers don't know they need it. Post-it notes were really a disruptive change, albeit not something that changed the world. But still, they weren't something that somebody went to 3M and said, "You know, we really need a little piece of paper that's got glue on the back that sticks but doesn't stick." But after 3M developed it, everybody went, "Oh, gotta have that."

So the job is really twofold — first, listening to what customers are saying and translating that into changes. The other half is looking at what we've got and helping our customers understand what's there.

So, what are users saying they need right now? People are going for anything that will increase revenues or decrease costs with some level of surety that that's going to happen in the very short term. It's [which] technology is going to address a real business issue for them.

Users don't think of the kind of big systems that PeopleSoft and its competitors sell as quick fixes. It depends on the size of the company. What I'm seeing is that the big companies out there are buying point solutions. They're buying something that fixes a very finite scope of issues they have in the company. The smaller companies, the under $2 billion companies, are looking for full-suite integration projects, but they're looking for them to be completed in under a year. The expectations are of time to implementation of six to nine months. So it's a big project for that company, but it's also very quick. The old 18- to 24-month project times just don't hold anymore. They need to have whatever it is you're going to do up, running and producing the return on investment within a year.

Was that a tough transition for PeopleSoft to make? No, actually. Our architecture allows you to deploy more quickly than our competition, because it's a pure Internet architecture. I was with a customer recently that was looking to outsource some of their manufacturing to Mexico. One of the things that really resonated with them was that because of our pure Internet architecture, if something happened in Mexico, they didn't have to send a tech across the border in order to fix something that's running on the client machine. All you need is a browser. With the security issues in going across the border, if a tech has to go over there on what's a 20-minute job, he's going to be gone all day. So that was a big savings for them right there; it was a big determinant of how much tech support they were going to have to add. Folks recognize that the Internet is the future, and I believe we're the only ones that have a pure Internet architecture.

What kinds of advantages do you see as inherent in an Internet-based architecture? First, there's a big difference between Internet-enabled and pure Internet architecture. Pure Internet architecture means that this technology was designed from scratch to run over the Internet. There is absolutely no code on the client.

Think about what's happening in the industry today and how companies have to collaborate much more closely with their customers. They need to get information out to their customers and do it in such a way that it's very easy and inexpensive for the customer to receive that information. What's easier than giving somebody a user ID and a password for a Web site? There's no integration and training of the supplier.

When our customers say they are Internet-enabled, it means that you're having to download code; it means thicker clients. For our customers, you look at the number of PCs that you would have to upgrade. And they ask, "How big of a client do I need to run the code?" With ours, you only need a browser. If you've got older machines, we say great — you don't even have to upgrade all those machines. All you need is a browser.

What does the real-time enterprise mean to your company and your customers? We see real time as meaning that there is no time lag between an event and the implication of the event. I need to know as soon as something happens in my supply chain that I've got a problem. I need to know right away when I have an opportunity with a customer.

What's the capability for the real-time enterprise right now? It varies. It always gets down to how many integration points are there at the customer site and how often do they want them refreshed. We're living in a very heterogeneous world. ▶

MORE FROM PTAK
PeopleSoft's Carol Ptak elaborates on the shifting technology markets:
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The Web's Next Leap

Data integration via the Semantic Web. By Patrick Thibodeau

INFORMATION TECHNOLOGY managers are familiar with the concept of the Semantic Web, even if they haven't heard the name before. The Semantic Web is about giving users the ability to manipulate, connect and associate Web resources in new and powerful ways. It's a capability similar to that of the corporate workhorse, the relational database.

FUTURE WATCH

The Semantic Web is about taking the relational database and "webbing it," as Tim Berners-Lee, the inventor of the World Wide Web, described it at a recent forum of the National Science Foundation in Arlington, Va. The Semantic Web will allow businesses to manipulate external, heterogeneous Web data in much the same way they do internally, he says. But its most immediate use may be as a tool to solve data integration problems.

The Semantic Web is intended to infuse meaning into the Web and make data "machine-understandable." It relies on the development of standards and "ontologies," the vocabularies that systems need in order to associate and connect data across multiple databases. These ontologies would be linked to documents and other Web resources, giving computers the ability to infer relationships among these information sources.

The Semantic Web would allow manipulation across multiple, heterogeneous databases. This capability could, for instance, allow an electronic airline reservation service to automatically interact with a personal calendar program to arrange a flight that fits a user's schedule, even if there was no pre-established interface between the two pieces of software.

But accurately forecasting the kinds of services that the Semantic Web will deliver is as difficult as it was to anticipate at its inception what the Web might become. "In the beginning, I think it was very unclear what the dominant business model would be," says Ora Lassila, a research fellow at Espoo, Finland-based Nokia Corp.'s Nokia Research Center. Similarly, the kinds of services that may emerge from the Semantic Web remain a "big question," he says.

But for corporations, the immediate value of the Semantic Web may not rest in using it for new services, but rather as a means of integrating data in heterogeneous environments. And the concepts and standards are sufficiently developed to allow that now.

Eric Miller, who heads the World Wide Web Consortium's (W3C) Semantic Web effort, believes it's the Holy Grail of enterprise integration. "We're talking about really reducing the turnaround time of data integration," he said.

The Cambridge, Mass.-based W3C, which is headed by Berners-Lee, is leading the effort to develop Semantic Web standards, such as the Resource Description Framework (RDF), the standard used for expressing ontologies, and XML, the standard for creating customized tags for the exchange of data between heterogeneous applications.

Ontology Hurdle

A more difficult aspect of building the Semantic Web is the creation of ontologies. This process requires efforts by diverse communities, such as the medical, insurance and finance industries, to develop common vocabularies that systems will use to recognize what's in a Web document.

Fortunately, creating ontologies doesn't require a global coordinated effort. If words are used differently, such as "title" in insurance vs. the "title" of a book, services will be able to map those differences to allow interoperability.

"The Semantic Web is very much a future-looking vision," says Ronald Schmelzer, an analyst at ZapThink LLC in Waltham, Mass. "Trying to get computer systems to not only be able to communicate with each other, but also able to understand each other is traditionally a very difficult problem."

Indeed, developing the Semantic Web will take years, says Jas Dhillon, president and CEO of Celcorp Inc., a start-up company in Santa Monica, Calif., that has used RDF and ontologies to integrate applications.

"The Web is kind of stuck in terms of where it is right now, and if it is going to take the next step and enhance productivity and use, it has to become intelligent," Dhillon says. "We are betting that Tim Berners-Lee will succeed."

And if Berners-Lee does succeed in convincing software vendors to invest in Semantic Web applications, businesses will have a new way of integrating databases and applications, instead of using the traditional method of building interfaces one by one.

Celcorp uses ontologies built on top of RDF in its "semantic learner," which can create new "meta-applications" by extracting features from multiple existing applications. It analyzes what users are doing in the existing programs, how they navigate, what actions are taken and what data is used. It then puts that information in a knowledge base.

In the next step, a "reasoning engine" builds the new application. It does that by allowing users to specify goals or results they want to accomplish. Using RDF, the reasoning engine looks across the knowledge base to see if all the pieces are there to assemble the process.

In the third step, code is generated and executed based on the functions stored in the knowledge base.

Semantic Web proponents predict that more companies like Celcorp will emerge in the near term, offering similar services and new tools for applying semantic concepts to existing business processes.

Berners-Lee says technology managers can prepare for this future by asking their application vendors whether they're using RDF in their software development.

DOUG WOG ■ AS CONSULTING

The Battle Against Pornography Continues

A test of a British vendor's e-mail filtering tool proves to be surprisingly successful. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

OUR SECURITY TEAM'S goal is to provide the company with freedom from fear. Management is afraid of pornography, afraid of the bandwidth and time wasted on it, and even more afraid of lawsuits from offended staff. I don't think the problem within our company is particularly bad, but because we take every issue seriously, we've spent some time addressing this.

I see four ways for pornography to get into or out of our building: on physical media, over Web connections, by way of e-mail attachments and over peer-to-peer file-sharing networks.

We do our best to ban peer-to-peer networks. But there's not a lot we can do about physical transport, considering the latest solid-state storage devices are the size of my thumb. But if anyone copies porn from such a device onto a PC, we'll find it eventually on the file shares or local drives.

We also do reporting on Web browsing activity. That has allowed us to track down the small number of people who view and download pornography over the Web.

That leaves e-mail as the last open door. We've added a few filters for particularly dreadful phrases to try to stop offensive spam, and our new antispam service should help filter out porn too. But there's always the risk that the e-mail service will be used to send and receive objectionable material, particularly in file attachments.

We'd like to find a way to block incoming e-mails that include pornographic image file attachments. We already use New York-based MessageLabs Inc.'s SkyScan antispam and antivirus services, and the managed service provider offers a service it claims can also protect us against pornographic pictures. But it has been difficult to arrange a test of that service.

Based on information on MessageLabs' Web site, it appears that the company uses First 4 Internet Ltd.'s Image Composition Analysis (ICA) software to perform this service. By chance, we were recently approached by a reseller of Banbury, England-based First 4's product.

I have a cynical view of the likely effectiveness of these tools. It's difficult enough for humans to decide about pornographic images, so it must be extremely hard for software to do it. This reseller, however, was willing to let us try ICA on our systems for 10 days.

It also offered us five CD-ROMs full of images to help us test the software. They contained images that included no porn, some porn, a whole lot of porn and total porn. One CD the reseller offered contained images graphic enough to frighten Larry Flynt.

> **It's difficult enough for humans to decide about pornographic images, so it must be extremely hard for software to do it.**

The graphic nature of the material aside, it isn't a good idea to test a product by using the vendor's test data. Even if it goes well, you can't trust the results. So I politely declined the offer of free porn on CD.

Instead, we ran the tool against a week's worth of saved e-mail attachments — more than 6,000 of them — received by employees at our company. It took a few hours to process but required, on average, less than one second per attachment when run on a low-end desktop machine.

Avoiding False Positives

We aren't too bothered by false negatives, where the software misses image files that should be flagged as porn. Our intent is to catch persistent offenders, so even a 50% hit rate will work. But we're very keen to have a low false-positive rate. We can't risk falsely accusing innocent staffers, so unless this software is very accurate, we'll have to check everything it flags.

When we performed our test, the software identified about 100 questionable images, only nine of which were legitimate e-mails that had been misclassified. Given that this was incoming e-mail from the Internet, and considering the high volume of attachments we get, it wasn't that bad a number of offensive e-mails.

Most false positives were for pictures of babies; these images tend to have a lot of skin tones. There were a few very weird false positives. A picture of a sunset, for example, was apparently pornographic. But we can live with this error rate, particularly right out of the box. With a little tuning, the software should run well.

And the false negatives? A manual search of the files classified as not pornographic revealed only a tiny number of offensive images, and most were montages of smaller images that the software understandably had problems with.

No Easy Solutions

So, if you're a porn hound and want to bypass this software, what can you do? Not a lot. It looks inside Word documents and PowerPoint files and will check compressed files as well. Colorblind offenders can rest easy, however, because the software can't handle monochrome images.

Overall, I was pleasantly surprised with how well the software worked. Our next step is to decide if we'll use the upstream filtering at MessageLabs or install the software on our e-mail management servers. (We use MIMEsweeper, from Bellevue, Wash.-based Clearswift Ltd.)

Whichever way we decide to go, it won't be long before our incoming and outgoing e-mail is being scanned by the perverted gaze of ICA. Even if we buy the service, though, I plan to purchase a copy of the software so we don't have to manually trawl through hard-drive images during forensic investigations.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum:

QuickLink a3560

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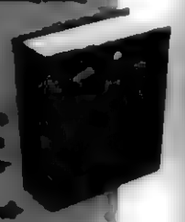
SECURITY LOG



Security Bookshelf

[illegible] Security Policies Made Easy Version 9, by Charles Cresson Wood, Info Sec Corp., 2003.

Searching for standard [illegible] this book is the place to start. At $795, it's just over a dollar a page. But it's easily worth it.

If you need a well-thought-out policy for your company, you could hire consultants that cost well over $795. Or you could buy this book and tailor the policies in it. It comes complete with a CD-ROM and a license to use the policies in your organization.

– Elaine Pounsbury

Tripwire Manager, Server Upgraded

Tripwire, Inc. announced version 4.0 of Tripwire for Servers and Tripwire Manager. The Portland, Ore.-based vendor says the server version of its integrity-checking software can now identify rules that apply to [illegible] Tripwire Manager adds features that ease the process of creating [illegible] and [illegible] Tripwire for Servers 4.0 is available for [illegible] platforms, including Solaris, HP-UX, Windows and Linux, and costs $[illegible] per server.

Work-Hardened Notebooks

[illegible] Technologies Inc. announced [illegible] Corp. notebooks to [illegible] Corp. notebooks are designed to withstand [illegible]

Retail	$[illegible]
Power[illegible]	$[illegible]
Headphones	$[illegible]
Mouse[illegible]	$[illegible]
Rubber[illegible]	$[illegible]

[illegible] Technologies Inc., Ottawa, (613) [illegible], www.[illegible].com

BRIEFS

Maxtor ATA Drives Work on Intel Chips

Maxtor Corp. announced last week that its Serial Advanced Technology Attachment (ATA) hard drives have passed lab testing for compatibility with Intel Corp.'s new 875P Serial ATA chip set with built-in RAID capabilities. According to Milpitas, Calif.-based Maxtor, the proven compatibility provides a variety of options for building PC, RAID and near-line storage arrays.

Vendors Team on Disaster Recovery

EMC Corp. in Hopkinton, Mass., Legato Systems Inc. in Mountain View, Calif., and Nortel Networks Ltd. in Brampton, Ontario, last week announced a protected disaster recovery/business continuity architecture that's designed to connect multiple data centers and automatically reroute transactions to alternative sites, with no need for manual restore or restart procedures. The protected technology includes EMC's Symmetrix and Clariion arrays, EMC's Symmetrix Remote Data Facility, Legato's Automated Availability Manager software and Nortel's OPTera Metro 5200 Multiservice Platform.

Supermarket Uses Elogex for Logistics

Publix Super Markets Inc. has signed a multiyear contract to use Charlotte, N.C.-based Elogex Inc.'s OneNetwork system. Lakeland, Fla.-based Publix will use the system across its distribution network to link its operations with carriers and manufacturers on a unified platform. The technology will provide load tendering, online appointment scheduling, freight procurement and payment. Publix said the system will help it save money on transportation and avoid out-of-stock merchandise by helping the chain better manage time-sensitive products, including perishables, promotional items and seasonal stock.

TOMMY PETERSON

Getting Real About Real Time

THE ALMOST DEAFENING BUZZ these days around the "real-time enterprise" is drowning out important practical questions about what the term *real time* really means and the nature of real time's impact on business processes.

For example, a few weeks ago, I heard from Scott Hicar, the CIO at consumer electronics company Maxtor Corp. His company has been using Data Integrator software from Business Objects to pull data from its various applications into an Oracle data warehouse. Maxtor executives were then pulling real-time reports from the data warehouse using Business Objects' WebIntelligence — at least that's what they were doing early in the implementation.

The problem was that all those real-time reports were slightly different, since they had been produced at different times. So executives were spending a lot of their meeting time comparing reports and puzzling over data rather than making decisions, Hicar says. Once Maxtor recognized the root problem, the company easily solved it by tweaking the software so that it pushed reports to decision-makers at several set times throughout the day.

"Now people spend time acting on the information rather than questioning its validity. That was our early learning about the nature of real time," says Hicar. "Every business and business process has different criteria about how timely *timely* is."

Constantly updated, instantly available information is unnecessary for some business functions — and sometimes it can be downright detrimental. That's because human decision-makers are still at the center of most business processes, and they need more than a stream of the most current data.

Promoters of real time sometimes forget that the notion had its beginnings in applications that were designed to eliminate the need for people to make decisions. Real time started out as a way to say that the response of the application to a particular event had to be both correct and timely, with *timely* usually meaning a very short time constraint. Early real-time applications were mostly designed for automated technologies like airplane navigation systems and missile-guidance systems or devices such as cardiac pacemakers.

The program controlling Uncle Ned's pacemaker not only has to trigger the correct electrical impulse; it also has to trigger it within a very precise time frame, or Uncle Ned is in big trouble. Likewise, the guidance system in a Tomahawk missile must respond to deviations in the missile's trajectory within a fraction of a second, or the corrections it makes will be useless to spare unintended targets.

Helping People Do Their Jobs

Clearly, some things can be done more effectively by computers than by people, and those tasks were the first prime targets for real-time applications. And the faster the information flows through those applications, the better.

But the IT systems in place at most companies are there to help people do their jobs, and people make better choices when they have access to context and analysis, which are pretty tough to serve up instantly.

The rise of increasingly more sophisticated real-time analytical tools may help, but there still remain the major issues of cost, data quality and the readiness of companies to make productive use of the analysis (see "Real-Time Data: Too Much of a Good Thing?" QuickLink 36917).

Smart technologists like Hicar know that their job isn't implementing software that makes decisions, but rather it's "presenting information to human experts to make decisions."

And those humans, expert or not, also create the cultures within organizations that will need to be changed to accommodate real-time information exchange. The utopian vision of the nimble, collaborative real-time enterprise with information flowing freely and at incredible speeds between departments is inspiring. But it ignores the work that needs to be done to tear down those walls and resolve the ongoing turf wars in most companies.

Gartner/G2 analyst Kraft Bell points out that the real-time enterprise is often mistaken for a business strategy, when it is in fact merely a "competency."

There's no doubt that gaining that competence and having high-speed access to information can make a company more competitive, as long as it chooses the appropriate spots to use real-time applications. Otherwise, it's like buying a Lamborghini to get yourself to the local grocery store and back.

As the economy has contracted, companies have felt the need for more visibility into their supply chains in order to decrease inventories, better track performance and sales opportunities, and have more information with which to make decisions. Implemented carefully, real-time applications can help with all of these business problems.

The key is to avoid unrealistic expectations for real-time applications and to take time to prepare your infrastructure or organization for them. Otherwise, you're just making it easier to make bad decisions more quickly.

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Tight Lips

Companies have typically provided little information about former employees for fear of being sued. But some hiring managers are finding ways to dig deeper into the backgrounds of job candidates.
Page 39

Q&A

Facing the Unthinkable

Many companies prepare only for the kinds of crises they've encountered in the past, not for the disasters that are likely to strike today, says Ian I. Mitroff, who co-wrote a recent *Harvard Business Review* article on the subject. **Page 40**

Readying for a Trip Offshore

Consider the same potential consequences for offshore outsourcing as you would for any outsourcing decision, warns columnist Bart Perkins.
Page 42

The Best of Both Shores

Slashing labor costs while retaining control over IT staff and project quality is at the heart of offshore insourcing. By Julia King

CHRIS HARTLOVE

COST PRESSURES top just about every company's list of reasons for sending greater amounts of IT work offshore. IT labor rates in India, the Philippines and elsewhere are as much as 70% lower than those in the U.S. As such, they're simply too compelling to ignore, IT executives say.

But equally compelling is the potential of losing control over foreign technology workers and the quality of IT projects based thousands of miles away.

Allstate Insurance Co., Avon Products Inc. and Global Exchange Services Inc. (GXS) are among a small group of U.S.-based Fortune 500 companies that have set up and staffed their own IT centers in lower-cost countries like India, Ireland, India and Hungary to address the twin issues of cost and control.

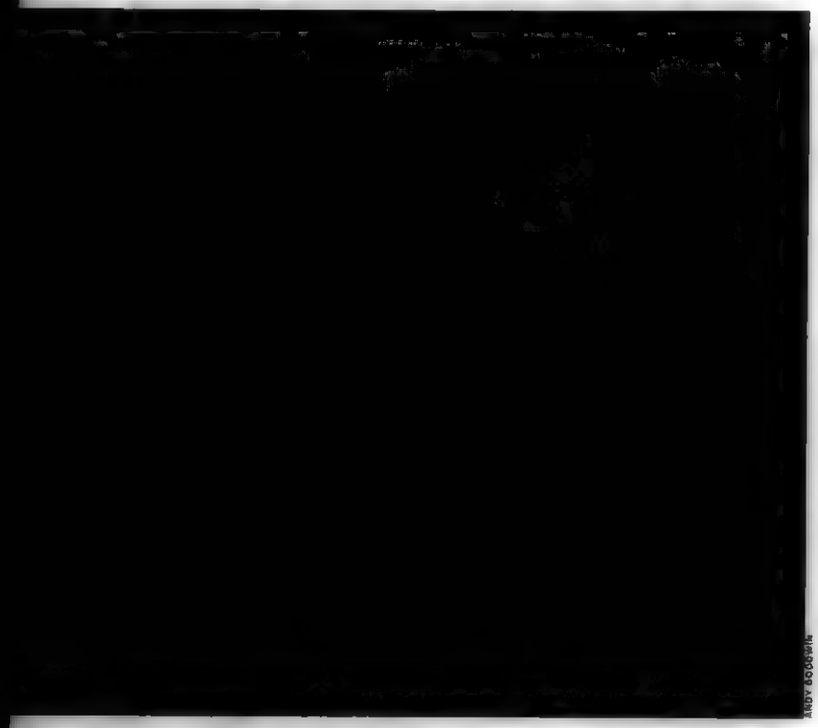
In this offshore-insourcing model, foreign IT workers aren't contractors but employees of the U.S.-based companies. They receive the same training, use the same software development tools and adhere to the same business processes as their IT counterparts in the U.S. The big difference is that they're paid a lot less. For example, for every $100 that GXS spends on an IT employee in the U.S., it spends just $30 on an employee in Bangalore, India, where it employs 230 IT workers. "Manila is even less expensive — perhaps 30% to 40% less than India," says Tasos Tsolakis, senior vice president of global technology at Gaithersburg, Md.-based GXS.

By shifting about 70% of GXS's internal IT projects and 40% of its IT work on customer-facing applications to offshore centers, Tsolakis estimates that he has saved about $16 million a year for the past three years. At the same time, he says, GXS has been able to ensure quality and meet software delivery deadlines, because the offshore employees and projects are managed using the same Six Sigma processes that the company, a former business unit of General Electric Co., applies in the U.S. Among large U.S. companies, GE is one of the best-known proponents of Six Sigma quality-control processes.

Consistency Across Continents

"Clearly, the labor rate is the big driver [for hiring IT employees abroad], but you need to treat them like your regular [U.S.-based] teams. Every development tool and testing tool I have here, my resources in Bangalore have. It's critical that they feel a part of your team. They're first-class citizens like everyone else is," Tsolakis says, adding, "That's how you can really create synergies and optimize resources."

The company's 650 offshore IT employees work at



The Best of Both Shores

Allstate-owned facilities in Belfast and Londonderry in Northern Ireland. The centers in those cities were set up in 1998 and 1999, respectively, as a result of the IT labor shortage in the U.S. caused largely by a crush of Y2k work and the then-thriving dot-com economy.

"We had an additional issue in that we had a large number of contractors working for us here in Chicago and they were extremely expensive. With the labor crunch and Y2k, we had a ratio of 50% contractors who were constantly leaving for higher-paying jobs," recalls Mike Scardino, assistant vice president for finance at Allstate.

Cost savings was one of the big advantages of hiring offshore employees, and it remains so. Allstate spends about 75% less on contractors now than it did prior to setting up in Northern Ireland, Scardino says.

The company is also retaining critical business knowledge and intellectual capital that used to walk out the door with departing IT contractors. "In the insurance business, there's a tremendous amount of business knowledge that goes with programmers. You can't just bring somebody in who knows Cobol," Scardino says. "Now, the business knowledge stays with the employees. That's a huge benefit and a big driver in terms of our ability to maintain our existing applications and to develop new ones, because they know what they're talking about."

More Than Maintenance Work

Both GXS and Allstate launched their offshore operations with the intent of exporting primarily software maintenance work to foreign IT employees. But that soon changed. GXS's IT employees in India, for example, now work mainly on Web-based transaction management services and other software tools that GXS offers to its 60,000 retail customers. In Bangalore, staffers "don't want to do just support work," says Tsolakis. "You have to offer a continuous balance of work."

Scardino says Allstate's Irish employees work on everything from software program maintenance to application development projects. "We started with the idea that it would primarily be maintenance, but with the skills and abilities of the workforce we hired, we're able to do all different types of projects," he says. "As we speak, I'm expanding beyond IT to call centers."

Keeping U.S.-based IT workers informed of the company's plans for distributing various IT projects is a critical component of managing onshore/offshore IT groups. "The U.S. teams ask, 'What's the future for me, and why should I stay if you're moving work offshore?' " says Tsolakis. "You need to give an overall direction and plan. It's important to address this upfront. If you don't do that, you end up losing some key resources that you don't want to lose."

Scardino and Tsolakis also agree that on-site management, preferably by a local national, works best at offshore regional IT centers. GXS's Bangalore facility is managed by an Indian woman who reports directly to Tsolakis. "We have a whole infrastructure, including an HR person in Bangalore helping with recruiting and a finance person. This is because it's important to mesh the local culture with the U.S. culture," he says.

For IT executives considering setting up and staffing an offshore IT center, Scardino advises that they first make "sure the economics of the local environment are sustainable, that there's talent, that there's a quality workforce and that those things aren't going to change." For all of these reasons, Northern Ireland was an ideal location for Allstate, Scardino says.

"Part of the success of being in Northern Ireland is also because people [in the U.S.] are willing and able to go there. Routinely, we have people on the ground, and the people in Northern Ireland are over here," he says. "There are travel costs, but relative to the economics, on a cost-per-hour basis, the travel budget is less than $1 an hour [per employee] when you spread it across all of our programs."

That's one more item IT executives must add to their list of outsourcing considerations.

Global Labor Pools

Allstate Insurance Co.
Headquarters: Northbrook, Ill.
- 650 IT employees in Belfast and Londonderry, Northern Ireland.
- IT work performed offshore includes software maintenance, new application development and call center operations.

Global Exchange Services Inc.
Headquarters: Gaithersburg, Md.
- 230 IT employees in Bangalore, India. Additional IT employee teams in Manila and Hong Kong.
- Offshore IT projects include development of Web-based services and software tools for retail customers.

Avon Products Inc.
Headquarters: New York
- 15-person Web development team in Hungary.
- Avon is considering hiring IT employees in Mexico and Argentina.

AROUND THE WORLD, BUT STILL IN-HOUSE

Avon began its offshore insourcing initiative in Hungary. To learn more about how the company did it, visit our Web site:

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TIGHTLIPS

How to cope when companies withhold references. By Barbara DePompa Reimers

DAVID HOLLENBACH

INFORMATION TECHNOLOGY managers and CIOs say that more than ever, fear of litigation is preventing them from giving out much, if any, detail on former employees who require references in order to secure new jobs. For several years now, companies that are fearful of lawsuits and that have official corporate policies in place have typically provided as little information as possible.

Recruiters and IT executives say it's difficult to get more than the start date, the end date and possibly the employee's title through official corporate channels. Some employers have even automated the reference process, says Andy Baker, human resources manager for IT recruiting at Allstate Corp. in Northbrook, Ill. "Certain companies make us dial a specific phone number and key in the person's name or code number to gain the dates of employment and nothing else," he says.

Corporate policy is one thing, but harsh reality is another. Hiring managers today have pressing concerns — such as system security and the cost of replacing less-than-stellar performers — that make it necessary for them to dig deeper for more information about prospective IT talent.

Increasingly, IT executives and corporate HR departments are turning to alternate, unofficial channels to screen the hundreds of thousands of IT workers who have been laid off nationwide and are available for hire. Some use the old, informal insider's network, chatting with folks at the job candidate's last place of employment to find out more about what he was really like as an employee.

Tasos Tsolakis, vice president of global technology operations at Global Exchange Services Inc. (GXS) in Gaithersburg, Md., says that when he needs to get the lowdown on a person he's considering for a job, he calls someone at the company where that person works. "It's pretty common for local IT managers to know other local IT people," Tsolakis says.

Other hiring managers use a combination of methods, such as conducting several rounds of in-depth technical interviews and testing candidates for their technical skills.

"Delta Technology uses a multiple-hurdle hiring approach, including third-party background checks as well as traditional and skill-based interviews," says Curtis Robb, CIO at Delta Air Lines Inc. in Atlanta. "This allows us to view candidates from a broad perspective, ensuring they possess the knowledge, skills and abilities required for the job."

Allstate receives an average of 600 electronic résumés a day, or up to 25,000 per month, and stores them in an internal, Web-based database. The company uses it to conduct searches using specific criteria, such as skills, programming languages and platform experience, to collect a manageable pool of job candidates. Human resources then e-mails to each candidate a customized employment application that's designed to gather general information and specific experience-related details. "Based on the response to the e-mailed form, we hone down our list to a few targeted candidates," Baker says.

The next step is a phone interview to gather even more details, such as a candidate's adaptability, teamwork capabilities and flexibility. When the number of candidates is down to two or three, Baker conducts on-site interviews and collects information that he then gives to a third-party background-checking firm for verification of educational information and criminal history. "We also always ask permission from job seekers to check references in our online application," he says.

Outsource Your Screening

Third-party reference-checking and online database companies are doing brisk business these days, collecting personal information and delivering it for a fee to corporate employers. Industry analysts say pre-employment screening, made easier and cheaper via the Web, has been on the rise for the past several years. Companies such as ChoicePoint Inc. in Alpharetta, Ga., and The First American Corp. in Santa Ana, Calif., can verify identities and check details such as criminal records, automobile driving histories, former addresses, education and previous employment records. A December 2002 survey conducted by the Society for Human Resource Management in Alexandria, Va., found that more than one quarter of IT managers agree that there has been greater screening of job candidates in the past year.

Dara Herbst, president of Certified Reference Checking Co. in St. Louis, says the biggest challenge for companies hiring IT workers is gauging the accuracy of each job candidate's technical skills. In some cases, it's difficult to gain verifiable references — especially from dot-com companies that have gone out of business. Herbst and her father, Edward C. Andler, with David Sears, wrote the second edition of *The Complete Reference Checking Handbook: The Proven (and Legal Way) to Prevent Hiring Mistakes* (Amacom Books, 2003).

"Ask for verifiable information from the job candidate, such as a date of birth or Social Security number," says Herbst. Although it's illegal to force job applicants to provide such information on job application forms, it's vital to reference-checking, she says.

Red flags should pop up if a job candidate is unwilling or unable to supply verifiable information, such as a date of birth and employer references, Herbst says. While it's illegal to request date of birth on employment applications, this information is considered vital to verifying education and other details on a job candidate's résumé. Candidates may balk at first, but Herbst says most understand why this information must be collected.

Several people interviewed for this story said it's not wise to judge the large pool of IT job seekers as among the bottom 10% of performers, even though many companies have taken opportunities to cut poor performers. "Before, [GXS] had a policy that you [fired or laid off] 10% of your bottom talent. The reality is that in the past two years, we've moved a lot of top players, too," says Tsolakis. Most job cuts have occurred as GXS has moved an increasing amount of IT work offshore, he says.

CIOs and analysts say that despite corporate policies, they typically want to help job seekers who have earned their help. "If someone has performed well, possesses good skills and works hard, I'm always willing to serve as a personal reference," says Steve Schuckenbrock, former CIO at PepsiCo Inc. and Frito-Lay Inc. and now chief operations officer at The Feld Group, an IT consulting firm in Dallas.

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But in the final analysis, there's no doubt that a catch-22 lurks in today's hiring process. Job candidates need to supply the names of former employers, yet those employers most likely can't give a reference because of company policy. So if you're a hiring manager, be tenacious and use what you can — third-party screeners, multiple interviews and thorough skills testing — to employ the best talent.

DePompa is a writer and editor in Germantown, Md. Contact her at bdepompa@aol.com.

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It's time for corporate crisis management to grow up

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Why is traditional corporate crisis management no longer good enough? It's too limited. Corporations — or IT departments — tend to focus on crises they know about. That doesn't serve them well. It's not the crisis you know that will kill you; it's the one you don't know. There are all sorts of crises: economic, reputational, human resources. Organizations are susceptible to a wider array of crises than 30 years ago, and any one can be the cause or the effect of any other. Something in IT could trigger something elsewhere, or vice versa. Crises don't give a damn about the silos and walls we set up.

Your study found that some companies were prepared for crises and others were susceptible to them. What were the main differences between the two types of companies? Proactive organizations prepare for more crises than they have already experienced. In reactive companies, first it has to hit them, then they prepare.

How might a proactive approach play out in an IT group within such a company? Technical people tend to think in nice, neat boxes. In a company that is proactive, when you look at how crises happen, you realize that technology is operated by human beings. You look at how people make errors, how the best-laid security plans can be breached by error or omission or commission. You dialogue with other parts of the company to see how IT connects, how someone could get in even with best of security. When you have an internal crisis team, you use a mix of people — not just IT people in isolation. A mixed group comes up with richer scenarios. You don't start with the assumption that it can't happen. You say, "This has happened," and work backward to find out how it could happen.

You learned that being prepared yields some surprising dividends, aside from better response. What are some of the payoffs? We found that over three years, on average, proactive companies had 22 major crises, and reactive had 33. The average return on assets for proactive companies was 6%; for reactive, it was 2%. Whether there's a cause and effect is unclear, but something is going on in proactive companies. They have different ethical values. They tend to follow "Do no harm to any single person." Reactive companies tend to do the right thing only if it's cost-effective. They're geared to the bottom line, but ironically, the proactives [are] more profitable.

Tell me about some of the types of calamities that might strike an IT environment. Natural disasters — earthquakes, floods — could affect anybody, and most companies think about that. Second are normal accidents that come about when complexity builds in the potential for an accident. In IT, complexity can lead to a glitch like Y2k. That's a normal crisis — an accident that's almost inevitable, but not intentional. Then you have abnormal accidents: Someone deliberately causing the accident. 9/11 was abnormal. Enron was an abnormal economic crisis because it was caused by shenanigans. In IT, abnormal is where I intentionally go in as a terrorist and infiltrate or put in a virus.

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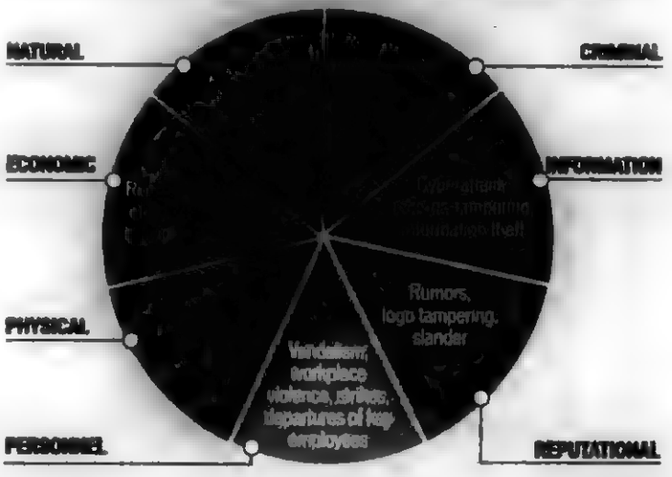


One health care CIO views HIPAA as an opportunity to gain business value. By Jean Consilvio

Beyond Compliance

At its best, the federal Health Insurance Portability and Accountability Act (HIPAA) gives health care payers a strategic plan for making much-needed improvements to administrative and clinical management systems. HIPAA regulations protect the disclosure of all patient health information; the privacy compliance and code transaction testing deadlines went into effect April 14 and 16, respectively.

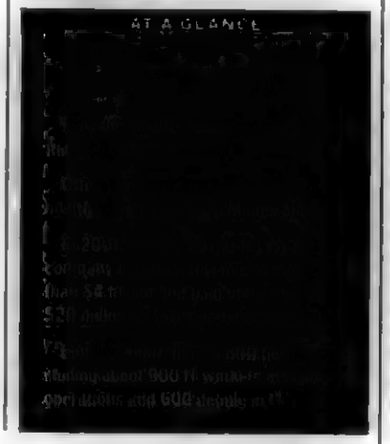
At its worst, HIPAA takes a big chunk from hospitals' IT budgets and those of health care providers that are trying to stay afloat as costs continue to soar.

At Blue Cross and Blue Shield (BCBS) of Minnesota, the emphasis is on creating business value from all the efforts and costs of bringing IT into compliance with HIPAA. In a nutshell, HIPAA requires systems and software to meet certain transaction and code-set standards and formats for electronically transferred patient billing and insurance information. CIO **John Ounjian** *is leading an IT staff of 1,500 in a massive modernization of IT systems to improve services to consumers and health care providers. He recently spoke with* Computerworld*'s Jean Consilvio about using HIPAA requirements as an opportunity to gain a business advantage.*

Are you overhauling your existing claims-processing systems exclusively to meet HIPAA compliance? There's the element of compliance. To me, HIPAA is "Y3k" for the health care industry. It's costing 80% of what my Y2k [efforts] did. But with Y2k, we didn't have any opportunity to create value. With HIPAA, we have the opportunity to improve the system to meet compliance and modernize core systems.

What are the core systems affected by HIPAA compliance? The clearinghouse is the hub that processes the claims by receiving and routing them further into my operations or out to other payers. Once the claim is my claim, it goes through prejudication. That's where you make sure it has everything, like provider ID information, so you can accept it. It then moves to [the] claims-payment side of our business.

By law, if you do not have a clearinghouse, you cannot receive a claim that's not HIPAA-compliant, [because you do not have a way to reformat it so it meets the requirements]. The clearinghouse can receive a claim in any format [and] put it in HIPAA format, which is based on the ASC X12 standard, and then give it to my prejudication system.



What happens if you get a claim that's not HIPAA-compliant? The payer can't receive any claim that's not HIPAA-compliant. If the health care provider sends the claim to any clearinghouse first, we can pay it.

So upgrading your clearinghouse is a strategic benefit for both you and health care providers? Yes. I'm not rejecting claims. The part that will help my provider save money is that instead of sending the claim to another clearinghouse, the provider can send it to me. I end up creating stronger relationships with providers.

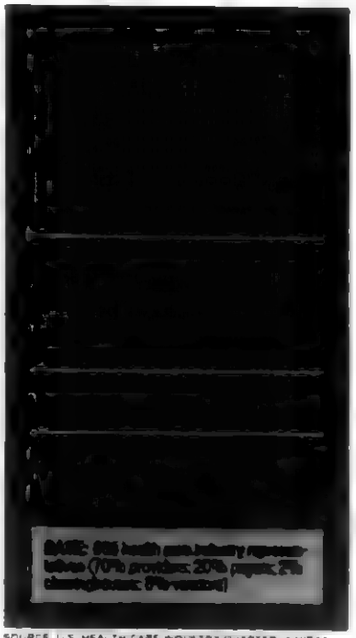
And what are the cost benefits for you? Let's say I start improving my edits in prejudication. If I have my stronger edits at the front rather than the back [of that system], the claims go through with less cost because there are fewer exceptions or errors.

How has this affected your IT staff and help desk? Call me next year. I'm hoping we'll have less people and that HIPAA will reduce costs for us because we'll have fewer exceptions and more procedures that are standardized.

You filed an extension for the Standard Transaction and Code Sets. Does this affect your HIPAA clearinghouse initiative? The reason we did that — and that just about everyone else did, too — was because if I'm a payer and I didn't file an extension, then I couldn't receive claim files from all providers. By not filing for an extension, I wouldn't have been able to receive claims from someone who wasn't compliant. But we are ready to meet the October deadline.

Did you develop a cost-benefit analysis for achieving compliance? Yes, we have our own metrics we use to measure as we go through the project. We separate which costs are compliance and which are enhancements or modernizations.

It sounds like you view HIPAA as more of a cost-efficiency opportunity than an onerous requirement. Is that so? We think HIPAA is good for the industry. A lot of times people miss this simple point: Bank checks have a microline that tells the bank your account number when processing a check. What if there were no standards for coding that number? Then you'd need coding routines. When it comes to [processing health] claims, they're submitted many ways. We need a routing [routine] for all points of submission. What HIPAA's saying is, "Knock it off. Everyone submit a claim a standard way." Remittance, eligibility, inquiry — it will improve the accuracy for all types of claims processing. You must do it the HIPAA way.



SOURCE: U.S. HEALTH CARE INDUSTRY QUARTERLY HIPAA COMPLIANCE SURVEY, WINTER 2003, HEALTHCARE INFORMATION AND MANAGEMENT SYSTEMS SOCIETY, CHICAGO AND PHOENIX HEALTH SYSTEMS, BALTIMORE/BURR, MD.

How strict are the privacy rules? HIPAA policies require that security and privacy are activated at the point where any access to information is attempted. You have to know the rules, especially on the privacy side. For example, for a daughter who's 12 years old, there's certain information that even mom and dad can't access. So under the law, I have to protect that 12-year-old. Privacy rules affect the desktops that customer service people use and Web self-service portals.

How are you training all BCBS employees on HIPAA rules? We just launched self-taught portal training for all company employees. It's part of human resources training for new employees, and all employees are tracked to make sure they complete the required training. After that, they can access HIPAA information [online] any time they need to brush up on the rules and regulations.

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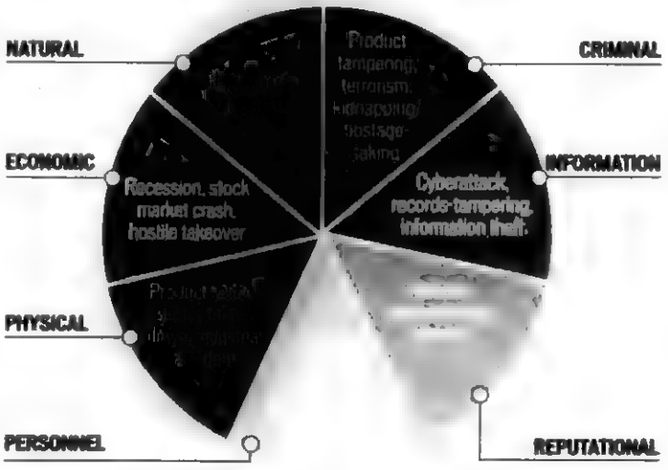
The Wheel of Crisis

This tool helps planners face the unthinkable. The crisis team spins the wheel and then develops scenarios of how each crisis could occur and how two apparently random crises could be linked. Then the planners devise responses and risk-mitigation strategies.



One health care CIO views HIPAA as an opportunity to gain business value. By Jean Consilvio

Beyond Compliance

At its best, the federal Health Insurance Portability and Accountability Act (HIPAA) gives health care payers a strategic plan for making much-needed improvements to administrative and clinical management systems. HIPAA regulations protect the disclosure of all patient health information; the privacy compliance and code transaction testing deadlines went into effect April 14 and 16, respectively.

At its worst, HIPAA takes a big chunk from hospitals' IT budgets and those of health care providers that are trying to stay afloat as costs continue to soar.

At Blue Cross and Blue Shield (BCBS) of Minnesota, the emphasis is on creating business value from all the efforts and costs of bringing IT into compliance with HIPAA. In a nutshell, HIPAA requires systems and software to meet certain transaction and code-set standards and formats for electronically transferred patient billing and insurance information. CIO **John Gunjian** *is leading an IT staff of 1,500 in a massive modernization of IT systems to improve services to consumers and health care providers. He recently spoke with* Computerworld*'s Jean Consilvio about using HIPAA requirements as an opportunity to gain a business advantage.*

Are you overhauling your existing claims-processing systems exclusively to meet HIPAA compliance? There's the element of compliance. To me, HIPAA is "Y3k" for the health care industry. It's costing 80% of what my Y2k [efforts] did. But with Y2k, we didn't have any opportunity to create value. With HIPAA, we have the opportunity to improve the system to meet compliance and modernize core systems.

What are the core systems affected by HIPAA compliance? The clearinghouse is the hub that processes the claims by receiving and routing them further into my operations or out to other payers. Once the claim is my claim, it goes through prejudication. That's where you make sure it has everything, like provider ID information, so you can accept it. It then moves to [the] claims-payment side of our business.

By law, if you do not have a clearinghouse, you cannot receive a claim that's not HIPAA-compliant, [because you do not have a way to reformat it so it meets the requirements]. The clearinghouse can receive a claim in any format [and] put it in HIPAA format, which is based on the ASC X12 standard, and then give it to my prejudication system.

AT A GLANCE

BCBS of Minnesota

- Provides health coverage to more than [illegible] million members.
- Offers members access to 96% of health care providers in Minnesota.
- In 2001, the not-for-profit, taxable company had total revenue of more than $4 billion and paid more than $220 million in taxes and assessments.
- Employs more than 3,800 people, including about 900 IT workers in claims operations and 600 people in IT.

What happens if you get a claim that's not HIPAA-compliant? The payer can't receive any claim that's not HIPAA-compliant. If the health care provider sends the claim to any clearinghouse first, we can pay it.

So upgrading your clearinghouse is a strategic benefit for both you and health care providers? Yes. I'm not rejecting claims. The part that will help my provider save money is that instead of sending the claim to another clearinghouse, the provider can send it to me. I end up creating stronger relationships with providers.

And what are the cost benefits for you? Let's say I start improving my edits in prejudication. If I have my stronger edits at the front rather than the back [of that system], the claims go through with less cost because there are fewer exceptions or errors.

How has this affected your IT staff and help desk? Call me next year. I'm hoping we'll have less people and that HIPAA will reduce costs for us because we'll have fewer exceptions and more procedures that are standardized.

You filed an extension for the Standard Transaction and Code Sets. Does this affect your HIPAA clearinghouse initiative? The reason we did that — and that just about everyone else did, too — was because if I'm a payer and I didn't file an extension, then I couldn't receive claim files from all providers. By not filing for an extension, I wouldn't have been able to receive claims from someone who wasn't compliant. But we are ready to meet the October deadline.

Did you develop a cost-benefit analysis for achieving compliance? Yes, we have our own metrics we use to measure as we go through the project. We separate which costs are compliance and which are enhancements or modernizations.

It sounds like you view HIPAA as more of a cost-efficiency opportunity than an onerous requirement. Is that so? We think HIPAA is good for the industry. A lot of times people miss this simple point: Bank checks have a microline that tells the bank your account number when processing a check. What if there were no standards for coding that number? Then you'd need coding routines. When it comes to [processing health] claims, they're submitted many ways. We need a routing [routine] for all points of submission. What HIPAA's saying is, "Knock it off. Everyone submit a claim a standard way." Remittance, eligibility, inquiry — it will improve the accuracy for all types of claims processing. You must do it the HIPAA way.

How strict are the privacy rules? HIPAA policies require that security and privacy are activated at the point where any access to information is attempted. You have to know the rules, especially on the privacy side. For example, for a daughter who's 12 years old, there's certain information that even mom and dad can't access. So under the law, I have to protect that 12-year-old. Privacy rules affect the desktops that customer service people use and Web self-service portals.

How are you training all BCBS employees on HIPAA rules? We just launched self-taught portal training for all company employees. It's part of human resources training for new employees, and all employees are tracked to make sure they complete the required training. After that, they can access HIPAA information [online] any time they need to brush up on the rules and regulations. ■

Missed Deadlines

- Despite the April 14 deadline for privacy compliance, only 9% of providers and 8% of payers have completed privacy remediation.
- Despite the transactions testing deadline of April 16, only 6% of providers and 11% of payers have completed transaction-remediation efforts.
- 42% of providers haven't decided on their transactions testing strategies.
- 80% of respondents say their companies have applied for the transactions extension deadline in October.

BASE: 686 health care industry representatives (70% providers, 20% payers, 2% clearinghouses, 8% vendors)

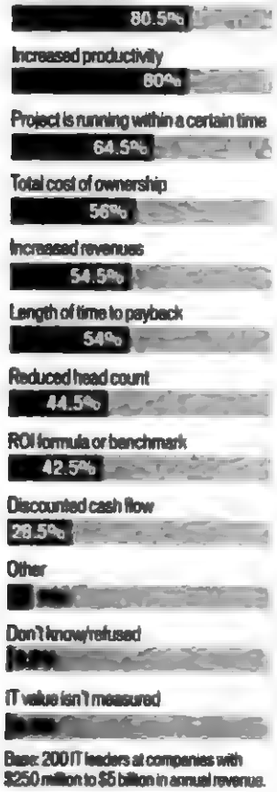
BRIEFS

Data Warehousing Efforts Fall Short

In a recent survey of 142 companies worldwide, 41% of respondents said their companies have experienced at least one data warehouse project failure, and only 15% of the respondents claimed that their data warehousing efforts to date "have been a major success."

The study, conducted by Arlington, Mass.-based Cutter Consortium, also found that just 19% of companies say they have obtained a "360-degree" view of their customer data – or the ability to access, integrate and analyze pertinent data across all of their most important customer channels.

HOW IS THE VALUE OF YOUR COMPANY'S IT INVESTMENTS MEASURED?



Base: 200 IT leaders at companies with $250 million to $5 billion in annual revenue.

SOURCE: DELOITTE & TOUCHE LLP, NEW YORK, AND IDC RESEARCH SERVICES GROUP, FRAMINGHAM, MASS., 2002

BART PERKINS

Readying for A Trip Offshore

THE ECONOMY is forcing companies to examine every cost-cutting opportunity. As a result, offshore IT operations are becoming increasingly attractive. Drastically lower wages overseas make the business case compelling, and telecommunications improvements have finally made it viable.

Low-skill jobs have gone offshore for years, but higher-skill jobs are now moving to other countries.

Offshore estimates are staggering. Forrester Research is forecasting that by 2015, 3.3 million white-collar jobs — 472,632 of them in IT and mathematics — will shift from the U.S. to countries with lower labor costs, taking almost $136 billion in wages with them.

Even domestic IT outsourcers are being forced to go offshore. Historically, they have resisted, because lower wage structures result in lower revenues. But Electronic Data Systems, Accenture, Affiliated Computer Services and others now have offshore facilities and are recruiting heavily in India.

Microsoft is moving some Windows development to India. Other current offshore outsourcing efforts span diverse industries, going well beyond IT:

- Massachusetts General Hospital has some of its CT scans read by Indian radiologists.
- Fluor Corp. employs 1,200 offshore draftsmen and engineers to develop blueprints for industrial facilities.
- Indian and Chinese engineers design chip circuits for Intel and Texas Instruments.
- Proctor & Gamble has 650 employees in Manila helping prepare worldwide tax returns.
- Russian engineers are designing luggage bins for the Boeing 777 airplane.

Other industries are leading the way offshore, but IT is catching up fast. I conducted an informal survey of 400 IT leaders at the *Computerworld* Premier 100 conference in February. Currently, 72% of those leaders' companies aren't involved in any offshore development or maintenance. However, most said their companies plan to make the offshore leap soon; less than half will still be uninvolved in two years. By 2005, approximately one out of every 10 of the companies that send IT work offshore will spend more than 25% of their development and maintenance budgets offshore. In fact, one CIO told me that he'll have 70% of his development and maintenance staff offshore in three years.

Start planning now. Before your CEO asks, look at the following issues:

- **Determine if offshore is appropriate for your company.** Some organizations can't go offshore for security reasons.
- **Define the scope.** Common candidates for moving offshore are call centers, application development, application maintenance and infrastructure. Some jobs, especially those requiring lots of face-to-face interaction, are difficult to move offshore.
- **Understand the trade-offs of various offshore locations.** The leading IT locations (primarily India, Ireland and the Philippines) have highly educated workers who speak English well, and they try to minimize difficulties like time-zone differences. Newer entrants (including Pakistan, China, Russia and Brazil) offer even lower prices but have weaker infrastructures and more difficulties with language and time zones.
- **Determine whether you want to build your own offshore IT facility.** Large multinational corporations with an established presence in a lower-cost country may decide to build their own. Smaller companies or those without operations in a low-cost country are generally better served by contracting with a third-party offshore outsourcer.
- **Select an outsourcer with both onshore and offshore capabilities.** Companies that have a U.S. sales presence but do all the work offshore offer the lowest prices. Pay a little more and use an outsourcer that does some work in the U.S. and some offshore. Specify which work is to be performed in each location. Such an arrangement reduces risk but still offers considerable savings.
- **Be realistic about the savings.** Between 30% and 40% is realistic, vs. the 70% claimed by some offshore suppliers. While wages are lower, you will incur additional supplier management, communications and travel costs.

Offshore sourcing alternatives are becoming more attractive, more viable and more prevalent. As you proceed, consider the same issues you would address in any outsourcing decision. Then determine how to best leverage offshore operations to reduce costs — before your CEO demands it.

LOOK BEFORE YOU LEAP

Read more about offshore outsourcing:
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IT Careers in Security

It sounds so easy ... point and click, security. The reality is that requirements for improved information security become more complex on a daily basis – from protecting consumer information to securing the nation's IT infrastructure. As the need for more advanced technology increases, so does the need to be able to identify, hire and keep people qualified to work in the world of IT and IT security.

Diane Morrell, vice president/director of research for the Gartner Group in Stamford, CT, says that employers are conducting a more thorough assessment of people to work in IT security. That's good news for IT professionals who have a track record for accomplishment, for remaining with a company for a reasonable amount of time and who have proven their ability to apply technology to entirely new situations. Not so much for people who have been job-hoppers and whose background would be difficult to track, much less qualify, for appropriate security clearances. "The assessment of people is receiving more scrutiny and is more acute than in the past," says Morrell.

Gartner Group's research indicates that there will be renewed focus on how government agencies, the military and corporations outsource basic transaction work in the IT arena. The cost has been driven down by outsourcing, an economic factor that has to play into the equation of how networks and systems are developed and how companies establish security criteria for their suppliers.

Morrell says the change in national security focus has speeded up the need to transition the national workforce to meet cost restraints and security. The result is a higher-level skill set for IT professionals here in the U.S. Traditionally, U.S. companies measure performance by demonstrable skills. Gartner Group predicts this will change. "It's the ability to synthesize knowledge versus academic training," Morrell explained. "The demand will be for an IT workforce that can design around and in between organizations, that is intuitive, that is fluent in skills and that can apply knowledge to entirely new spaces. You'll see a greater demand for higher order thinking to apply to research and development, nanotechnologies, biotechnologies – with the question of national security mixed in."

Hiring employers can't merely recruit or wait for resumes to cross the portal in this new paradigm. According to Morrell, successful hiring companies will constantly mine the IT workforce to identify those who have the sought-after competencies. "I think we'll see a lot of focus by companies on keeping their critical talent satisfied and with identifying new talent through their current employees. That puts an entirely new light on the company/employee relationship."

IT Careers

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ABAP Developer wanted to participate in the develop., programming, maintenance & enhancement of SAP HR/Payroll apps using ABAP programming language, collaborate w/ users, ITS staff & other stakeholders to identify user reqts., assess aval. technologies & recommend solution options; apply a broad knowledge of various tech. functions to understand the procedures & expected system perf. associated w/the intro of SAP system changes & upgrades; assess objectives for assigned project phases; & recommend tech. strategies & tactics to satisfy business needs & ensure on-time product delivery. Must have Bach. deg. in Comp. Sci., Elect. or Electronic Eng. or related field, & 3 yrs. exper. in SAP, incl. design, develop, installation & modification using ABAP & incl. exper. in SAP-HR Payroll applications, ABAP/4 Reporting, SAP-Script, Batch Data Communications & BAPIs. 40/hr/wk. $93,000/yr. Send 2 resumes to Case#200201216, Labor Exchange Office, 19 Stamford St., st Fl., Boston, MA 02114.

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Vexcel Corporation seeks Software Engineer to work in Boulder, CO. Position requires master's degree in Electrical and Computer Engineering, as well as working knowledge of research, design and development of spectral estimation and other processing algorithms for synthetic aperture radar and polarimetric synthetic aperture radar image processors used in target feature extraction and image formation applications utilizing programming language C++. Send resumes by mail only to Susan Burke, Vexcel Corp., 4909 Nautilus Court N., Boulder, CO 80301 and refer to job #2230.

Sr. Software Engineers for various plant automation & information architecture projects. Analyze systems req'ts, design customized features for existing technologies/systems & updates & initiate new SW development ventures. Multiple positions available. B.S. in Comp Sc or related field & relevant SW engineering experience req'd. Apply by resume only to Jobs A*M, Recruiter, Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. No calls please.

Software Engineers - Min Edu - Bachelor's Degree, some positions require Master's Degree or equi. Min Exp - adequate industry experience. Please send resumes to Attn:MA, Alekhya Technologies Inc., 4017 Clipper Ct., Fremont, CA - 94538.

Chemistry & Industrial Hygiene, Inc. seeks applicants for the position of Programmer Analyst in Wheatridge CO to engage in moderately complex tasks in a number of computer and software related areas. Requirements for the position include having a bachelor's degree in computer science, information systems or related field and working knowledge of Visual Basic, SQL Server, Oracle and maintenance of Windows-based server networks. This position is entry level. Respond by resume to Eric Rasmuson, Chemical & Hygiene, 10201 W. 43rd Ave., #201, Wheatridge, CO 80033.

Senior Software Engineer: Design, implement and test data communication products. Work in C, C++ and Assembly to help deliver communication products to the company and customers. Design and develop low level system drivers for communication with TCP/IP stack and other networking layers. Design and develop test suites to actively test and passively monitor various services enabling real-time, pervasive and flexible monitoring of the IP network. Perform development using expertise in TCP/IP, RTP/RTCP, SIP, Radius, DNS, HTTP, SMTP, POP3, IMAP and various other IP based protocols. Perform development and debugging on Power PC based architectures using OSE. Requirements include a Bachelor's degree or equivalent in Computer Science, an Engineering discipline or related field and four years of work experience in related field of software development. Applicants must have unrestricted authorization to work in the United States. Salary $83,980/year. 40 hours/wk. Respond with two copies of resume to Case #2002004S9, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

Inventory Systems Analyst (Memphis, TN) - Collection and analysis of warehouse operations data in Excel, including capacity levels, replenishment levels and reporting of inventory data. Responsible for setting up queries of Microsoft Access, SQL and Relational Database Management tables to facilitate data retrieval of pertinent inventory stocking and shipping information. Designs and implements warehouse process flow by effectively building putaway, picking, and replenishment instructions. Must have a Bach. Deg., or foreign deg. equiv., in Business Admin., Mgt. Info. Sys. or related field. Must have 2 yrs exp. in the job offered OR 2 yrs exp. as a Systems Analyst. Exp. mentioned may have been obtained concurrently and must include 2 yrs of exp. in each of the following: Microsoft Access Query, Excel, SQL, and Relational Database Management. Must have proof of legal authority to work in the U.S. Submit resume to: A. Malone (REF:ISA), Human Resources, 1800 Pyramid Place, Memphis, TN 38132.

MIS/Programmer Analyst wanted by Orbitech, LLC, a small fast growing company. Candidates must have minimum bachelor's degree with exp. in IT project management and sales. Attractive wage with full benefits. Please contact 1859 Timber Trail, Ann Arbor, MI 48103. EOE.

Corporate Computer Services (CCS) has multiple openings for System/Programmer Analysts for both entry & experienced levels (minimum BS). Skills in following areas C/C++, VB, Oracle are plus. We are small but we do not lay off. Attractive wage w/ benefits. Apply HR@ccsusa.net.

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Taylor Business Institute, an educational institution seeks to fill the position for an IT Instructor in Chicago, IL and unanticipated locs in US. Must have BS and 2 yrs s/ware experience. Respond by resume to Attn: Janice Parker, Taylor Business Institute, 200 North Michigan Ave., Suite 301, Chicago, IL 60601.

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Oracle Application Engineer -- Develop application software using Oracle Technologies database in the back end and Developer 2000 (Forms6i/Reports6i) in the front end. Apply expertise with Oracle PL/SQL, application server, and stored procedures to assist in the development of Internet/Intranet applications and reports for Company. Provide application support to all user departments. Requirements: B.Sc. in Computer Applications, Comp. Science, Computer Engineering, Electrical or Mechanical Engineering and 2 years experience in job offered or 2 years in software development in Oracle or Java Technologies. Candidate must also possess demonstrated expertise developing applications, forms and reports using Oracle technologies; demonstrated expertise developing applications using On-line Transactions Processing (OLTP). Will supervise 0-3 employees. Salary $72,000/year, M-F, 9:00-5:30. Send 2 resumes to case Number 2002904S48, Labor Exchange Office, 19 Stamford, 1st Floor, Boston, MA 02114. EOE. Applicants must be US workers eligible to accept full-time employment in US.

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Paymap, Inc., a Division of First Data Corporation, a company in Greenwood Village, CO has an opening for an Application Architect to work in San Francisco, CA. Analyze, design and develop applications software for company's direct marketing team using Java, JSP, Enterprise Java Beans, Cold Fusion, and PL/SQL. Requires bachelor's degree in computer science, engineering, or related field; 2 years as a software engineer; and working knowledge of Java, JSP, Oracle databases and PL/SQL. Respond by resume to Norm Barnett, First Data Corp., 12500 E. Belford Ave., Mail Stop M21B12, Englewood, CO 80112 and refer to job #4440MA.

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Sr Internet Software Developer, TSYS. Lead a distributed team of developers towards successful project execution; work w/ lead Architect, business analyst, and project manager in designing and developing solutions for client and/or product; perform functions of developer, system analyst, designer & tester; and implement web-based n-tier applications using Object Oriented conceptual skills.

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Seeking qualified applicants for the following positions in Memphis, TN: Senior Systems Programmer. Devise procedures to solve complex systems and applications problems. Requirements: Bachelor's degree" in computer science, MIS, engineering or related field plus 5 years of experience in systems programming. Experience with UNIX, C and logistics code development also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

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Programmers with advanced technical skills to program interrelated business operations and merchandising applications. Skills to include ERD, DSD and dataflow diagramming. Send resume to Human Resources, Attn: SL, Req #333, Cleveland Indians, P.O. Box 94954, Cleveland, OH 44101-4954. EOE.

Programmer Analyst needed w/exp in using Java, VB, C++, JDBC, Weblogic, XML, XSL, ASP, IIS, LDAP, Sybase, SQL Server & Oracle on Windows NT & Unix Platforms. Send resumes to Open Systems Technologies, Inc., 8 Winter Street, 6th Floor, Boston, MA 02108

Programmer/Analyst: Analyzes, designs, develops and modifies client/server based applications, to facilitate access, analysis and report generation using, novell/java and mathematical regression algorithms for accounting department. Position requires Bachelors degree in computer science or equivalent and two years experience in job offered. Send resume to 5200 Vineland Road, Suite 200, Orlando, Florida 32811. Attention: Laurie Mooty.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree" in computer science, MIS, information technology, engineering or related field plus 5 years of experience in systems/applications development. Experience with Java; either C or C++; and development of transactional distributed systems/applications also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Programmer Analyst, Wilmington, DE. Bachelors in Comp. or Electronics or MIS + one year exp. In design, develop & implement net enabled applications utilizing Java, HTML, XML, Java/RMI, CORBA, EJB, ASP/JSP, C, SQL, and PL/SQL and do OOP using C++ and C # for Windows 98/98/NT & Unix; design GUI using VB, Web sphere, Visual Age for Java and Developer 2000; design & develop RDMBS using Oracle, SQL Server, MS Access, DB2 and generate reports using JDBC, Forms 5.0, Reports 2.5. Respond to HR Dept., Neotech Solutions Inc., 1170 Broadway, Suite 314, New York, NY 10001.

Programmer Analyst - Pharmaceutical/Life Sciences Co seeks Programmer Analyst-L0/I3 to do systems development, software testing, technical writing & provide support for scientific-related systems. Reqs. masters degree w/ concentration in CS or MIS, software development life cycle (SDLC) expertise in the pharmaceutical industry & lab-based science background. Send CV & salary requirements to Aventis Behring, LLC att: Jill Hansen, 1301 N. Kinzie, Bradley, IL 60901.

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Principal Technical Support Specialist/Team Lead (User Support Analyst Supervisor) – Supervise staff of Support Engineers in performance of technical support services for customers & users of company's leading edge object oriented database & e-business platform systems. Will provide software solutions for customers w/ particularly complex tech. problems, review customer requirements, track tech issues, identify potential software problems, engage in performance tuning, participate in test cycle of new products, generate reports & perform coding tasks as necessary using object oriented technology with C++, UNIX and/or Windows. BS in Comp. Sci. & 5 yrs progressive exper. in software programming/analysis or engineering & at least 2 yrs exper (combined or separate) in direct tech support engin w/ customers & in programming in C++, requires proficiency in object-oriented programming, Visual Basic and SQL, & understanding of Object Store server process. Will accept MS degree in Comp. Sci. & 2 years specific exper in lieu of B.S. and 5 years. 40 hours/week. Salary: $88,488/yr. Send two applications to **Case #2001139814**, Labor Exchange Office, 19 Stanford St 1st Fl. Boston MA 02114

Sr. Systems Analyst sought by pharma R&D Co. in Plainsboro, N.J. Candidate must have a Bachelor's degree in a comp. sci. or eng'g field & 8 years of IT exp or a Master's degree in a same field of study & 3 years of IT exp. Pharma exp. preferred. Must have experience in Java, JSP, Java Servlets, Doclets (must have coded and used Java Doclets), EJB, JDBC & other J2EE technologies, HTML, ANT, XML, WebSphere V4.0 Application Server, WebSphere Studio Application Developer V4.0, Jbuilder, JProbe, Oracle, SQL, ClearCase and Rational Rose UNIX exp. & exp. w/ other Object Oriented Languages (such as C++) a plus. Ability to work independently as well as in a large team environment in a senior role is also required. Must be able to ensure accuracy of system documentation & communicate effectively w/ development staff & information mgmt personnel. Send resume to: Strategic Staffing, Bristol-Myers Squibb Co., P.O. Box 4000, IMS E14-12, Princeton, NJ 08543, Job Code TD-808.

Developer sought by oncology/therapeutics div. of pharma R&D co in San Francisco, CA. Candidate must have a Bachelor's degree or equiv in Computer Engineering or related. Min. of 5 years experience in application development & database design & development on Oracle platform required. Extensive exp. in OOAD, Object Oriented Programming, DBA, database design tools, data modeling tools (ERWin), SQL, PL/SQL, Unix (shellscripts, FTP automation), Java, Oracle 8i database, Oracle 11i applications (order fulfillment), Blue Martini CRM and HTML, pharma, pricing s/w customization required. Experience in pharma, pricing required. Must have strong analytical skills in pricing infrastructure, information services & data analyses, & excellent oral & written communication skills. Send resumes to: OTN, Staffing Dept., 395 Oyster Point Blvd., Suite 405, South San Francisco, CA 94080, Job Code VM-764 or fax resume to: (650) 737-9576 or email to: jobs.otn@otninet.com

Database Administrator - SQL wanted to oversee efforts associated w/ the planning, admin., & oper support (24-hr by 7-day) of client/server database mgmt. systems (DBMS) & related technologies in a multi-vendor, multi-platform computing environ. Resp. incl. installation & maintenance; storage planning & utilization monitoring; performance/availability monitoring, debugging & problem resolution; backup/recovery configuration & data integrity monitoring; data archive design & mgmt.; batch execution scheduling; transactional integration/ interfacing; security configuration & monitoring; programming standards development & quality control evaluation, selection & integration of DBMS tools & technologies. May provide assistance for the following application development functions: Legacy DB migration, DB design, development & testing application program installation/upgrade Enterprise-wide storage mgmt. & business continuity planning. DB development & standards training. Must have Bach deg in Comp Sci, MIS or related field & 3 yrs exper in a database programming/support environ., incl admin. on-call support & database admin exper as well as exper supporting client/server applications in a MicroSoft NT or UNIX environ. 40hrs/wk. Salary $75,000/yr. Send 2 resumes to Case# 2002011239, Labor Exchange Office, 19 Stanford St., st Fl., Boston, MA 02114

The MathWorks leads the market in developing and delivering high performance interactive software products such as **MATLAB®** to the engineering and scientific communities. We have the following positions available at our offices in Natick, MA.

- **Training Engineer**
- **Numerical Analyst**
- **Simulink/Real-Time Workshop DSP Developer**
- **Technical Consultant**
- **Senior DSP Quality Engineer**
- **Senior Communications Quality Engineer**
- **Senior Simulink Applications Quality Engineer**
- **MATLAB Community Online Manager**
- **Senior Software Engineer**
- **Applications Engineer**
- **Simulation & Real-Time Technologies Developer**
- **DSP Blockset Applications Senior Team Leader**

The aforementioned positions are available at all levels and require a minimum of a B.S., M.S., or Ph.D. and 0-8 years experience.

Additional Opportunities in the Following Areas:

- **Software Development**
- **Technical Marketing**
- **Human Resources**
- **Finance**
- **Product Training**
- **Marketing**

For fastest consideration interested candidates should e-mail their resume, indicating position of interest, to resumes@mathworks.com.
Attn: Human Resources - Job Code: CW403, The MathWorks, Three Apple Hill Drive, Natick, MA 01760-2098.

We are an equal opportunity employer

MATLAB, Simulink, Stateflow, and Real-Time Workshop are all registered trademarks of The MathWorks.

www.mathworks.com

Software Engineer

Research, design and develop computer software systems for hand-held automotive diagnostic equipment. MS in computer science or engineering required. Job site in Detroit-based offices. Please send resumes to:

Vetronix Corp.,
HR Department
3030 Alameda
Padre Serra
Santa Barbara, CA 93103
No phone calls please.

Software Developer II. Maintain prgm in Tempest Messaging System using C++; dvlp, implmt & maintain applic components & features; perform unit testing; dvlp applics using C/C++, MFC, VB .NET, C# & Managed C++; provide tech assistance to end users, write prgm & job stream documentation. B.S. Comp. Sci., MIS or rel. field + 2 yrs exp. as s/ware engr or similar duties under different job title. 2 yrs exp w/configuring & prgmg using Tempest Messaging System & dvlpg s/ware in CMM level 3 envirnt. Prgmg exp with: C/ProC/C++/C#, VB6, ActiveX, COM, MFC, .NET Framework, & UML. Exp w/following dvlpr tools: PVCS Tracker; PVCS Version Mgr; **NuMega** BoundsChecker; Visual Studio 6; Visual Studio.NET; MS Visio 7.0; & MS Installer. 40 hrs/wk, $50K/yr. Must have proof of legal auth to work in US. Send resumes to IA Workforce Center, 1700 S. 1st Ave., Ste 118, IA City, IA 52244-2390. Please ref. to JO IA1101667. Employer paid ad.

APPLICATION SYSTEMS ARCHITECT. Responsible for application systems design, balancing optimization of application access with resource use factors. Design and construct application systems and develop requirements and design specification for new and existing applications. Create, revise and maintain document requirements for data, workflow, logical processes, hardware and operating system environment, interfaces with other systems, internal and external checks and controls, and outputs. Require Bachelor's degree in Computer Science, Engineering, or a closely related field, with 4 years of experience in the job offered or as a Software Programmer/Consultant. Experience must include 2 years of application systems design experience using Visual Basic and SQL Servers. Send resume to: Recruiter - Human Resources, AgriFirst Farm Credit Bank, P.O. Box 1499, Columbia, SC 29202. (No Phone Calls Please).

Software Engineer wanted at NY Office of Empact Solutions to design, develop, test and implement EyeD software. Experience with Websphere, WBAD, JAVA, J2EE, JSP, Struts, SLA-standards, Servlets, LDAP, CVS, Apache, Linux/UNIX and Win2000. Must have design, analysis, and modeling capabilities of business requirements using UML and RUP. Capable of interfacing with marketing and customer care groups. Data Mining, Statistics, Trends, Predictive and Inference Analysis capabilities. Database knowledge: DB2, Oracle, MySQL, or Sybase. Object oriented design and programming required. Should have a Master's Degree in Computer Science or Engineering and have at least 2 years experience. Send to NY Recruiter at careers@empactsolutions.com referencing code SSNOG.

IT Consultant (Business Process Analysis): Perform systems requirements analysis including considering and evaluating alternative solutions as well as aiding and providing functional design plan. Produce systems specification and perform systems and component engineering. Working with clients to conduct testing including integration testing using a variety of software engineering tools. SQL and Object Databases. Conduct Business Process Analyses of the client's business and provide systems maps for the same. Assisting clients in project management, planning and implementing change management programs and post-implementation evaluations. Working with clients in implementing systems and component test plans development. Requirements include a Master's degree or equivalent in Business Management, an Engineering discipline or related field. No work experience required. Requires 70-75% domestic/international travel. Applicants must have unrestricted authorization to work in the United States. Salary: $65,000/year. 40 hours/wk. Respond with two copies of resume to Case #2002201020, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

DATABASE ANALYST. Duties include: DBA Administration support for 15 applications as primary and 20 applications as secondary DBA for Group. E-business, Investments, Individual and CIS business units. Under general supervision. DBA is responsible for: Physical database design and optimization from logical models utilizing modeling tools. Implement and maintain databases and database utilities on MS SQL server and Sybase SQL Anywhere. Administer security within DBMS facilities. Definition and maintenance of replication and transformation products (DTS) and facilities. Perform database change requests and assist application community with application tuning. Install, configure and upgrade DBMS software and databases, and apply service packs. Maintain daily monitoring scripts and alerts. Min Reqts.: BS/BA (foreign equivalent accepted) in CS, IT, EE or related AND 4 years of experience in the job offered OR 4 years experience with database design and administration PLUS, must have demonstrated knowledge and work experience with: (1) Logical and physical data modeling, warehousing, design and installation of large distributed environment database systems; (2) MS-SQL Server, Oracle, UDB & Sybase environments; and (3) T-SQL, Perl Script, Power Design and ASP technologies. Basic pay range is $89,100-$75,500 per year FT and standard company benefits. EEO Submit 3 resumes and respond to Case No. 2001 19832, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

Consultant Software Engineer /Developer to serve as a lead technical consultant responsible for analysis, design development, and implementation of business applications for both internet and intranet. Will work with team of developers using Java and C/C++ under Windows and UNIX to develop, test, and debug client/server applications in development environments including IBM Websphere, IBM VisualAge and MS Visual Studio. Will perform all graphical user interface (GUI) and database development for various systems. Will establish and monitor project plans, working directly with user community for project definition. Will provide technical evaluation estimates on initiatives and maintain user-external group relationships. Requires Bachelor's degree in Computer Science, Engineering, Mathematics, or Physics plus four (4) years experience on job offered OR four (4) years experience developing client server applications OR, in the alternative, Master's degree in Computer Science, Engineering, Mathematics, or Physics plus two (2) years experience on job offered OR two (2) years experience developing client server applications. Candidate must also possess demonstrated expertise performing object-oriented analysis and design in architecting large scale applications, demonstrated expertise developing GUI and Engines for large scale applications using JAVA, and demonstrated expertise in database installation, stored procedures and performance tuning of ORACLE or SYBASE. Salary $92,200/yr. M-F, 8AM-5PM. Send 2 resumes to Case #2001196231, Labor Exchange Office, 19 Stanford St. 1st fl. Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Network Engineer - SNP Technologies is seeking a network engineer for its Hamden, CT office with CNE and MCSE certification, knowledge of Windows NT/2000 & Exchange servers, Cisco firewall & networks; experience in security aspects of networks, WAN & in administering databases, and 6 years of related experience. Please E-mail your resume to us at:: Resume@SNP.com.

Network Engineer - SNP Technologies is seeking a network engineer for its Hamden, CT office with CNE and MCSE certification, knowledge of Windows NT/2000 & Exchange servers, Cisco firewall & networks; experience in security aspects of networks, WAN & in administering databases, and 6 years of related experience. Please E-mail your resume to us at:: Resume@SNP.com.

SOFTWARE ENGINEER

Design, develop and test computer software for business and scientific applications applying principles and techniques of computer science, engineering and mathematical analysis. Analyze software requirements for system support and administration of IBM RS/6000, Sun Solaris, HP-UX, Microsoft Windows NT and 2000 using expertise in IBM Development Tholi Enterprise Management applications, Tholi Framework, Tholi Distributed Monitoring, Tholi Enterprise Console, Tholi Network and Tholi Storage Manager, BMC Patrol, Tivo Term SSH, use of Perl, Shell Scripting to automate the operations and LAN, WAN, Cisco, Nortel based network devices. Requirements: Bachelor's degree in Computer Science and 4 yrs. experience as a system support specialist, software engineer or programmer. Salary: $84,240/yr. 40 hrs/wk. Apply Manager, Beaver Co. Team PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957. Refer to Job Order No. WEB 330777

Systems Analyst: Design, develop and implement software systems, incl. telephony, radio and satellite. Use expertise in C, SNMPC, GSM system, etc. 2 yrs exp. in job off'd or 2 yrs exp. in related pos. w/same duties & BS in Enng, Comp. Sci. or related. EOE. Contact: SP Software Solutions, Inc., 12320 Clairmonte Ave., Alpharetta, GA 30004.

Software Engineer (with Masters degree and 1 year experience) - Williamsport, PA. Job entails and requires experience in design, development and implementation of applications using SAP (ABAP/4, FI, MM, HR, BW), Oracle, SQL Server, APO, JAVA, C and C++. Relocation within USA possible. Attractive compensation package. Send resume to Supriya Palayekar, Palayekar Companies, Inc., 1959 East Third Street, Williamsport, PA 17701.

The United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is seeking a qualified professional for the position of:

Project Manager

(Palestine Refugees Records Project "PRRP"), HQ/Amman

As a Senior Professional within the department of Operational Technical Services, the Project Manager will be expected to:

- initiate, manage and oversee implementation of the PRRP,
- assess essential computing requirements for users in the Relief & Social Services Department,
- analyze, gather the required information and develop a high-level user requirements document,
- prepare a proposal, lead, negotiate its process of evaluation review and monitor the development,
- arrange, supervise the development and make recommendations.

Senior level experience in managing large application development projects and thorough knowledge and exposure to modern tools, experience with project management tools and techniques and ability in collecting user requirements through variety of techniques, are essential.

Further information about this outstanding opportunity and how to apply are available from **www.un.org/unrwa/emp.html. Applications close 4 May 2003.**

Business Objects has an opening for the position of Senior Consultant to be based out of our Atlanta, GA office. Responsible for consulting on the implementation and management of Business Objects Software Suite within a particular clients organization. Perform SQL database programming, programmability, object oriented software design, database management (DBA), client relations, and manage project deliverables. Utilize Visual Basic, Active Server Pages (ASP), Java, and JavaServer Pages (JSP). Utilize expertise in Web-intelligence with SDK on both the WIBEAN and WICOM models. Design and deploy Intranet and Extranet Architecture for Webintelligence. Configure SDK using application and web servers. Design and deploy Business Objects Security for single sign on. Requires Bachelor's or equivalent and 4 years of relevant experience. Background in all of the following also required: Webintelligence with SDK for both WIBEAN & WICOM models with actual customization and deployment in NT & UNIX, design/deployment of Intranet & Extranet Architecture for Webintelligence) involving CORBA deployment, TCP-made deployment, and deployment across the firewall; Configuration of SDK using application servers (iPlanet, Websphere, Tomcat) and webservers; design/deployments of Business Objects Security using Supervisor Module for single sign on. May require travel. To apply for a position visit our website at www.businessobjects.com/careers or forward your resume (ref CW0403) to: Business Objects Americas, Attn: Staffing, 3030 Orchard Pkwy, San Jose, CA 95134. EOE

Full-time Industrial Engineer. Responsible for optimizing productivity and improving service while identifying lower cost opportunities by evaluating different strategies. Optimizing the central warehouse and network as well as determining the short and long term ramifications. Assist in economic decision analyses. Analyze processes within to determine ways to streamline operations. Analyze and model new technology that may be used as well as their cost benefit. Assist with the development and the implementation of the applications that will lead to cost effective solutions. Works with universities to jointly develop technologies that will benefit SPL. Work with Operation Research both in computational and algorithmic skills: dynamic programming, programming, simulation and statistical analyses. Arena, AutoSched, Game, Lindo, AMPL, Matlab. These duties are performed under the direct supervision of immediate supervisor. Must have Bachelors Degree in Industrial Engineering or related field. Employer will accept Masters in lieu of Bachelors Degree. Educational background must have included the above-referenced skills. Salary Competitive. Employer will not sponsor for visas. Send resume to: Robbin Lee, United Parcel Service, 12380 Morris Road, Alpharetta, GA 30005.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in Plumtree, Vantive, .NET and Oracle. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Plumtree, Vantive, .NET and Oracle. Salary: $65,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager Butler County CareerLink, Pullman Commerce Center 112 Hollywood Drive, Suite 101, Butler, PA 16001. Job No: WEB320214.

System Specialist I - Resp for development of Internet functionality for projects w/in Broadvision framework. Resp incl. lead or participate in analysis, sys design, & sys architecture; program in Java, JavaScript, C/C++, & Oracle; identify areas at risk & present mitigation plans; demonstrate expert understanding of sys design & development, technology support, & data processing standards; assess impact of technology support orgs on system's technical direction; provide consultative services for technical business opportunities; train business units on new or changed products, processes, & services. Min req's: Bachelor's in Computer Sci, Engg, or rel field + 2 yrs exp in job offered, or 2 yrs exp as Systems Analyst or Software Engineer. Must have unrestricted authorization to work in U.S. M-F, 8AM-5PM, 40+ hrs/wk. Salary $65,400-$80,000/yr. An EOE. Send 2 copies of resume to Case No. 200116584, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using a combination of the following: RS/6000, SUN SPARC, SUN ULTRA, SUN ENTERPRISE, HP 9000, AIX, LOGICAL VOLUME MANAGER, IBM RAID, SSA, TCP/IP, SUN CLUSTER, HIGH AVAILABILITY, SUN RAID, VERITAS VOLUME MANAGER, NIS, NIS+, NFS, MC SERVICE GUARD, HP OPENVIEW, LINUX, FREEBSD, GNU. Travel and frequent relocation required. $65K/yr 40hrs/wk EEO/AAP/M/F/V/H. Please Submit Resumes to: Fayette County Team PA CareerLink, ATTN: JS Supervisor, 32 Iowa Street, Uniontown, PA 15401-3513. Job Order No: WEB 319547

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using a combination of the following: WINDOWS 95/98/00/NT, UNIX, ORACLE, VISUAL C++, C, C++, POWERBUILDER, MFC, CRYSTAL REPORTS, VISUAL BASIC, COM/DCOM, CORBA. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Site Administrator, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Job Order No: WEB 319671

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using one of the following: PeopleSoft, SAP, BAAN, Oracle Applications/Financials/Manufacturing/HR. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Job Center/CareerLink Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701. Job Order No: WEB 319919

GRAPHIC DESIGNER

WCI Communities, Florida's premier developer of luxury homes, is seeking an experienced Graphic Designer for our Bonita Springs location.

Requires a minimum of 2 years related experience and a Bachelor's degree in Advertising/Graphic Design.

Please fax resume to (239) 498-8399 and please reference Job Code MKF-CM. Web: wcicommunities.com. EOE/Drug Free Workplace.

SENIOR PROGRAMMERS

needed to program, implement and test software applications using VC++, Oracle and Informix on UNIX platforms with automated test tools. Bachelors required in Math, Computers, Engineering or any other related field of study, plus 2 yrs of experience. Must have proof of legal authority to work in the U.S.

Salary: $70,000.00/year for a 40 hour work week.

Interested applicants contact the Site Administrator, Greene County Team PA Career Link, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order #WEB320207. Ad paid by An Equal Opportunity Employer.

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent or equivalent combination of education and experience as a computer professional in lieu of Bachelor's. Degree must be in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using one of the following: Informix, Oracle, FoxPro, Sybase, SQL Server, Progress. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: McKeesport CareerLink, ATTN: CL Program Supervisor, 345 Fifth Avenue, McKeesport, PA 15132-2600. Job Order No: WEB 319889

SOFTWARE APPLICATION ENGINEER

Develop software for the Famine Early Warning and Environmental Monitoring project. Develop and maintain websites for Afghanistan, Haiti and Central American regions. Use a combination of ESRIs GIS technologies for developing web-mapping applications relating to Stream Flow modeling in Southern Africa, Greater Horn of Africa and Mozambique regions. Knowledge of web technologies ActiveX, Phplot, IIS Security, 508 Web Accessibility Standards. Knowledge of GIS technologies ArcIMS, ArcGIS, ArcSDE, MapObjects. 40 hours per week. $61,210.00/year. 8:00 a.m. to 5:00 p.m. Bachelor's degree or equivalent in Computer Science/Engineering or related field. Must have proof of legal authority to work in the United States. Send your resume to: South Dakota One-Stop Career Center, 811 E. 10th Street, Sioux Falls, SD 57103-1600. (605-367-5300(T), (605-367-5308(F). Please refer to Job Order #SD1222908

Software Engineer – FT Design, build, customize & monitor software systems. Related BA/BS Deg req. (or functional US equivalent) + 2 yrs min exp in job offered or IT industry. Competitive Salary. Multiple positions for roving worksites throughout US. Mail resume to ECS, HR Director 2675 NE 191 St #701 Aventura, FL 33180.

SENIOR PROGRAMMER/ANALYST to lead a team in the analysis, design, development and configuration of large Mainframe/UNIX/Windows based application software for the retail and manufacturing industry using COBOL, CICS, JCL, CA-Interlest, Expeditor, Roscoe, TSO, Endevor, Visual Basic, Developer 2000, PL/SQL, Seer, HPS Rules, DB2, Oracle, CA-Data-com, SQL*Loader, DB2-Platinum tools, DB2-TMON, File-Aid, Control -M scheduler, MS Source Safe and MS Project. Require: B.S. degree in Computer Science /Engineering, or a closely related scientific field with two years of experience in the job offered or as a Systems Analyst. Competitive salary offered. Apply by resume to: Sophie Mookerjea, President, Software Paradigms International, Inc., 3901 Roswell Road, Suite 134, Marietta, GA 30062; Attn: Job KS.

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using a combination of the following: ASP, HTML, CGI, PERL, MTS, IIS, JAVA, JAVASCRIPT, JAVABEANS, COLDFUSION, BROADVISION, ATG DYNAMO, .NET DYNAMICS, WEBSPHERE, FRONT PAGE. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Job Order No: WEB 319910

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign equivalent or equivalent combination of education and experience as a computer professional in lieu of Bachelor's. Degree must be in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using one of the following: PeopleSoft, SAP, BAAN, Oracle Applications/Financials/Manufacturing/HR. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5698. Job Order No: WEB 319904

Programmer Analysts - analyze, design, development of software/applications in database, web/internet, client/server applications. Min Edu-BS in Comp.Sc./Engg or equi, Min Exp-2 yrs. Job may involve working at various locations throughout the US. Please send resumes to Attn: RR, 1022, East Divide Ave Suite D, City of Bismarck, ND 58501.

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using one of the following: PeopleSoft, SAP, BAAN, Oracle Applications/Financials/Manufacturing/HR. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Job Center/CareerLink Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701. Job Order No: WEB 319919

Software Engineer consulting positions - Develop, create, modify computer systems/applications software and specialized utility programs; analyze, design databases, evaluate user needs, develop software solutions. Bachelor's degree or foreign or functional equivalent in one of several limited fields: CS/CA, Eng., Chem., Math, Physics, or scientific or business related field. Must have one year of experience using one of the following: PeopleSoft, SAP, BAAN, Oracle Applications/Financials/Manufacturing/HR. Travel and frequent relocation required. $65K/yr 40hrs/wk. EEO/AAP/M/F/V/H. Please Submit Resumes to: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759. Job Order No: WEB 319910

Systems Analyst - Must have B.S or equivalent in MIS, Computer Science or Related. Must have 3 yrs. of experience in the job offered or 2 yrs. of experience as a Software Consultant. To participate as part of a team on Business or Manufacturing Systems in the analysis, development and implementation of projects by using Visual Basic, C++, ASP, MSMQ and MTS, IIS, HTML, XHTML, Visual Interdev, SQL Server, Crystal Reports and object oriented analysis. Provide on a regular schedule, 24 hour, 7-day on-call problem resolution support for Business and Manufacturing Systems. Investigate and resolve problems in business system. Train employees on the use of new system functionality. To work 40 hours per week from 8am-5pm. Qualified applicants must send resumes to HR, Russell Corporation, Systems Analyst Position, 3330 Cumberland Blvd., Suite 800, Atlanta, GA 30339

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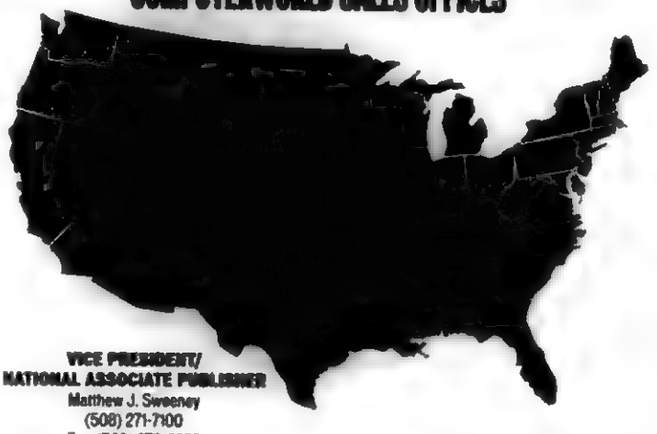

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Windows

Life Insurance Co. in London, Ontario. "We will also skip upgrades if there's no immediate need or benefit."

Many IT managers, however, expressed keen interest in some of the new features in Windows Server 2003, particularly the improvements to Active Directory (see box), and some said they will start migrating this year.

James Hudson, director of IT worldwide at J. Walter Thompson Co. in New York, said he expects the advertising agency to move to the new operating system in three to six months because of the added stability of Active Directory. The company is currently running a mix of Windows NT and 2000 and Novell Inc.'s NetWare.

Hudson said the efficiency designed into the replication topology of Active Directory will be important, since his company has a large global Active Directory deployment distributed across several offices. "Having greater control in how we manage replication across WAN links with bandwidth constraints will allow us to efficiently schedule replication intervals," Hudson said.

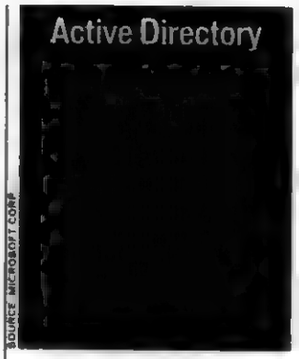
Early Adopter

Andre Mendes, CIO at Public Broadcasting Service (PBS) in Alexandria, Va., said his company's migration within the next six months will be driven by new Active Directory and Exchange 2003 features, improved security and the shadow-copy feature for creating backup copies of files or folders to prevent inadvertent loss of data.

Mendes said PBS has been testing Windows Server 2003 for a few months and has been satisfied with its new features and stability. Plans call for a near-immediate migration of domain controllers and Active Directory. Others systems will follow within six months, as PBS moves off Windows 2000 and Sun Microsystems Inc.'s Solaris operating system, Mendes said.

But PBS hardly represents the norm, according to Gartner Inc. Analyst Tom Bittman said he expects only about 5% of Windows 2000 users to move by year's end, with another 15% to follow by the end of 2004.

Bittman also predicted that companies still using Windows NT 4.0 won't rush to upgrade either, despite a 2004 end-of-support deadline. Those companies tend to be conservative by nature, he said, adding that he doesn't expect more than 25% to 33% of the existing NT base to migrate to Windows Server 2003 by the end of next year.



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"Nobody is making any kind of IT purchases unless they have a good business case," said Dwight Davis, an analyst at Summit Strategies Inc. in Boston. "People are not going to be looking at Windows Server 2003 purely in technical terms."

Jim Hebert, general manager of Windows enterprise servers at Microsoft, said the company is well aware that IT spending is flat and probably will be next year as well. So Microsoft will focus on trying to help customers understand the benefits they might see from an upgrade, he said.

One popular theme is server consolidation, a benefit that Steve Sommer, CIO at Hughes Hubbard & Reed LLP, said he hopes to achieve with an upgrade that may start as early as the fourth quarter. The New York-based law firm now has a mix of Windows NT and 2000.

Other migration drivers for Hughes Hubbard include the impending end of support for NT and the company's huge licensing and support agreements with Microsoft, which make "it a shame if you don't do some upgrading," since the new software is already paid for, Sommer said.

Even so, some companies may resist making a quick move because of the labor costs and disruption associated with a server migration. Others simply don't like to test Microsoft software until the bugs get worked out in the first service pack.

Raymond Leitz, director of technical services at AutoNation Inc. in Fort Lauderdale, Fla., said his company prefers a six- to nine-month "cooling period" before considering new Microsoft server software. ▶

NEXT WEEK

Four early adopters discuss their experiences with Windows Server 2003. See the **Technology Section** in next week's issue.

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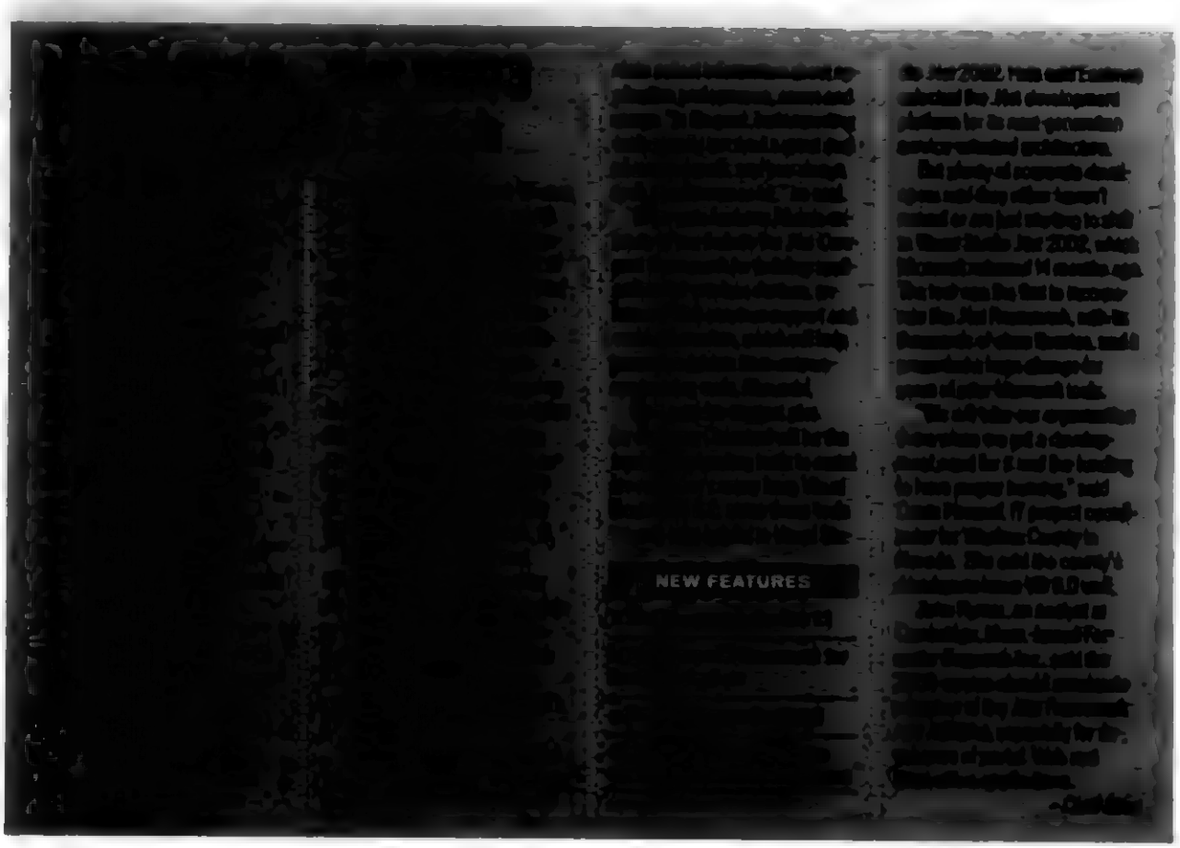

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Secure Your Users

AT THE RSA SECURITY CONFERENCE last week in San Francisco, the big news was a new set of cybersecurity best practices, a new application vulnerability description language and a push for Web services security, along with the usual collection of new IT security products (see story, page 8). Considering what a messy, continuously changing security picture we face, it's all worth digging through when you get the chance. Piling more security technology onto your networks and servers and desktop PCs is usually a useful thing.

But while you're upgrading your security technology, don't forget to upgrade security in your users, too.

Not *for* your users. *In* them.

Look, you've got firewalls and virus filters and intrusion-detection systems. You scan logs and tune settings. You go hunting on a regular basis for unauthorized wireless gateways and off-the-network modems. You've built a security fortress, and as long as your users are inside that fortress, they're pretty safe.

But they won't stay inside that fortress. Inexpensive technology lets office workers take the office with them wherever they go — or at least it seems that way. Maybe it makes them more productive, but it also exposes all that office activity to the world outside the protections of their real office.

Cheap wireless access points make home networking easy. But they can also expose access to your networks and data if an office worker connects from home while still hooked up to his wireless network.

Cell phones make it easy for outsiders to eavesdrop on business conversations. Laptops with big, clear screens make it easy for people even a few seats away to read confidential documents. An enterprising snoop can even copy hundreds of megabytes of information from a laptop with a CD burner left running on an airplane seat while its owner waits in line for the lavatory.

Laptops are thief bait in airports, parked cars and even overhead bins in airplanes, and they're typically stuffed with confidential business information. But so are handheld computers, which can easily hold documents, spreadsheets and databases these days — and are much easier to steal than laptops.

And that's just the tip of the iceberg. There are endless ways users can compromise the security of business information once they're outside the office, and there's not much you can do about most of them. They're outside your security perimeter — beyond your reach.

Yes, you can add more security technology. You can try to chase down and block off every security hole in each user's portable office.

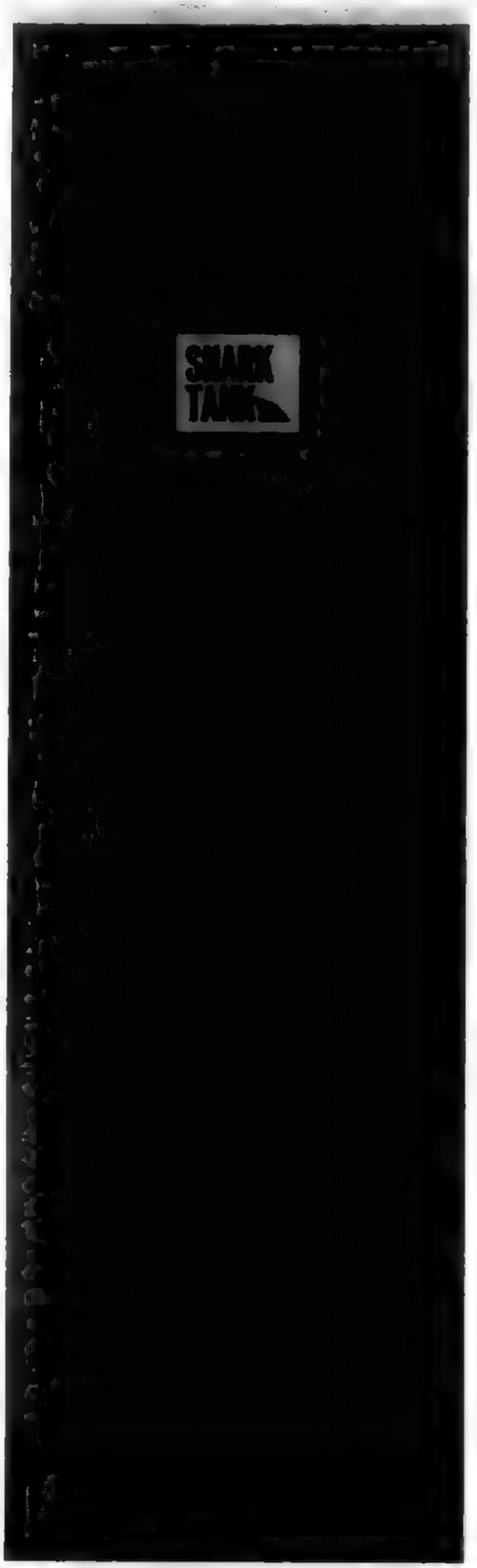
But none of that will be as effective as improving the security in the user.

Because in the end, security is a set of disciplines practiced by users, not just a set of technologies implemented by IT. Security awareness, good habits and common sense on the part of users won't replace firewalls and intrusion detection. But the technology alone won't be much use without security-smart users.

So, what can you do to upgrade your users' security? These days, you don't have the budget to send them to security classes. But you *can* send them reminders to be security conscious. Point out specific risks of wireless hubs, laptops, handhelds and other technologies outside the office. Make specific suggestions for avoiding those risks. And offer help if users have questions or problems.

And when they do call for help, don't just tell them, "No, don't do that!" Work with them. Look for options and alternatives. Find solutions that you *and* they can live — and work — with.

Build real security into your users. Then you'll find out just how useful all that security technology can be. ◗



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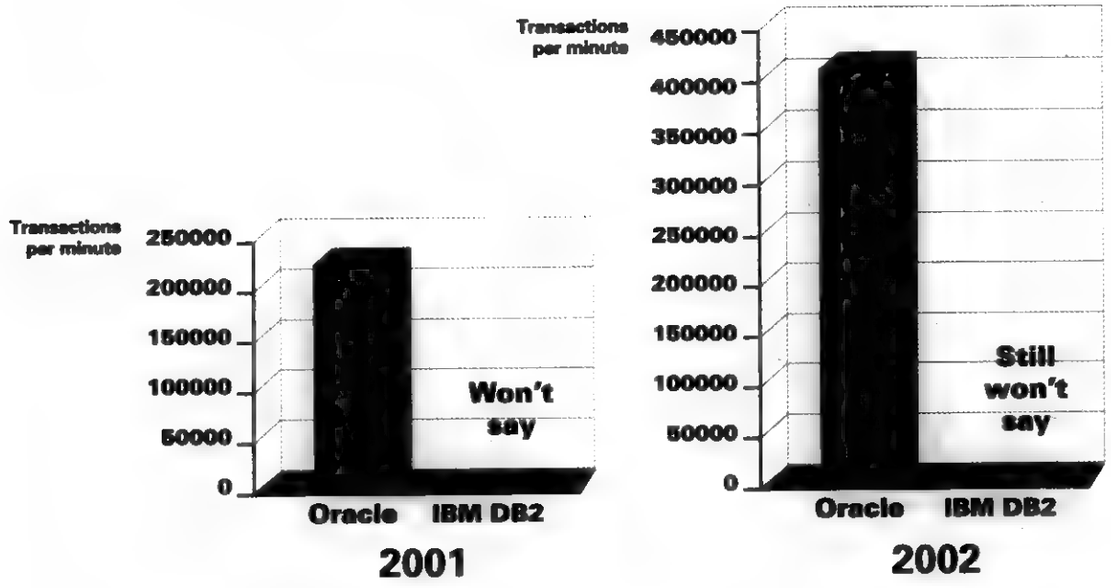

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A Work in Progress

Hewlett-Packard's acquisition of Compaq Computer one year ago next week has pleased some users and angered others. High-end system operators say the merger has yielded a welcome focus on critical systems. But users of midrange and low-end equipment say they're feeling ignored. Patrick Thibodeau reports on PAGE 6.

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New Health Data Net May Help in Fight Against SARS

Consortium plans trial of national network that could alert officials to epidemics, bioattacks

BY BOB BREWIN

A consortium of public health agencies and health care companies in June plans to launch a three-month test of a data collection and distribution network that's designed to act as an automated early-warning system in the event of epidemics like the global spread of the SARS virus.

The Web-based network could also alert health care officials to possible bioterrorist attacks, said Janet Marchibroda, CEO of the eHealth Initiative Inc. consortium. Marchibroda confirmed the basic details of the trial run that's being planned by the Washington-based group, which has about 115 members, including major vendors of health care IT systems.

Some cities, including New York, developed local systems similar to the one envisioned by eHealth in the wake of the Sept. 11 terrorist attacks. But the U.S. lacks a cohesive and standards-based network that can be used nationwide, according to Marchibroda.

She said nine hospitals across the U.S. plan to take part in the test of eHealth's proposed National Healthcare Collaborative Network, along with local, state and federal health agencies that she declined to identify. Marchibroda also wouldn't name the IT vendors that will participate, or comment about the tech-

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Union seeks role in Bank of Ireland's negotiations with HP

BY THOMAS HOFFMAN

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Officials from Dublin-based Bank of Ireland and the union that represents its IT workers met last Tuesday for their first talks since the outsourcing plans were disclosed earlier this month. HP would take over management of the bank's networks and its desktop, midrange and mainframe systems as part of the deal, which is expected to be worth $600 million over seven years.

The planned agreement would also include the transfer to HP of about 500 workers from the bank's IT arm, where roughly one-third of the employees are members of the Irish Bank Officials' Association.

On April 16, two days after

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IN AN UNRELENTING PUSH to lower costs, more companies are tapping cheaper offshore labor to handle routine IT tasks such as application maintenance, new software development and even infrastructure support. The net result: fewer and fewer IT jobs for U.S. workers, whose livelihoods are in serious jeopardy. PAGE 39

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HP + Compaq, One Year Later

A Work in Progress

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The National Healthcare Collaborative Network pilot test will

- Use standards-based systems to mine emergency room data and transmit information to public health agencies.
- Support electronic data exchange standards mandated by the federal government.
- Help health officials watch for patient symptoms that could be signs of epidemics like SARS or bioterrorist attacks.

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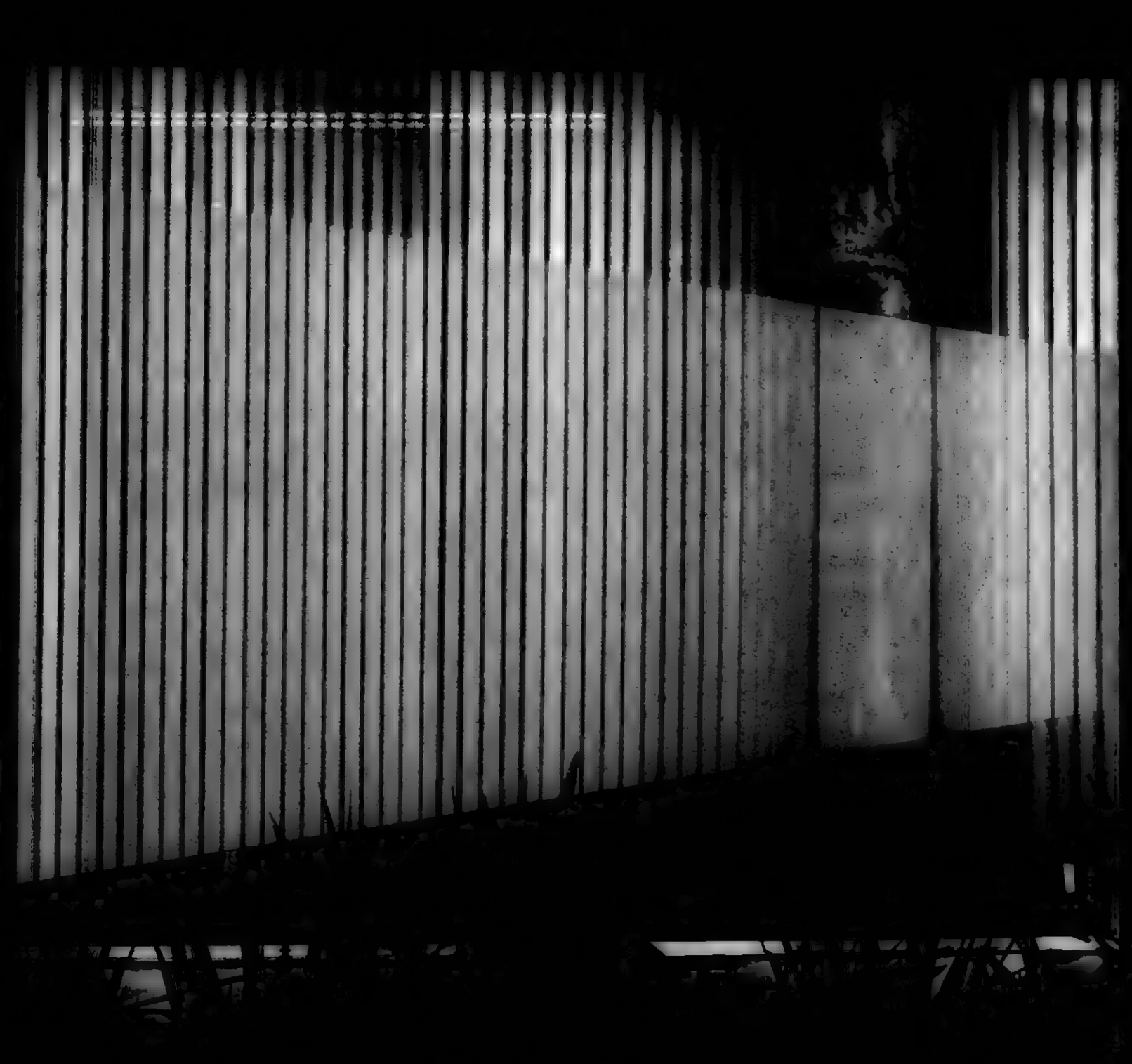

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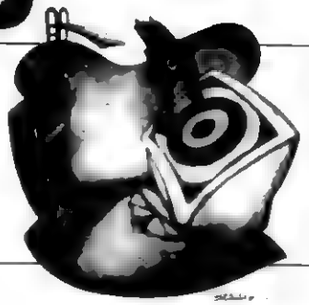

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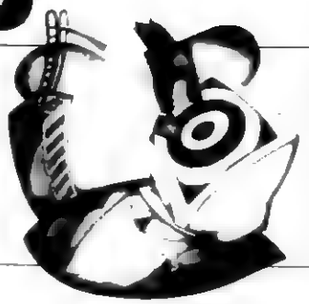

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AT DEADLINE

Microsoft Extends Office 2003 Beta

Microsoft Corp. said that after getting feedback from early users, it plans to release a "refresh" of the beta-test version of its Office 2003 software before starting commercial shipments. That will delay the scheduled launch of the desktop applications upgrade from June to sometime in the third quarter. A Microsoft official said the company is addressing "some minor issues that can impact customer satisfaction."

Security Hole Found To Affect NT 4.0

Microsoft also said that systems running Windows NT 4.0 are vulnerable to a software flaw used to attack Windows 2000 servers in March. When it first warned of the problem, Microsoft said only Windows 2000 was affected [QuickLink 37224]. But the flaw is in a core component in both operating systems, it said last week.

Cisco Warns of Flaw in Software

Cisco Systems Inc. warned of a buffer overrun flaw in the Windows version of its Secure Access Control Server software, which manages access to the company's routers, switches and other devices. The vulnerability could be used to launch denial-of-service attacks or gain system administrator access to devices, Cisco said. Patches are available on Cisco's Web site.

Lucent CEO Will Manage Operations

Lucent Technologies Inc. in Murray Hill, N.J., announced that Chairman and CEO Patricia Russo will take over day-to-day management duties from Bob Holder, who will step down as chief operating officer this summer. Russo said she "decided that it was the right time to consolidate our top management structure."

Intel Moves to Boost Itanium's 32-bit Power

Develops new software to work with the next version of its 64-bit processor

BY TODD R. WEISS

INTEL CORP. last week said the next version of its 64-bit Itanium 2 chip will come with new software designed to improve the performance of 32-bit applications running on Itanium 2 systems.

The new chip, code-named Madison, is scheduled to ship in the second half of the year, said Intel spokesman Scott McLaughlin. He added that the IA-32 software execution layer will give 32-bit applications running on Itanium 2-based servers performance on par with that of systems built around the 1.5-GHz version of Intel's Xeon MP processor. Pieces of the software will be installed on the chip itself and as part of operating systems.

The disclosure of Intel's software plans coincided with chip rival Advanced Micro Devices Inc.'s announcement of its 64-bit Opteron server processor, which also was designed to run 32-bit applications at speeds comparable to their performance on existing systems [QuickLink 37872].

McLaughlin said the IA-32 technology is part of a "natural evolution of 32-bit support on Itanium." The software execution layer has been under development for several years and is currently undergoing validation testing, he said.

But McLaughlin acknowledged that Intel has heard complaints about 32-bit application performance on Itanium-based systems.

Although Intel officials acknowledge that the Itanium processors already include built-in support for running 32-bit applications, real-world performance levels have been less than awe-inspiring, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

By announcing the software plans, Intel is moving "to address what is perceived to be a problem," Partridge said. "The perception is that the current hardware [support] for 32-bit applications on Itanium 2 doesn't give full performance."

That has opened up a potential marketing opportunity for Sunnyvale, Calif.-based AMD. IBM last week said it plans to ship Opteron-based systems later this year, and AMD's new chip also drew promises of operating system support from Microsoft Corp., Red Hat Inc. and SuSE Linux AG.

Charles King, an analyst at The Sageza Group Inc. in Mountain View, Calif., said he thinks Intel will be seen as trying to play catch-up with AMD on 32-bit application support in the wake of the Opteron launch. "That probably woke them up a little bit," King said.

Most users have been telling Intel officials that they plan to move to 64-bit applications when they install Itanium-based systems, McLaughlin said. But a major reason for incorporating the new software layer is to let companies continue to use 32-bit applications that haven't yet been ported to 64-bit systems, he added. ▶

Intel's 32-bit Upgrade Plan for Itanium 2

- New execution software designed to speed up 32-bit applications will be offered with the next version of the processor, which is **due later this year.**
- The software will **provide performance equivalent** to what users can get on existing systems equipped with Intel's 1.5-GHz Xeon MP chips.

IBM to Ship WebSphere 5.0 For z/OS, Alter License Plan

Pricing will switch to mainframe's value-unit model

BY CAROL SLIWA

IBM this week will ship a new version of its WebSphere application server for the z/OS operating system and introduce a new pricing model for the product.

The prior version of WebSphere for z/OS had been priced at a fixed $35,000 per processor. The new edition will adopt the value-unit pricing model that's familiar to IBM's mainframe customers, said David Chew, director of WebSphere enterprise transaction systems.

"We changed for the zSeries because these processors tend to be rather big and powerful, and customers are used to a pricing model that is more akin with their hardware structure," Chew said.

Value units are calculated based on the processing performance of the zSeries hardware. The capacity of the mainframe is measured in millions of service units.

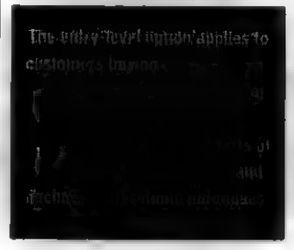
Customers purchase licenses based on the number of processors they actually use, but those with older zSeries models pay less per processor, since their machines perform at lower levels than the newer models. WebSphere has a tool that's designed to help customers determine how many value units they need based on their hardware.

Marcy Nechemias, IBM's marketing manager of WebSphere for z/OS, said existing users of WebSphere for z/OS will see no change in cost. Their inventory will simply show the correct number of value units instead of "engines," or processors.

"It's just a conversion from one metric to another," said Nechemias.

New customers who buy WebSphere for z/OS for fewer than three engines and notice that the old per-processor pricing model might have worked out to be cheaper will find an entry-level option to get started at a lower cost, according to Nechemias.

"We want to see WebSphere become a pervasive product on the mainframe platform," Nechemias said. She added that IBM is trying to ensure that customers will see a lower cost for incremental growth once they start using WebSphere for z/OS.



Java Support

WebSphere 5.0 is certified for Java 2 Enterprise Edition (J2EE) 1.3 technologies and also supports more than half the J2EE 1.4 technologies that are due to be finalized later this year, according to IBM. The version for z/OS is designed to take advantage of many zSeries capabilities, including its high reliability, scalability and security.

Stephen O'Grady, an analyst at RedMonk in Hollis, N.H., said that IBM has worked hard to reduce the differences between versions of WebSphere and that the job of porting applications from smaller boxes to the mainframe should be easier with WebSphere 5.0. ▶

Networld+Interop Optimism Prevails Despite Downturn

Vendor count half that of last year's show

BY MATT HAMBLEN

NetWorld+Interop opens this week in Las Vegas amid an optimism that belies the depressed state of the economy, ongoing travel concerns and the fact that there are fewer than half as many exhibitors this year as there were at last spring's event.

The mood is especially upbeat compared with last fall's N+I in Atlanta. Organizer Key3Media Events Inc. boarded up that show for good after key vendors failed to participate. Two networking shows per year was one too many, said Mike Millikin, senior vice president of Los Angeles-based Key3Media.

Users said they hope to gain some insights into new technologies this week so they will be ready to go when the economy improves.

"I feel pretty optimistic about the future of technology, and in two years, you'll see some extraordinary things, especially with wireless," said Michael Krone, network manager at The United Center, a sports and entertainment venue in Chicago.

Krone said he plans to research voice-over-IP and wireless products, "right there with the vendors in front of my face." As a major user of products from Foundry Networks Inc. in San Jose, Krone said he wants to compare Foundry's technology with that of Extreme Networks Inc. in Santa Clara, Calif., among others, to see which products offer the most affordable and effective path to IP convergence.

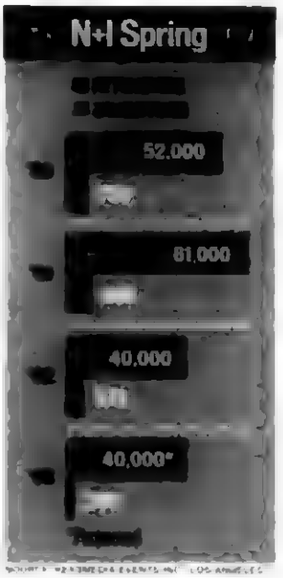
Rick Sloan, telecommunications manager at Dollar Tree Stores Inc., a chain of 2,300 retail outlets based in Chesapeake, Va., said he plans to hit seminars and the show floor to expand his knowledge beyond pure telecommunications technologies. Sloan said Dollar Tree is a satisfied user of gear from Avaya Inc. in Basking Ridge, N.J., and Cisco Systems Inc. But he said he doesn't want to become "complacent" with his vendors. Dollar Tree's culture is "pretty mean and lean," with an emphasis on cost savings, he said. "We sell everything for a dollar, so there's not a lot of fluff" in the company's IT infrastructure, Sloan said.

AT THE SHOW
Go online for highlights of key announcements planned for this week's N+I:
QuickLink 38014
www.computerworld.com

This week's show is on track to draw 40,000 people, matching the attendance at last year's N+I show in Las Vegas, Millikin said. But there will be only 260 vendors on the show floor, down from 572 in 2002, show officials said.

MCI, formerly WorldCom, may have the most ambitious agenda among the vendors, as it tries to demonstrate a resurgence following its Chapter 11 bankruptcy filing. N+I is "timed perfectly" with MCI's completion of its 100-day reorganization plan and rebranding effort, said Ron McMurtrie, MCI's vice president of global branding. MCI will unveil a road map for building IP and convergence services with the announcement of a secure internetworking gateway, said McMurtrie.

Officials of several large networking vendors said N+I is still the most important show they attend each year in North America. "N+I is extremely important for us . . . and we have been more selective with going to shows recently," said Duncan Potter, vice president of marketing at Extreme Networks. The company is providing what Potter called the "world's largest temporary LAN" to serve as the show's networking infrastructure. ▶



Corrections

In our April 21 story "Tight IT Budgets Put Crimp in SAN Plans," information about IT layoffs at Telus Communications Inc. and about the size of the company's data storage relative to networked storage was incorrectly attributed. The information should have been attributed to David Chamberlain, vice president of architecture at Provident Financial Corp.

In our April 21 story "The Best of Both Shores," the name of Allstate Insurance Corp.'s assistant vice president for finance was misspelled. The correct spelling is Mike Scardina.

Our April 21 feature "802.11g Speeds Ahead of Needs," contains a typographical error. In the sentence "To support both 11a and 11g client types, corporations must buy more expensive, dual-mode access points," 11g should read 11b.

Microsoft Releases 64-bit SQL Database

Enterprise Edition touted as Unix alternative

BY MARC L. SONGINI

Microsoft Corp. has released a 64-bit database and claims that the new system features performance rivaling that of Unix-based systems yet offers greater ease of use at a lower cost.

In conjunction with the launch of Windows Server 2003, Microsoft last week announced that it's shipping the 64-bit SQL Server 2000 Enterprise Edition. With the move, Microsoft follows in the footsteps of Oracle Corp. and IBM, which have offered 64-bit versions of their databases for Unix and mainframe systems for years.

Oracle, meanwhile, announced the availability of a version of Oracle9i Database Release 2 that's optimized for 64-bit Windows Server 2003.

Microsoft's 64-bit version of its SQL Server database gives high-end database users an alternative to Unix, said Sheryl Tullis, Microsoft's product manager for SQL Server. "For customers that need high-powered computing, this makes it attainable without the upfront maintenance and management costs of Unix systems," she said.

Tests indicate that the database will have 512GB of addressable memory, double what was available under 32-bit SQL Server.

> **"It's the same as ever with 64-bit. It's a technology in search of a mass-market application."**
>
> JAMES GOVERNOR, ANALYST, REDMONK

Forest Hills, N.Y.-based airline JetBlue Airways Corp. in December went live with a 64-bit SQL Server database that supports the company's frequent-flier application, said CIO Jeff Cohen. JetBlue is building a 64-bit SQL Server-based data warehouse to run customer analytics, Cohen said.

MORE THIS ISSUE
Microsoft's Bill Veghte discusses the competition faced by Windows Server 2003. Page 18

The airline is currently running 32-bit SQL Server to support internal business applications and an Oracle database for special aviation applications. Cohen said that when using the 32-bit SQL Server for the frequent-flier application, JetBlue had to keep adding more servers and processors to maintain performance. With a 64-bit architecture, the company was able to shrink a three-server Compaq ProLiant system with 12 processors to one four-way Hewlett-Packard Co. server.

"We were very thrilled by performance," said Cohen, who added that 64-bit SQL requires only 10% to 20% CPU utilization, as opposed to as much as 60% with 32-bit SQL.

But aside from the very few organizations that have a need for "serious number crunching," there will be a limited demand for 64-bit SQL Server, said James Governor, an analyst at RedMonk, a consulting firm in Hollis, N.H. "It's the same as ever with 64-bit. It's a technology in search of a mass-market application. Sixty-four bit is a 'nice to have,' not a 'need to have' in many cases."

According to Tullis, Microsoft has commitments from business software vendors Siebel Systems Inc., PeopleSoft Inc. and SAP AG to optimize their software for the 64-bit version of SQL Server. ▶

Postmerger HP's Rating Differs by Size of User

One year later, HP's union with Compaq draws raves, criticism

BY PATRICK THIBODEAU

One year after Hewlett-Packard Co.'s acquisition of Compaq Computer Corp., user opinion about the impact and benefits of the merger is decidedly mixed.

High-end users, such as Steven Barker, systems administrator for the automated teller machine system at Huntington National Bank in Columbus, Ohio, said he has seen a big improvement in support for the NonStop fault-tolerant computer line, which Compaq acquired in 1997 when it bought Tandem Computers Inc.

Before the merger, Compaq would send representatives "who couldn't even spell Tandem," he said. "Now it seems like they concentrate on us a little bit more."

But at Valley Presbyterian Hospital in Van Nuys, Calif., it's a much different story. HP "made a lot of changes without talking to customers, and they used to be really good about talking to their customers," said senior programmer analyst Catherine Litten, who's in charge of the hospital's HP 3000 minicomputer, which is being phased out.

The merger meant the end of HP's Vectra desktop line, on which the hospital had standardized. That move, on top of a premerger decision to end HP 3000 support in 2006, has Litten roiled. "How many things are we going to have to replace here?" she said, noting that it will cost the hospital about $1 million to replace the HP 3000.

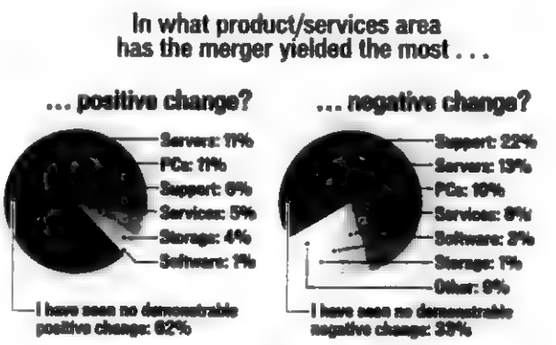
Strategy Still Sketchy

HP's enterprise strategy is a work in progress. Immediately following the merger, the company released road maps for key products. But questions persist, and the company doesn't seem to be doing a uniform job in reaching users.

Users with clout are getting answers. For example, Andi Coleman, the Tandem security team leader at Charlotte, N.C.-based Bank of America Corp., said HP is paying attention to her because of the size of her company and her role as moderator of the special interest group on security for the ITUG HP NonStop user group.

NonStop users have gotten HP to agree to security improvements, said Coleman, and she's optimistic that HP will give more attention to the line. "I think that Compaq kind of left it sitting over there in the corner," she said.

Although Coleman has met with top HP officials, no one has come knocking on Robert Rothenberger's door. Rothenberger, director of data center operations at Keystone Mercy Health Plan in Philadelphia and chairman of a regional group of the AFCOM data center association, said he has yet to hear from HP following the merger. "I would have thought that they'd have made an effort to pull together something and come to their good customers," he said. HP is planning to detail its enterprise strategy on May 6, and Rothenberger said he hopes it shows "a commitment to a unified strategy, where I can be convinced that service and support will be dedicated to that strategy."



Note: Percentages may not add up to 100% due to rounding

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The merger has affected users in other ways as well. The uncertainty, along with HP's announcements of layoffs, prompted Dan Barth, CIO at The Oklahoma Publishing Co. in Oklahoma City, to begin purchasing servers from Dell Computer Corp. after buying Compaq systems for years. "We didn't want to go through the change of the merger and find out what product lines were going to survive," he said. Barth isn't ruling out going with HP in the future. But "until we know better, let's caution ourselves," he said.

HP Plots Itanium Course

Part of HP's postmerger strategy includes moving all of its high-end systems to Intel's Itanium chip. It will be a lengthy process.

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In what product/services area has the merger yielded the most . . .

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SOURCE: ONLINE COMPUTERWORLD SURVEY OF 103 HP USERS

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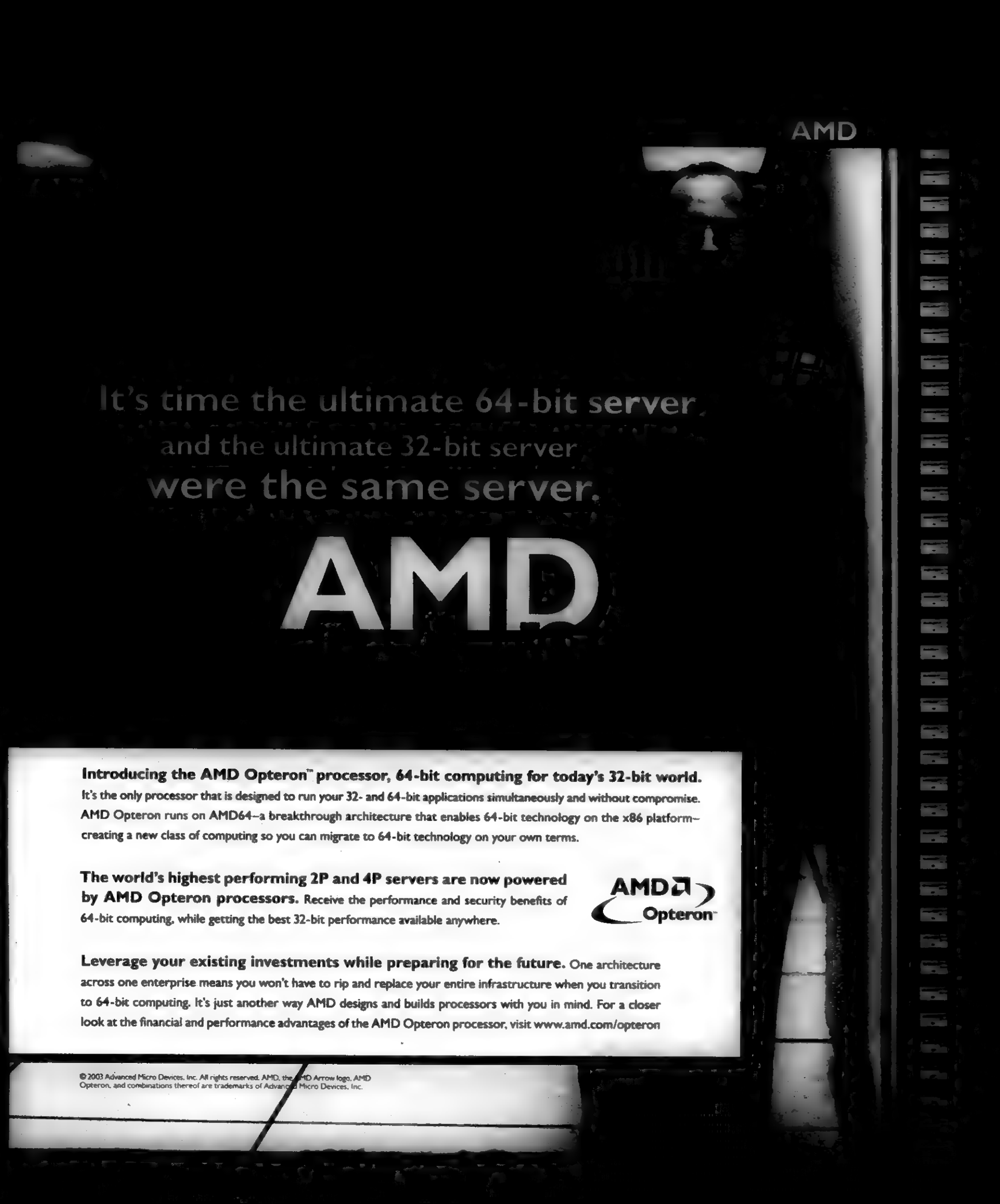
AMD
It's time the ultimate 64-bit server
and the ultimate 32-bit server
were the same server.
AMD
Introducing the AMD Opteron™ processor, 64-bit computing for today's 32-bit world.
It's the only processor that is designed to run your 32- and 64-bit applications simultaneously and without compromise. AMD Opteron runs on AMD64—a breakthrough architecture that enables 64-bit technology on the x86 platform—creating a new class of computing so you can migrate to 64-bit technology on your own terms.
The world's highest performing 2P and 4P servers are now powered by AMD Opteron processors. Receive the performance and security benefits of 64-bit computing, while getting the best 32-bit performance available anywhere.
AMD Opteron™
Leverage your existing investments while preparing for the future. One architecture across one enterprise means you won't have to rip and replace your entire infrastructure when you transition to 64-bit computing. It's just another way AMD designs and builds processors with you in mind. For a closer look at the financial and performance advantages of the AMD Opteron processor, visit www.amd.com/opteron
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BRIEFS

Pentagon Chooses EDS for IT Revamp

Electronic Data Systems Corp. said it has won a contract, valued at $258 million over two years, to upgrade the Pentagon's IT infrastructure in an effort to ensure the technology can withstand a Sept. 11-like terrorist attack. The contract covers networks, voice and data messaging systems, and data storage devices at the Department of Defense, said Plano, Texas-based EDS.

Microsoft Patches Browser Holes . . .

Microsoft Corp. issued a software patch designed to plug four security holes in its Internet Explorer Web browser. The company gave three of the flaws a "critical" severity rating and said the most serious could be used to run malicious code on systems. Microsoft also released a patch to fix a vulnerability in its Outlook Express e-mail software.

. . . And Says It's Revising Fix for XP

In another security-related matter, Microsoft said it's revising a patch issued April 16 to address a buffer overrun flaw in the Windows kernel, after users complained that the fix can cause performance slowdowns on some PCs running Windows XP. But Microsoft left the original patch on its Web site and said it could still be used. Other versions of Windows aren't affected.

Short Takes

LUCENT TECHNOLOGIES INC. in Murray Hill, N.J., reported a $553 million loss for its second quarter, which ended March 31. But Lucent said it still expects to become profitable from an operating standpoint during its current fiscal year . . . EDGAR F. "TED" CODD, who in the late 1960s invented the relational model of storing data, died April 18 at the age of 79.

Public/Private Security Partnership Gets Rocky

Companies want guidance on where responsibility lies

BY DAN VERTON
WASHINGTON

THE CHANGING of the cybersecurity guard at the Department of Homeland Security (DHS), coupled with complacency on the part of some corporate executives, has put a higher premium on information-sharing and cooperation between the private sector and the government.

"The two words to focus on are *cooperation* and *coordination*," said Richard Davidson, CEO of Omaha-based Union Pacific Corp., which combats more than 80,000 probes on its networks daily. "That all adds up to partnership and information-sharing, and that is our best form of protection during these challenging times," said Davidson, who also serves as chairman of the President's National Infrastructure Advisory Commission.

Davidson spoke last week at a U.S. Chamber of Commerce conference in Washington that addressed the roles and responsibilities of the government and private sector in homeland security efforts.

Security Slowdown

Uncertainty stemming from the loss in recent months of critical cybersecurity leadership at the DHS could escalate into danger for private-sector companies, said Michael Hershman, president and CEO of Decision Strategies LLC, an Oakton, Va.-based security consulting firm.

Companies have started to slow down their efforts to boost security because there has been no terrorist activity recently, Hershman said.

> **"Corporations in America have spent billions of dollars for security, with very little cost-benefit analysis."**
>
> **MICHAEL HERSHMAN,** PRESIDENT AND CEO, DECISION STRATEGIES LLC

"I'm afraid that they may be drawing back into complacency," he said. "In recent months, we've seen corporations stand back, reassess what their needs are and try to understand what the level of threat is."

But a lack of effective communication between the corporate community and government agencies has left companies trying to assess their risk with little or no understanding of the threat, Hershman said.

"Corporations in America have spent billions of dollars for security, with very little cost-benefit analysis," said Hershman. He noted that the Bush administration has only added to the confusion regarding who is ultimately responsible for critical infrastructure security by assigning responsibility to industry while issuing more than 60 regulations since Sept. 11, 2001.

The lack of order and stability in the way the government currently deals with the private sector — a situation exacerbated by the recent creation of the DHS — is of immediate concern to Michehl Gent, president of the North American Electric Reliability Council in Princeton, N.J.

"We have a constant fight among agencies for the hearts and minds of industries," said Gent, referring to the multitude of federal agencies that regularly bombard private-sector entities with requests for security information. "DHS is supposed to do that, and I'm looking forward to them being more successful. But in the meantime, I have to keep warding off [government agencies]."

Schmidt's Departure From DHS Raises Cybersecurity Leadership Concerns

WASHINGTON

The private-sector IT security community will lose a staunch advocate in the White House on May 1 when Howard Schmidt leaves government service.

Schmidt, heir apparent to the role of chief cybersecurity adviser to the secretary of homeland security, announced last week that he plans to retire after only 17 months as vice chairman of the President's Critical Infrastructure Protection Board. Schmidt served alongside Richard Clarke, the nation's first chief cybersecurity adviser, who retired in February.

Matters of cybersecurity now fall to Robert Liscouski, a former executive at The Coca-Cola Co. who was recently named assistant secretary of infrastructure protection at the DHS. His responsibilities include cybersecurity and protecting the nation's vital physical assets from attack.

The concern is that without a single individual responsible for private-sector cybersecurity, it could get lost in layers of DHS bureaucracy.

Alan Paller, director of the SANS Institute, a security research firm in Bethesda, Md., said he was saddened by Schmidt's decision to leave. "He was the one representative from industry that actually understood the way attacks are launched and what needed to be done to stop the attacks," Paller said.

David Wray, a DHS spokesman, said the department couldn't comment on what the White House may or may not do about having a single individual in the DHS who is responsible for cybersecurity. But he noted that many of the technology industry's leading companies have recognized the importance of and adopted an integrated approach to cyber and physical infrastructure security.

Schmidt downplayed the impact that his retirement will have on the government's ability to work with the private sector.

"We have to understand that this [issue] is more than just a person," Schmidt said. "Irrespective of where it is in the administration and where it is executed now, we have a clear road map and people who are empowered to make [the strategy] work."

Still, Harris Miller, president of the Arlington, Va.-based Information Technology Association of America, said not appointing a prominent individual to a position that is solely responsible for cybersecurity is unfortunate. "Not having someone like Howard or Dick Clarke as a special adviser to the secretary is a big error, in my estimation," said Miller.

"We're experiencing the loss of two real experts that [private] industry and the country depended on," said Larry Wortzel, an analyst at conservative think tank The Heritage Foundation and a career military intelligence officer. "I hear dissatisfaction with the model" of making one individual responsible for both cybersecurity and physical infrastructure protection, he said.

– Dan Verton

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—Curtis Robb, Delta Air Lines CIO, Delta Technology CEO

Data Security Measures Failing To Match Legal Expectations

Regulations raise stakes for compliance

BY JAIKUMAR VIJAYAN

EMERGING LEGAL expectations for data security and privacy are making it increasingly important for companies to demonstrate reasonable care in protecting their IT assets, say security and legal experts.

Regulations such as the Health Insurance Portability and Accountability Act (HIPAA), the Gramm-Leach-Bliley Act and the Sarbanes-Oxley Act (see story below), as well as several proposed state and federal identity-theft prevention laws, impose significant security and administrative requirements on companies. The problem is that there are no regulation-specific technology standards or guidelines that companies can adopt to demonstrate compliance with these requirements.

The regulations have considerably increased the legal exposure of companies in the event of security breaches, said Erin Kenneally, a forensic analyst and attorney at the San Diego Supercomputer Center in La Jolla, Calif. "From a legal-risk standpoint, it is a very unstable field," Kenneally said.

Reasonable Attempts

Companies must establish processes to show that reasonable attempts are being made to secure data, said Bruce Heiman, a partner at Preston Gates Ellis & Rouvelas Meeds LLP in Washington. "You need to say what you'll do and do what you say," he said.

Because most of the laws are technology-agnostic, there is a "considerable level of interpretation" regarding how they should be implemented technologywise, said Lew Wagner, chief information security officer at the M.D. Anderson Cancer Center at the University of Texas in Houston. "At one level, they all boil down to access-control systems, audit-control systems, some sort of encryption capability for confidentiality and other administrative stuff, such as policy and training."

But because the legal view of due-care standards may differ from a technologist's view, in many cases, the courts will have to decide what acceptable standards are, said Jon Stanley, an attorney on the American Bar Association information security committee.

"Something will become a standard because a court says it is a standard. And ultimately, litigation specialists will go into IT rooms and say, 'Here is what you are going to have to do' " to comply, Stanley said.

Don't be surprised to see many companies biding their time, waiting for such case law to emerge before implementing widespread security-related technology changes, said Roger Brown, an IT auditor at Jefferson Health System, a $2 billion health care organization in Radnor, Pa.

Though HIPAA's privacy compliance and code-transaction testing deadlines went into effect April 14, health care organizations don't have to implement related security changes until 2005. But organizations that haven't implemented those changes are unlikely to be fully compliant with the privacy requirements currently in effect, he said.

"HIPAA should change the price of ignoring technology-related risks" for health care organizations, Brown said. But because it's written vaguely from an implementation standpoint, he said, the "final details will be fleshed out in the trial courts."

The best way to mitigate legal exposure is to be proactive about putting in place measurable and auditable security processes, Kenneally said.

For instance, any organization should be able to show who has access to its systems, what measures control and monitor that access, what accountability exists for actions within the systems, and how systems violations or unauthorized access is detected and responded to, Wagner said.

It's also vital to have a good security-audit logging process to ensure that evidence of all transactions is stored in a manner that meets legal requirements for reliability, Kenneally said. This might require processes for automatically transmitting logs from the generating host to a centralized logging system to prevent tampering, Kenneally said. ▶

Security Yardstick

Standards for evaluating general security readiness include:

- Generally Accepted Information System Security Principles from the Information Systems Security Association.
- ISO 13335 guidelines for management of IT security from the International Standards Organization.
- Federal Information System Controls Audit Manual from the General Accounting Office.

CFOs Push IT Managers for More Info About Projects

Sarbanes-Oxley boosts reporting demands for CIOs

BY THOMAS HOFFMAN

The financial reporting regulations that were signed into law last year are spurring some chief financial officers to demand that CIOs provide them with more detailed information about the status of IT projects, according to executives and analysts.

The Sarbanes-Oxley Act, which is aimed at producing more complete and accurate assessments of the financial condition of public companies, requires businesses to disclose "all material off-balance-sheet transactions" that may affect their capital expenditures or other aspects of their finances.

Because IT spending accounts for more than half of all capital expenses at many companies, CFOs are pushing hard to ensure that they can update quarterly earnings reports with as much information as possible about ongoing IT projects, said business and technology executives.

"Without question, CFOs are going to place more pressure on everyone in the organization because of Sarbanes-Oxley," said Paul McFeeters, CFO at Kintana Inc., a Sunnyvale, Calif.-based vendor of software for monitoring IT operations and automating tasks like project management.

Companies "can't run off with multimillion-dollar IT projects without good visibility and controls," added McFeeters, who uses Kintana's digital dashboard software to keep track of internal IT projects. He said senior executives are also requesting more thorough financial reports from corporate officers to satisfy a provision of Sarbanes-Oxley that requires CEOs and CFOs to attest to the accuracy of a company's financial data.

Steve McDowell, CIO at privately held Holiday Retirement Corp., a Salem, Ore.-based operator of senior citizen housing, said he's talked with IT executives from public companies about Sarbanes-Oxley and they "are really afraid that it will dominate their projects and budgets for a while."

The push for CIOs to deliver more comprehensive information about IT spending "is very much a trend that we're seeing," said Jeremy Grigg, a Gartner Inc. analyst based in New York. But like McFeeters and others, Grigg noted that the reporting demands being placed on CIOs aren't tied solely to Sarbanes-Oxley.

Indeed, a growing number of companies are taking a portfolio management approach to evaluating the returns being generated by their IT investments [QuickLink 36205]. Steve Denny, CIO at Plano, Texas-based FreightPro, has delivered a formal report on the status of IT projects to the logistics provider's board of directors each quarter for the past three and a half years. The reports detail the anticipated cost, timeline and benefits of both new and existing projects, he said, adding that IT work typically accounts for the bulk of FreightPro's capital expenditures. ▶

Financial Reporting Recommendations For CIOs

- Educate your company's CFO on the technical and financial requirements needed to deliver status reports about IT projects.
- Account for spending on internal IT projects and joint ventures that may require your systems to be linked to those at other companies.
- Reach out to peers in Europe and other regions to see how they're complying with financial reporting rules that are already in place there.

Editor's Note

Mark Hall is on vacation. His column, On the Mark, will return next week.

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BRIEFS

John Hancock to Outsource to IBM

John Hancock Financial Services Inc. said it plans to outsource key IT operations, such as management of its servers, mainframes and networks, to IBM. The companies expect to finalize the deal by midyear. Boston-based John Hancock said that about 100 of the 300 affected IT workers will lose their jobs. Another 180 employees will be shifted to IBM, and John Hancock will retain 20 people to oversee the outsourcing work.

Boat Maker Picks IBM to Operate Net

IBM also announced a deal to host and manage a Web-based supply chain network for General Dynamics Corp.'s shipbuilding division. The Electric Boat Corp. unit in Groton, Conn., hopes to link 150 suppliers to the network by year's end, IBM said. The network is built around IBM's Intel-based servers and its WebSphere and DB2 software. Financial terms weren't released.

Siebel, PeopleSoft To Cut Workforces

Siebel Systems Inc. and PeopleSoft Inc. both said they plan to cut jobs after reporting weak first-quarter results. Siebel, which will lay off about 250 of its 5,850 workers, said its first-quarter profit dropped 93% year over year to $4.6 million, and revenue fell 70% to $332.8 million. PeopleSoft plans to cut 200 of its 8,180 workers. It had a $38.5 million profit on revenue of $460.3 million in the quarter.

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Disk Arrays Gain in Use For Secondary Storage

But tapes continue to handle most data for backups and archiving, survey finds

BY LUCAS MEARIAN

Relatively inexpensive secondary disk storage is gaining a significant foothold in corporate data centers, according to a survey of more than 1,000 IT managers that's due to be released next month. But the survey also shows that a large majority of data is still backed up and archived the traditional way: on tape.

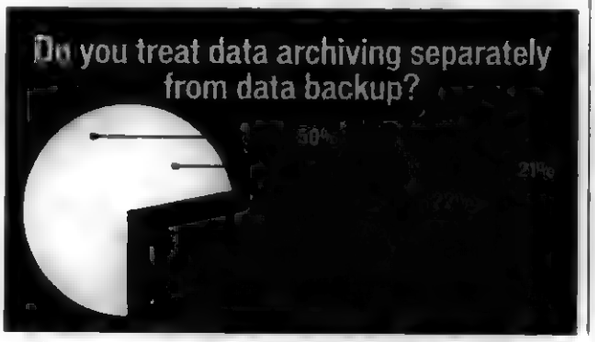
Peripheral Concepts Inc., which released preliminary results of the survey last week, said about 50% of the respondents with disk storage capacities of more than 500TB indicated that they already use disk-based devices for secondary storage. That includes saving snapshot copies of data and staging information for archiving. Another 25% plan to start doing so within two years, the consulting firm said.

But secondary disk storage typically involves less than one-fifth of a company's total data, said Farid Neema, president and CEO of Santa Barbara, Calif.-based Peripheral Concepts. And only a small percentage of the data that's backed up on disks doesn't get moved to tape devices for archiving, Neema said. "Tape remains by far the most popular medium and does not seem to want to go away," he said.

Neema cited another potential roadblock to wider adoption of secondary disk storage: A "significant percentage" of the respondents indicated that reliability issues could prevent them from using low-cost Advanced Technology Attachment (ATA) disk drives.

Over the past 12 months, vendors such as EMC Corp., Network Appliance Inc. and Storage Technology Corp. have released ATA-based disk arrays for storage of near-line data, snapshot copies and information that will eventually be archived on tape devices.

Mike Lin, director of emerging technologies at the University of Southern California, Los Angeles, is testing StorageTek's BladeStore virtual tape server, which acts as an intermediary between systems and tape libraries.



Time for Backups

Lin said the school currently backs up 18TB of research and administrative data to Sun Microsystems Inc. StorEdge 3510 disk arrays during an eight-hour window each night. It then archives the data on StorageTek 9940 tape drives.

A terabyte of Fibre Channel disk capacity for the StorEdge arrays costs $65,000 to $90,000, depending on how it's configured, Lin said. In comparison, he said, a full 10TB BladeStore array with ATA drives costs only $40,000.

Lin didn't voice any major reliability concerns about ATA technology, but he said it takes an hour longer — about eight hours altogether — to rebuild the data on failed ATA disks than on Fibre Channel ones.

Jamie Riis, CIO at BayView Financial Trading Group LP in Miami, is using a NetApp R100 NearStore disk array to store document images. The array replaced an optical system that was slow and unwieldy, Riis said. BayView also uses the R100 to back up database files prior to recording them to tape devices, he added.

Business Objects Upgrades Its Data Analysis Software

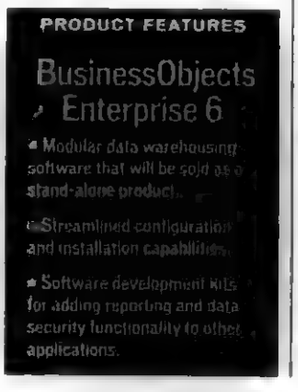
BY MARC L. SONGINI

Business Objects SA last week announced an upgrade of its data analysis software suite that it said includes a more consistent Web browser user interface plus extended capabilities for integration with ERP and CRM applications.

The Paris-based company said the BusinessObjects Enterprise 6 release will also provide a boost in performance and scalability. For example, the suite's thin-client WebIntelligence tool will provide 80% faster response times on query and analysis operations, said Lance Walter, director of product marketing for business-intelligence platforms at Business Objects.

In addition, Walter said the WebIntelligence upgrade includes a single user interface for querying, reporting and analysis functions. Business Objects has also added wizard technology to help users perform tasks such as filtering out unwanted data or drilling down into information about a specific unit. Reports can now be saved and published within Microsoft Excel spreadsheets or Adobe Acrobat documents.

Although Business Objects has sped up the log-in process for WebIntelligence and upgraded the tool's reporting capabilities, the improvements could have been even better, said Thierry Leleu, business-intelligence program manager at Unisys Corp. in Blue Bell, Pa. Unisys has been running WebIntelligence 2.7 since 1998 and began beta-testing the new version in September.



Leleu declined to comment specifically on what Business Objects could have done better in the upgrade. Despite the shortcomings, he noted that he hopes to get some of the 8,000 WebIntelligence users at Unisys live on the new software by July. The added support for Excel and greater flexibility in designing reports are particularly attractive features, Leleu said.

Business Objects, which has its U.S. headquarters in San Jose, said the Enterprise 6 suite is due for release by May 15. The upgrade will be able to use native interfaces to extract data from business applications developed by vendors like SAP AG, Oracle Corp., Siebel Systems Inc. and PeopleSoft Inc., as well as from custom applications.

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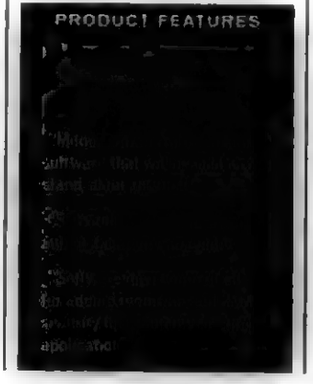

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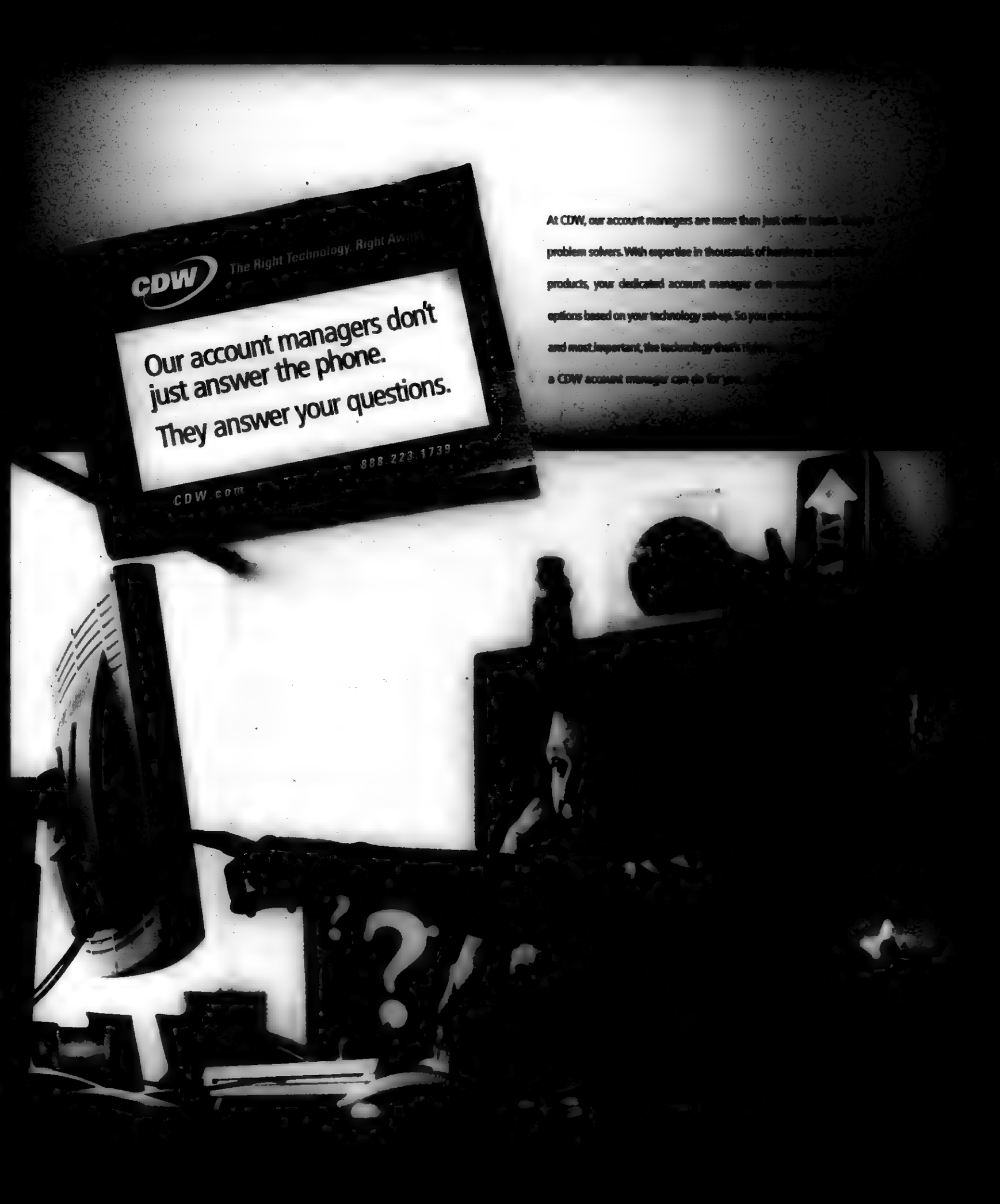

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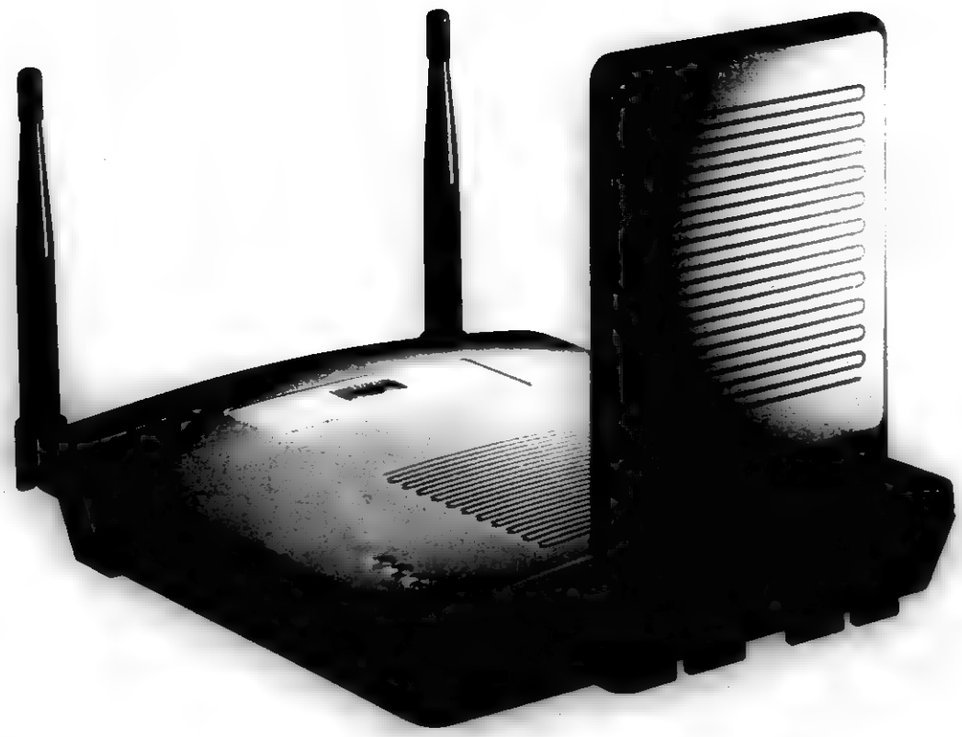

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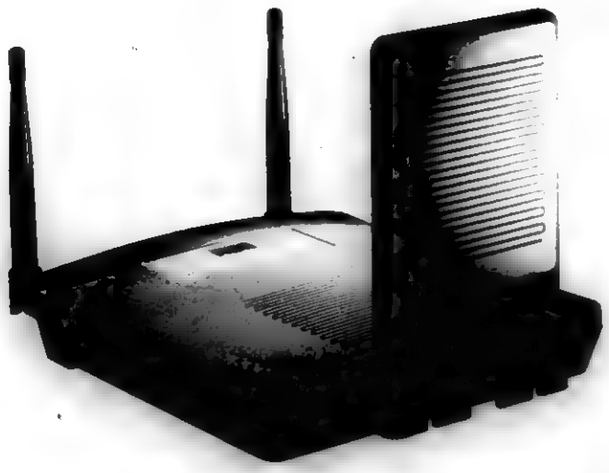

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Microsoft's Server VP Discusses Competition, Future Releases

Bill Veghte, *vice president of Microsoft Corp.'s Windows Server group, spoke last week with* Computerworld's *Carol Sliwa about the competition the company's newly launched Windows Server 2003 faces and about his thinking on future releases. Excerpts from the interview follow:*

Do you consider Linux to be the chief competition to Windows Server 2003? On the one hand, NT 4 is a competitive framework that I look at. Solaris is, AIX is, and Linux is.

Do you view them all equally? Windows Server has three core roles: application platform, IT infrastructure and information worker productivity, [for] large enterprise, medium-size business and small business. For each one of those, I think of the competition as different.

Where Linux is getting traction is, "I've got a Unix app and I'm not doing any feature development on it. I want the cost efficiencies of x86. And I don't want to have to recompile the app in any significant way, etc. Linux looks interesting." [If] I've got a simple Web server that's just serving up static HTML, Linux looks interesting. Those would be examples of app workloads predominantly in the enterprise.

Microsoft will ship some new functionality in the coming months as add-ons for Windows Server 2003. What do you think should be free, and what should be separate, for-fee products? The philosophy that I've had is anything that has been delivered in essence out of the box in Windows Server to date, that we're effectively improving on, is available for any licensed Windows Server 2003 customer.

An example of that would be Windows SharePoint Services. I think of Windows SharePoint Services as the next-generation file server. It would stand to reason that if I think of Windows SharePoint Services as a file server, and Windows servers are naturally file servers, that would be free for any Windows Server 2003 customer.

Is there any chance you will revisit the decision about Exchange Server 2000 not running on Windows Server 2003? Nope. Not on that one. That was a decision we made based on some hard engineering realities and what we believe was the best way to solve some customer feedback.

Is this the pattern customers can expect for future versions of Exchange – that they will run only on the newest operating system? No. Boy, that statement I would hate to be true.

It was surprising just over a month ago when Brian Valentine, senior vice president of the Windows division, told us there might be a Longhorn server release, after Microsoft had said last fall that Longhorn would be a client-only release. I was shocked, too, I promise you.

Is there any new line of thinking on that topic? Yeah, I'll walk you through it, because . . . I've given Brian lots of feedback.

Here's how I think about that server release framework and what I'm trying to do for customers. When customers think about Microsoft, they want two things. They want a regular supply of innovations that are solving their problems in an integrated, comprehensive fashion. At the same time, they don't want it every 12 months. They want it at less frequent intervals. I sort of like the three-year time horizon, frankly . . . where it's going to make good business sense for customers.

So I look at this and say, There's a set of things that I want to slipstream out in the marketplace for the customers for whom it makes sense and then do a big-bang server release every couple years.

The question that the company's been wrestling with is, Are there a set of slipstreams that we can do to the server to make those more relevant? Or are we doing a big-bang release? Frankly, we've had lots and lots of discussions on it. Now that [the launch is] done, it is my highest priority over the next couple months to get that locked in. ◗

Check-Imaging Bill Spurs IT Projects at Large Banks

Firms add systems, build networks for exchanging images

BY LUCAS MEARIAN

Wells Fargo & Co. last week said it's joining the list of large banks that plan to expand their use of imaging technology to prepare for the expected passage of legislation giving electronic check images the same validity as the original paper ones for payment clearance and settlement activities.

Many banks have already adopted check imaging for their customers. But most have been slower to add technology to their back-end systems that would enable them to exchange images with other banks and payment clearinghouses for settlement purposes, according to analysts. In large part, that's because federal law currently requires banks to send paper copies of checks to one another.

But that's about to change, said Avivah Litan, an analyst at Gartner Inc. Late last month, the Check Clearing for the 21st Century Act, known as Check 21, was reintroduced in Congress. The measure, which Litan expects to win quick approval, would allow banks to exchange electronic check images and use them in place of the actual checks.

Saving Steps

Mitch Christensen, executive vice president of payment strategies at Wells Fargo, said the San Francisco-based company is beginning a six-month rollout of IBM hardware and imaging software developed by Dallas-based Carreker Corp. The technology will be installed at regional check-processing facilities around the country, Christensen said.

Carreker's suite of image processing and archiving applications lets users capture check images, control and monitor access to their image repositories and transmit the images via the Web, e-mail, fax, CDs or tapes.

At Wells Fargo, the software will run on a combination of IBM's Unix servers and its 3890/XP document-processing system.

Christensen was unable to say how much the rollout will cost, because Wells Fargo still needs to determine how much new equipment will be required to support the imaging work. In addition to the ability to eliminate exchanges of paper checks with other banks, expected benefits include faster access to checks when payment problems arise, he said.

Hank Farrar, president and chief operating officer at The Small Value Payments Co. (SVPCo), which is creating a national network for exchanging check images, estimated that the banking industry will save $2.1 billion annually by switching to imaging. Paper checks require manual handling, impose transportation costs and can slow fraud-detection efforts, he said.

Check 21

- The measure was proposed by the Federal Reserve System in December 2001 and was reintroduced in Congress this month.
- If the bill is approved and signed into law, there will be an 18-month implementation period until its provisions are fully in effect.

In addition, delivering paper checks isn't always a reliable means of exchanging data. For instance, after the Sept. 11 terrorist attacks, all airline traffic was grounded for days, delaying or even halting the delivery of checks for processing between banks, Farrar said.

About half of U.S. checks are imaged and archived today, but that figure is expected to be close to 100% by 2007, Litan said. But another step in the process is still being addressed: creating mechanisms that will enable banks to exchange the images.

A handful of such efforts are under way. For example, Farrar said New York-based SVPCo, which is owned by Wells Fargo and 19 other banks, plans to go online early next year with eight banks. "We hope we can create an industry standard," he said, noting that SVPCo is in the midst of selecting IT vendors and network services providers to help support its network. ◗

Microsoft's Server VP Discusses Competition, Future Releases

Bill Veghte, *vice president of Microsoft Corp.'s Windows Server group, spoke last week with* Computerworld's *Carol Sliwa about the competition the company's newly launched Windows Server 2003 faces and about his thinking on future releases. Excerpts from the interview follow:*

Do you consider Linux to be the chief competition to Windows Server 2003? On the one hand, NT 4 is a competitive framework that I look at. Solaris is, AIX is, and Linux is.

Do you view them all equally? Windows Server has three core roles: application platform, IT infrastructure and information worker productivity. [for] large enterprise, medium-size business and small business. For each one of those, I think of the competition as different.

Where Linux is getting traction is, "I've got a Unix app and I'm not doing any feature development on it. I want the cost efficiencies of x86. And I don't want to have to recompile the app in any significant way, etc. Linux looks interesting." [If] I've got a simple Web server that's just serving up static HTML, Linux looks interesting. Those would be examples of app workloads predominantly in the enterprise.

Microsoft will ship some new functionality in the coming months as add-ons for Windows Server 2003. What do you think should be free, and what should be separate, for-fee products? The philosophy that I've had is anything that has been delivered in essence out of the box in Windows Server to date, that we're effectively improving on, is available for any licensed Windows Server 2003 customer.

An example of that would be Windows SharePoint Services. I think of Windows SharePoint Services as the next-generation file server. It would stand to reason that if I think of Windows SharePoint Services as a file server, and Windows servers are naturally file servers, that would be free for any Windows Server 2003 customer.

Is there any chance you will revisit the decision about Exchange Server 2000 not running on Windows Server 2003? Nope. Not on that one. That was a decision we made based on some hard engineering realities and what we believe was the best way to solve some customer feedback.

Is this the pattern customers can expect for future versions of Exchange – that they will run only on the newest operating system? No. Boy, that statement I would hate to be true.

It was surprising just over a month ago when Brian Valentine, senior vice president of the Windows division, told us there might be a Longhorn server release, after Microsoft had said last fall that Longhorn would be a client-only release. I was shocked, too, I promise you.

Is there any new line of thinking on that topic? Yeah, I'll walk you through it, because . . . I've given Brian lots of feedback.

Here's how I think about that server release framework and what I'm trying to do for customers. When customers think about Microsoft, they want two things. They want a regular supply of innovations that are solving their problems in an integrated, comprehensive fashion. At the same time, they don't want it every 12 months. They want it at less frequent intervals. I sort of like the three-year time horizon, frankly . . . where it's going to make good business sense for customers.

So I look at this and say, There's a set of things that I want to slipstream out in the marketplace for the customers for whom it makes sense and then do a big-bang server release every couple years.

The question that the company's been wrestling with is, Are there a set of slipstreams that we can do to the server to make those more relevant? Or are we doing a big-bang release? Frankly, we've had lots and lots of discussions on it. Now that [the launch is] done, it is my highest priority over the next couple months to get that locked in. ▶

Check-Imaging Bill Spurs IT Projects at Large Banks

Firms add systems, build networks for exchanging images

BY LUCAS MEARIAN

Wells Fargo & Co. last week said it's joining the list of large banks that plan to expand their use of imaging technology to prepare for the expected passage of legislation giving electronic check images the same validity as the original paper ones for payment clearance and settlement activities.

Many banks have already adopted check imaging for their customers. But most have been slower to add technology to their back-end systems that would enable them to exchange images with other banks and payment clearinghouses for settlement purposes, according to analysts. In large part, that's because federal law currently requires banks to send paper copies of checks to one another.

But that's about to change, said Avivah Litan, an analyst at Gartner Inc. Late last month, the Check Clearing for the 21st Century Act, known as Check 21, was reintroduced in Congress. The measure, which Litan expects to win quick approval, would allow banks to exchange electronic check images and use them in place of the actual checks.

Saving Steps

Mitch Christensen, executive vice president of payment strategies at Wells Fargo, said the San Francisco-based company is beginning a six-month rollout of IBM hardware and imaging software developed by Dallas-based Carreker Corp. The technology will be installed at regional check-processing facilities around the country, Christensen said.

Carreker's suite of image processing and archiving applications lets users capture check images, control and monitor access to their image repositories and transmit the images via the Web, e-mail, fax, CDs or tapes.

At Wells Fargo, the software will run on a combination of IBM's Unix servers and its 3890/XP document-processing system.

Christensen was unable to say how much the rollout will cost, because Wells Fargo still needs to determine how much new equipment will be required to support the imaging work. In addition to the ability to eliminate exchanges of paper checks with other banks, expected benefits include faster access to checks when payment problems arise, he said.

Hank Farrar, president and chief operating officer at The Small Value Payments Co. (SVPCo), which is creating a national network for exchanging check images, estimated that the banking industry will save $2.1 billion annually by switching to imaging. Paper checks require manual handling, impose transportation costs and can slow fraud-detection efforts, he said.

In addition, delivering paper checks isn't always a reliable means of exchanging data. For instance, after the Sept. 11 terrorist attacks, all airline traffic was grounded for days, delaying or even halting the delivery of checks for processing between banks, Farrar said.

About half of U.S. checks are imaged and archived today, but that figure is expected to be close to 100% by 2007, Litan said. But another step in the process is still being addressed: creating mechanisms that will enable banks to exchange the images.

A handful of such efforts are under way. For example, Farrar said New York-based SVPCo, which is owned by Wells Fargo and 19 other banks, plans to go online early next year with eight banks. "We hope we can create an industry standard," he said, noting that SVPCo is in the midst of selecting IT vendors and network services providers to help support its network. ▶

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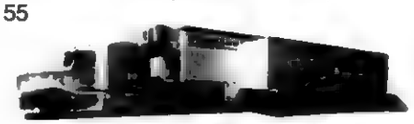

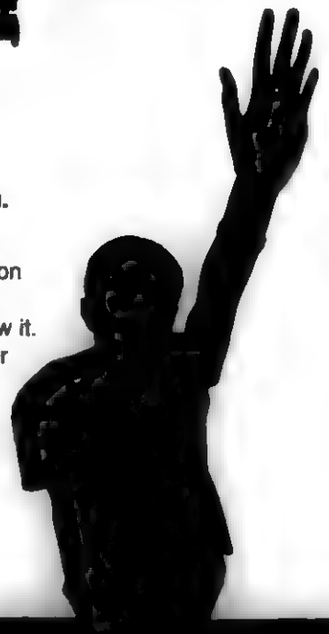

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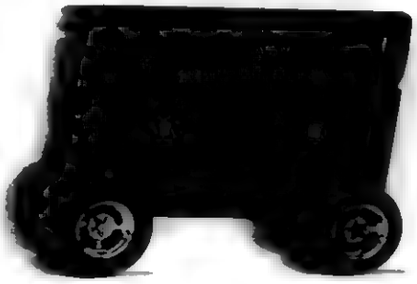

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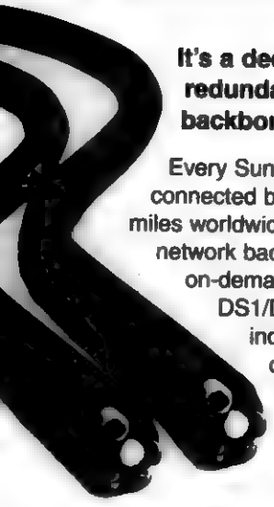

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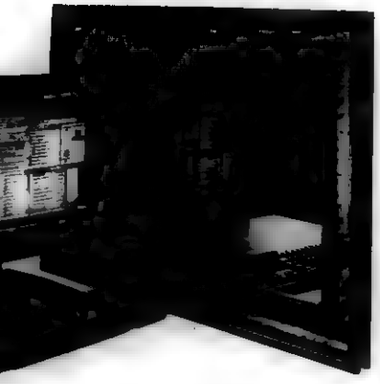

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*Source: Dunn & Bradstreet's MDDI

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PATRICIA KEEFE

Surviving a Sea Change

THE IT COMMUNITY, from code jockeys all the way up to the executive suite, is undergoing a sea change. The existence of everything IT, from job categories to entire departments, is up for reassessment, reassignment — and maybe even headed toward redundancy.

The most obvious change involves the loss of IT jobs. Many have gone abroad, and they aren't coming back. Offshore outsourcing as a percentage of IT budgets went from 12% in 2000 to 28% in 2003, according to Forrester Research. The U.S. Bureau of Labor Statistics estimates that there are now 212,000 unemployed computer and mathematics professionals. No doubt the number would be even higher but for the IT workers who have given up and moved on to different careers.

It's only going to get worse as more and more companies outsource more and more functions (see story, page 39). Meta Group is predicting that as many as 50% of all U.S. IT workers could shift to contract labor by 2007. Meanwhile, our seed corn is under siege: Fewer students are opting for computer science degrees as more corporate recruiters skip college campuses.

We have also suffered the loss of IT credibility. Massive sums of money have been spent on IT in the past five years, and many businesses remain unsure of the benefits. Large projects that failed, disasters that didn't happen, revolutions that didn't come, ROI that can't be quantified — all have dimmed the aura that surrounded IT in the late '90s.

And then there are command-and-control issues. Should the IT function be dispersed across business units? Has IT become a utility or perhaps so pervasive that having a specific department is no longer warranted? Should the whole shebang be outsourced, or is IT still too critical to corporate strategy?

There's no question that the industry is changing before our eyes. Our community needs to move past the stale debate over whether we are experiencing a wholesale sellout of IT workers or an inevitable, economically fueled evolution. The train has already left the station, and we need to figure out where it's heading from here. We need to focus on how changes taking place today will shape the next phase of this industry. Some issues you might want to consider:

- What are your core competencies and core business needs?
- How will your company comply with new government privacy and accounting regulations — many of which will require system upgrades?
- How would an ever-changing group of contract workers affect your budget, project schedules, quality assurance, maintenance and upgrade processes and plans?
- If projects are built by contract workers, should their costs be borne by the affected business units? And taking this further, do business units need to go through IT to get projects done?
- If IT isn't the builder of projects or the supplier of labor, into what will it evolve? What kind of value will it bring to the business?
- If key skills are outsourced abroad, who will fuel the next generation of technological innovation in this country?
- What new IT and management skills will be in demand?

Given that technology is the future in industry after industry, it's clear that IT will have a key role to play. But whatever that role becomes, make sure your voice is heard. You can tell us what you think by visiting the discussion forum of *Computerworld.com* [QuickLink a3070]. Help plan the future now!

PIMM FOX

Security for Web Services

THERE ARE three vital parts to the open standards underlying Web services security. There's authentication, which uses Standard Generalized Markup Language (SGML) to exchange information about a particular user. There's authorization, which grants access control via Extensible Access Control Markup Language (XACML). And, finally, there's the administration layer now managed through the use of Service Provisioning Markup Language, or SPML.

SPML automates the creation of user accounts through a role-based access-control model. Using SPML, it's possible to approve, modify and cancel accounts across the enterprise without having to manually access rules for each account. This means IT folks working on portals and application servers and in service centers have a standard mechanism for creating a request that will work throughout the organization.

For example, if you went to your supply chain partner's site to grab information stored in a back-office system, the vendor would send a response with a request using SPML to communicate with an identity management software package. The request would automatically acquire the appropriate permissions before granting you access to the data. This would happen without your having to know about your vendor's back-office system.

As part of the tool kit to build such a Web service, SPML automates the process and acts as an XML-based provisioning service, making it straightforward — at least from the user's point of view — to dynamically read things from a directory.

Darran Rolls, director of technology at Waveset Technologies Inc. in Austin (and chairman of the Provisioning

Services Technical Committee and co-chairman of the Security Standards Joint Committee at OASIS), says SPML should make it possible for companies to move beyond their tentative embrace of Web services.

"SPML is a critical piece of the security stack for Web services," he says. "It's useful to have an open-standards-based way to establish accounts."

You can learn more about OASIS and SPML at *www.OpenSPML.org*, where SPML is available for free.

The odd thing about the release of the SPML standard from OASIS is that on the surface, it would have made more sense to develop SPML before SGML and XACML. In their haste to demonstrate the cohesive security of Web services, vendors ignored the management layer. In a sense, they were so excited to identify people and give them access to a Web service that they forgot the basics of account provisioning.

Although it's great that SPML is almost here, if it had been here from the beginning, maybe Web services would be more real today instead of so much hype. ◗

THORNTON MAY

Real-Time Information Weapons

I FIND IT perversely ironic that the department most responsible for creating the dynamic real-time economy we live in today (IT, of course) continues, in many cases, to operate with Industrial Age, could-have-been-designed-by-Poppa-Joe-Stalin batchlike processes.

This situation has to change, and people are beginning to see how to do it. Researchers designing executive education classes at the Fisher College of Business at Ohio State University and the Comdex CIO "boot camp" program asked 50 IT leaders to rank key processes on the basis of being behind the curve, on the curve or ahead of the curve.

The IT process most in need of improvement on the curve is demand management, followed closely by portfolio management. These two processes directly and substantively affect the cost of IT inside a company and its perceived value — two issues sitting top-of-mind with CIOs. These two processes need to be done in real time.

IT departments are no strangers to process analysis and remediation. Indeed, several companies have asked their IT shops to apply this skill to the rest of the organization. It's now time to apply these vaunted see-the-process/improve-the-process skills to IT itself.

In 1987, my friend and research colleague William R. Synnott (then vice president of data processing at Bank of Boston) wrote the book *The Information Weapon: Winning Customers and Markets Through Technology*. In addition to writing the first print instance of the term *CIO*, Synnott presented the metaphor of the IT shop as an armory — a creator of capabilities ("information weapons") that could deliver business advantage.

Information weapons create value when IT gets users to choose something important as a target and then delivers the information weapon to the selected bull's-eye. But before you start, you need to ask yourself five questions:

1 and 2. Where and by whom do IT targeting decisions get made?

3 and 4. How and when do IT targeting decisions get made?

5. Are you happy with your answers to the first four questions?

Few of us go through this basic Q&A, which helps explain why the technology management process hasn't really been integrated with project management or financial management processes.

The challenge facing those who would improve the preproject portion of the demand management process is that users don't really understand what technology can do, nor do they know how much technology has really changed.

A direct analogy can be drawn to the difference between the smart precision bombs of the current military campaign in Iraq and the dumb bombs used in World War II.

During WWII, an average B-17 bomb missed its target by some 2,300 feet. If you wanted a 90% probability of hitting a particular target, you had to drop some 9,000 bombs. That required a bombing run of 1,000 bombers and placed 10,000 men at risk (not to mention the poor souls on the ground).

In contrast, with the latest weaponry, one plane flown by one man with one bomb could have the same probability of hitting its target.

Today, we have more accurate information weapons. Many users don't know this. And even if they did, our targeting still stinks.

So the one big IT project you might want to approve this year is a real-time demand management and portfolio management system. ◗

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READERS' LETTERS

Another Look at What Lies Ahead for IT

FOR COST, quality-of-service and security reasons, Cap Gemini Ernst & Young Chief Technologist John Parkinson's fantasy of only 100 companies providing the majority of computer services to the world won't come to light, despite the greed of Ernst & Young, Microsoft, IBM and EDS in trying to control everyone's data ["The Ins and Outs of IT," QuickLink 36727].

In fact, the trend is just the opposite, toward Linux and decentralized data. This is for good reason. Microsoft became popular because the high expense, poor quality of service, arrogance and incompetence of companies' central computer departments (commonly called MIS) caused other departments to purchase their own systems, which would be under their own control.

It's unfortunate you chose to run such an article.

Bob Tosen
Chief technical officer, Fly-By-Day Consulting Inc., Duluth, Ga., bob@verysecurelinux.com

I AGREE WITH John Parkinson that new technology will be produced, but history has taught us that business doesn't move quickly to adopt the new processes that new technology demands.

Manufacturing resource planning took 15 to 20 years to really grab hold, and today there are many companies that have not moved to ERP, though they should have.

Paul E. Miller
Partner, Computer Sciences Corp., Cheshire, Conn., pmille32@csc.com

Taking Advantage Of Mainframe Skills

THE ARTICLE "Mainframe Brain Drain Looms" [QuickLink 37362] certainly reinforces some of the issues I have found over recent years. However, I would like to suggest another spin on this. A lot of the skills that mainframe data center personnel have are in fact the same skills lacking from open-server data centers. The idea of properly organized shifts with actual operators to monitor and manage those systems just doesn't exist. You routinely see highly paid staff like sysadmins or DBAs doing the work that a console or system operator would do in a mainframe world.

The problem is a cultural one – a failure to put things together so that it can be handed over to operations staff to take care of using the simple, functional interface and procedures you have provided.

In fact, I am constantly amazed at the amount of time spent reinventing what the mainframe – because it grew from the idea of stability and reliability being No. 1 to the organization and user – already had.

Peter Dominey
Independent Unix contractor, Dallas, pdominey@dominey.biz

YOUR ARTICLE "Mainframe Brain Drain Looms" startles me. It gives the impression that employers are wringing their hands in deep concern that they will be unable to find local talent.

If such a shortage exists, why aren't there more ads requesting mainframe skills?

L. Federman
Lake View Terrace, Calif.

REGARDING the article "Mainframe Brain Drain Looms," it's true that those of us with mainframe skills are generally over 50. However, if there is a shortage, why is it that none of us can find a job? Could there possibly be some age discrimination in the marketplace?

M. Shepard
IT manager, Norcton, Conn.

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Dr. Tim Grieser is responsible for performance and availability management software research in IDC's Enterprise Systems Management Software program. His coverage includes service level management for systems and applications across a wide variety of platforms.

UNISYS PRESENTS

ask THE EXPERT

A few minutes with Tim Grieser, VP, Enterprise System Management Software Program, International Data Corp. (IDC)

Fight Data Center Complexity with Self-Managing Servers

> We now hear the terms "self-managing," "self-healing," "self-protecting," "self-optimizing," "self-configuring," "policy-based," "holistic," "introspective," "autonomic" and "smart" computing for systems management software — what does this all mean?

All of these terms refer to putting more system management intelligence into software tools, so that problem detection, diagnosis and response can be performed automatically in an increasing number of cases.

> Just how real and proven are the lofty claims of vendors about self-managing IT infrastructures?

Quite real. Some aspects of self-management have been successfully implemented in production environments for a number of years. For example, scripted responses (such as re-booting a server) to fix common problems (such as running out of available memory space) are commonly deployed. Techniques such as event correlation are used to help determine which of several events is most likely to be the fundamental or "root cause" of a problem.

> Why is this all so important and what are the most significant benefits to the enterprise?

What is really important in today's complex, distributed environments is to simplify the job of system management. With increasing platform complexity, and constraints on IT budgets, IT professionals such as system administrators are being asked to manage more and more infrastructure elements, such as servers, in less time. Indeed, "doing more with less" is a common job requirement for system administrators these days. Intelligent system management software can simplify the job of administrators by automating responses to known types of problems, thus reducing the number of situations that require manual intervention by the IT expert. Benefits to IT include cost savings, the ability to "scale" to manage ever increasing numbers of servers and server images, and improved service levels such as system performance and availability.

> How does an enterprise implement these capabilities across dissimilar platforms, and are standards important?

Typically, there will be platform-specific management components (such as monitoring agents for Windows and Unix servers) linked to common management components such as "consoles." The common management components often deal with automatic responses to events, and also work with higher level constructs, such as applications and end-user views. Standards are useful in that they can enable easier data gathering, such as monitoring, across platforms. Also, system management tools often use standards to communicate information from basic monitors to higher-level management consoles.

"What is really important in today's complex, distributed environments is to simplify the job of system management."

> What can we expect from this technology three years from now?

The direction is clearly toward higher levels of automated responses, not only to fix operational interrupts or breakages, but also to address dynamic management of resources (such as dynamic load balancing and provisioning servers as needed) in order to achieve desired service levels. More and more, the objective is to reduce manual intervention to diagnose and fix problems, so that higher levels of scalability, performance and availability can be achieved.

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IT manager leaves office for lunch

After deploying a firewall and intrusion protection solution from Nokia, Daniel Heslip confidently leaves building for one full hour

According to sources, at 12:10 pm on Friday, Heslip approached reception and proclaimed that he was "going out for a bit." "No one took him seriously," said Nora, senior receptionist at the time. "But, then I noticed that he actually walked out the door, and he was gone for a whole hour."

Pre-installed, Pre-configured and tested

Before Nokia, Heslip claims he didn't have the flexibility or control to manage all the details of his network's security system. "What's so great about the new system? Well, for one thing, a lot like this new burger place I just discovered, whatever platform you buy can be scaled [illegible]. If you need extra energy, you just ask them to super-size it for you. They are total flexible," says Heslip, "and, deliciou It was a pretty easy choice real Nokia's Internet security solutions cou pre-installed, pre-configured and a compatible with my IP netwo Implementation was easier th choosing lunch today, I'll tell y that right now." Whether it's scalability of the Nokia platform the built-in IP routing functiona one thing is certain, it's allow IT guys to experience basic da day activities that the rest of so takes for granted.

"Nokia also has 24-hour, seven- week global support, which just that if I need help I don't have to [illegible]. In fi

Find out why IDC recently reported that Nokia had captured top spot in the most competitive firewall appliance segment.

The Nokia approach to security integrates the world's best security software with Nokia's purpose-built hardened hardware, operating system, and rapid deployment management platforms, creating a best-of-breed solution that's easy to implement and manage. Take Nokia's partnership with Check Point Software Technologies, world leader in VPN/Firewall software that allows organizations to deploy a single, integrated solution for secure Internet communications. Or, Internet Security Systems™ (ISS), which makes Nokia the most secure and easy to deploy intrusion protection appliance available today. Our program for security developers also allows customers to add other certified security software such as network management agents, log analysis and application security.

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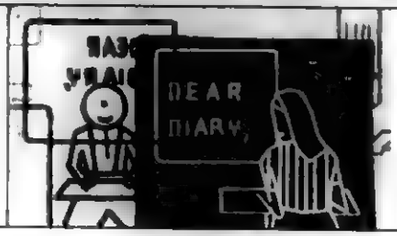
VPNs Made Easy
Secure Sockets Layer virtual private networks make accessing Web-enabled applications as easy as launching a browser. But other applications still require client software, so you may end up using an IPsec VPN as well. **Page 28**



QUICKSTUDY
Blogs
A weblog, or blog, is a Web site where an individual records his own thoughts and opinions as well as comments from others and offers links to other Web resources. **Page 30**

SECURITY MANAGER'S JOURNAL
Merger Security Hinges On Gateway Appliance
An integrated security gateway appliance could provide interim access between Mathias Thurman's company and one that it's acquiring, without compromising security. **Page 32**

WINDOWS SERVER 2003:

EARLY USERS TAKE THE PLUNGE

Four beta users say the migration brings efficiency gains but requires careful planning. By Carol Sliwa

MICROSOFT CORP. launched its long-delayed Windows Server 2003 operating system last week, but some users couldn't wait.

Nasdaq Stock Market Inc. and JetBlue Airways Corp. jumped from Windows 2000 Server to the Windows 2003 beta to gain a performance edge and pursue server consolidation.

Meanwhile, the Kentucky Department of Education (KDE) and Intrawest Corp. took the plunge in hopes that Active Directory would help rein in the many domain controllers they had with Windows NT 4.0.

Windows Server 2003 promises improvements in performance, scalability, reliability, security, manageability, networking and its integrated .Net development framework. But migrating to a new server operating system is no snap for any IT shop, once the planning, testing and potential disruption to end users are factored into the equation.

All four of these early adopters said they realized benefits from migrating to Windows Server 2003, but they also expended months of effort to make sure they did. Plus, as participants in Microsoft's joint development or rapid adoption programs, they received special assistance to ensure that their projects went smoothly.

Careful assessment and planning will be crucial for any company migrating to Windows Server 2003, in order to realize the full business benefits and justify the expense in a tough economy, analysts and consultants say.

IT managers need to step back and envision the future, advises Chris Burry, a technology infrastructure practice director at consultancy Avanade Inc., a Seattle-based joint venture between Accenture Ltd. and Microsoft. Burry says IT shops should weigh questions such as what role directory services will play in their business and how those services can enable provisioning, security and management. "If you look at what you need the infrastructure to do," Burry says, "that's the best way to organize your migration."

Directory Drives Migration

For organizations using NT 4, such as the KDE, Active Directory is often the first step of the migration. KDE had over 300 Windows NT 4.0 domains and more than 2,000 domain controllers dotting the state's 176 school districts and 1,400 schools, and the distributed systems had become tough to manage and patch, particularly from a security standpoint.

Chuck Austin, project manager of the Kentucky Education Technology System, says both IT staffers and school superintendents saw the benefits of using Active Directory to centrally manage critical network resources and deliver services. Their goal is to improve security, reduce recurring costs and complexity, stabilize backbone services and lay a foundation for better collaboration among the state's 600,000 students and 100,000 teachers and administrators.

To preserve local autonomy, the IT department will delegate authority for managing users, computers and groups to network administrators in the districts, Austin says. Each district will have at least one Windows Server 2003 domain controller and a global catalog server, and about 20 districts are expected to continue to run Novell Inc.'s NetWare in tandem.

Tim Cornett, the KDE's Active Directory lead architect, says the directory migration to Windows Server 2003 has been easier than it would have been with Windows 2000 Server because he doesn't have to manually create connection objects for replication between domain controllers.

In Windows 2000, the process that

BENOIT LAVERDIERE

automatically creates replication connections between domain controllers can't be used when a forest of Active Directory domain trees contains a large number of sites. Administrators must create and maintain intersite replication topologies.

Intrawest aims to go from 130 domain servers to 40

Cornett says guidelines advise companies with large deployments to turn off some of the automated features in Windows 2000 Server. But he shouldn't have to do that with Windows Server 2003, because the new Inter-Site Topology Generator uses improved algorithms and can scale to support a forest with a greater number of sites. Cornett says that will save a tremendous amount of work. It will also lessen the expensive bandwidth for replication to 176 districts, Austin adds.

Another overall benefit from the Active Directory migration, which is due for completion by year's end, will be the reduction of the 2,000-plus domain controllers to 400 and the 300-plus domains to 178, Austin says. When the KDE migrates its 320 Exchange and 700 Web servers, it hopes to achieve server consolidation, he adds.

Domain Servers Reduced

Intrawest has about 130 Windows NT 4 servers involved in domain and security tasks. But the IT department is aiming to reduce the "god-awful mess" to 40 dual-processor Dell Computer Corp. PowerEdge 2650s running Windows Server 2003 Standard Edition, says Matthew Dunn, CIO at the Vancouver, British Columbia-based resort operator and developer. He says the company's 35 active domains — with a "snake's nest of trust relationships" among them — will be cut to two, thanks to six months of careful consideration and planning.

One challenge that Intrawest encountered in figuring out the best way to address the problem was wading through the boatload of documents that Microsoft makes available to customers. "Microsoft is almost guilty of supplying too much information," Dunn says with a laugh. "Microsoft Consulting Services was helpful, in part, as a guide in the wilderness of documents."

Plans call for Intrawest's Microsoft and in-house applications to be migrated from Windows NT and 2000 to Windows Server 2003 over the next two years. Dunn says he wants a .Net-centric architecture to pave the way for the Web services he hopes will help disparate systems talk to one another through XML and SOAP. "Because of the performance gains," he adds, "there's an opportunity to pursue consolidation as well as migration."

Shrinking the Web Server Farm

Steve Randich, CIO at Nasdaq in New York, says Nasdaq.com saw a 25% to 30% boost in performance running Windows Server 2003. That enabled his staff to consolidate 75 four-processor Dell Web servers to 35 servers. Stress-testing tools from Mercury Interactive Corp. in Sunnyvale, Calif., showed that the servers can handle more sessions and users. "We pay less maintenance when we have less boxes in production," Randich says, adding that he also expects to reduce licenses.

Application code has run more reliably, and servers required fewer patches than Windows 2000 Server did during its beta period, says J.P. Athey, vice president of Nasdaq network and Web technology. He says migrating Web servers still involves the typical intensive testing effort, but he found it "more seamless" than the move to Windows 2000 Server.

Server consolidation, performance, enhanced security and total cost of ownership benefits will be the key drivers when Nasdaq looks to migrate other Web, database, transaction processing and application servers from Windows 2000, Athey adds. Nasdaq, which is doing a server consolidation study with Hewlett-Packard Co., hopes to go from 1,100 servers to 700, he says.

Windows Server 2003 improved Nasdaq's Web site performance.

Rick Fricchione, vice president of Microsoft services at HP, says IT shops often start with migration and move to consolidation to cost-justify the upgrade. But he warns that they need to focus on service management, availability and reliability once there are tens of servers each supporting 1,000 users, rather than hundreds of servers handling 100 users each. "The biggest gotcha we've seen is understanding that you're much more mission-critical when you come out the other end," he says. "Instead of having 100 people impacted when a machine goes down, you may have 1,000 impacted. So operational best practices matter greatly."

Boosting Scalability

Improvements to Windows' Distributed File System (DFS) were a major impetus for JetBlue Airways to upgrade to Windows Server 2003. The Forest Hills, N.Y.-based airline relies on DFS services to distribute electronic manuals to pilots as part of its paperless cockpit initiative.

JetBlue CIO Jeff Cohen says DFS replication in Windows 2000 Server sometimes didn't work "as advertised" in updating changes made in the root folders. But the new version of DFS fixes the problem and affords more granular control over replication, he says.

An all-Microsoft shop, the 3-year-old airline likes to run the latest technology and regularly participates in Microsoft's joint development and rapid adoption programs. JetBlue sometimes runs 40% of its systems on beta software, Cohen says, but there's minimal risk because Microsoft "is standing by your side." By May 19, JetBlue will have devoted over 5,000 man-hours to testing, planning and developing applications for Windows Server 2003. Its migration of 250 Windows 2000 servers started with the "extremely smooth" upgrade of 22 domain controllers, he says. One of the few minor issues was that HP's SmartStart setup utility wasn't ready to help configure the servers, Cohen notes.

JetBlue is also shifting mission-critical applications to Windows Server 2003 Datacenter Edition on Unisys Corp. ES7000 boxes, including two running 64-bit Windows Datacenter on Itanium 2 processors. The company has three ES7000s in production and four more in the works.

Next month, JetBlue will go live with the new 64-bit SQL Server 2000 for its frequent-flier program, a move Cohen likens to doubling the size of a highway during rush-hour traffic. The company also plans to run its entire Web server front end on ES7000s. "These servers can give five 9s of reliability," Cohen says. "We're running an airline. We cannot afford to be down."

But Avanade's Burry warns that Datacenter may not be the right choice for every IT shop considering Windows Server 2003. Each company will need to carefully weigh the economic impact of downtime, he says.

"As you drive up the availability, you also drive up the cost," Burry says. "There are places where Datacenter Server is absolutely marvelous. But it needs to be connected to the requirements of your business."

SHOULD YOU UPGRADE?

Windows Server 2003 has been described as not much more than an incremental upgrade to Windows 2000 Server. But some users and analysts say a few key features set it apart, such as the following:

Active Directory improvements, including cross-forest trust, domain rename and schema redefine capabilities, more efficient replication and synchronization, a new group policy management console and new group policy settings, and the ability to load directory content from backup media such as CDs, DVDs and file copies without replicating across the corporate network.

Enhanced security, including the lockdown by default of Internet Information Server 6.0 and a new Internet Connection Firewall to protect and monitor traffic between the network and the Internet.

Internet Information Server 6.0, which is based on a new request-processing architecture. It provides an application isolation environment to prevent one application or site from stopping another and to reduce the time needed to restart services.

Volume Shadow Copy Service, which enables rapid "snapshot" backups of servers without disrupting applications.

Built-in .Net Framework support, along with native support for Web services standards such as XML, SOAP, Web Services Description Language and UDDI.

Support for 64-bit computing in Enterprise and Datacenter editions.

Windows System Resource Manager, which lets IT managers allocate CPU and memory on a per-application basis.

More available, efficient Distributed File System allows multiple DFS routes to be hosted on each server; during system failure, a server fails to the nearest available server.

MIGRATION HELPERS

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VPNs Made Easy

SSL virtual private networks are simpler to set up than traditional IPsec VPNs, but most organizations will probably end up using both. By Alan Radding

PHYSICIANS AT CATHOLIC HEALTH SYSTEM in Buffalo, N.Y., want access to medical information and images. Managers at Perry Manufacturing Co. in Mount Airy, N.C., need remote access to e-mail and applications running on an AS/400. At these businesses and elsewhere, users are becoming increasingly reliant on remote access to business applications and data.

Yet even in the era of the Internet, there has been no easy and secure way to provide remote access to the data and applications users need. Dial-up connections, terminal emulation tools, Internet portals and traditional virtual private networks (VPN) can do some of the job, but each has its limitations.

"We had an old dial-up product to reach the AS/400, but no e-mail," recalls Howard Ward, Perry's director of information systems. The company had Cisco's Easy VPN for e-mail but found it to be too slow, he adds.

Catholic Health wanted to give physicians remote access to patient information and medical test results. Its first attempt — sending medical information and images via fax — proved cumbersome. Then it deployed a VPN based on the IPsec protocol. That provided session encryption and authentication and enabled network-level access to resources, but it also proved problematic. "Some physicians still use our VPN, but there are real support issues. You need to configure software on each client. What we wanted was an application-level gateway of some sort," explains Douglas Torre, director of networking and technical services at the health care services provider in western New York.

Both he and Ward have turned to Secure Sockets Layer (SSL) VPN appliances, which provide that application-level gateway by allowing remote access over the Internet to Web-friendly applications.

No-Hassle VPNs

While IPsec VPNs provide broad, flexible network-level access, SSL VPNs let remote users access specific applications over an intranet or the Internet using a Web browser. In its purest form, the SSL VPN is clientless, relying only on a Web browser to run any application that can present an HTML interface. In other cases, users may need to download a browser plug-in, such as a Java or ActiveX component, in order to access a specific application.

Like its IPsec counterpart, the SSL VPN establishes a secure channel of communication. But it terminates the session outside the corporate firewall, usually to a server or appliance in the DMZ (the "demilitarized zone" between the secure corporate network and the public Internet). The user sessions then pass through to various internal systems using the appropriate interfaces and protocols.

In contrast, IPsec VPNs typically require the installation and management of complicated client software. These setups can be difficult and expensive to manage, especially if client machines aren't under the IT organization's control, says David Thompson, a senior research analyst at Stamford, Conn.-based Meta Group Inc. And when it comes to remote access, users are frequently beyond IT's reach, using their personal systems at home or public systems like those at Internet cafes or airports.

In addition to the need to configure the client software, says Torre, "there are security policy issues and access issues you have to keep dealing with." In comparison, Virtual Instant Extranet, an SSL VPN appliance from Neoteris Inc. in Mountain View, Calif., proved to be fast and simple. "We got Neoteris running in less than an hour. Users just go with their browser," Torre says.

Performance is another potential problem with conventional VPNs. "We were running our Cisco VPN on a big box, and it was still slow," says Ward. Efforts to tweak the VPN had no affect, and users

Clientless VPNs Give The Help Desk a Lift

still couldn't reach the AS/400. Ward installed FirePass from uRoam Corp. in Sunnyvale, Calif., and that appliance improved performance while delivering access to both e-mail and AS/400 applications. The AS/400 applications required a one-time client download of an ActiveX component.

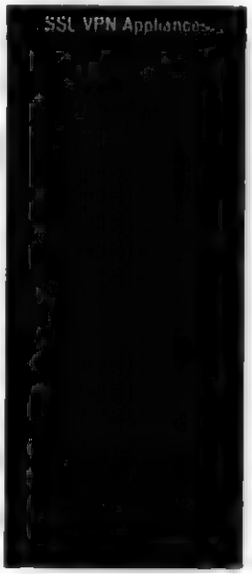
IPsec VPNs establish a network-level connection and therefore need to punch through the firewall. That's a problem when remote sites won't open their firewalls, notes Malvin Mize, hosting and access team leader at Acxiom Corp., a vendor of information management services in Little Rock, Ark. Using the SSL VPN capability supported in Tarantella Inc.'s thin-client software, however, Acxiom's remote customers can sit at any Internet-connected device and, via their browsers, connect to the company's Tarantella Enterprise 3 server, which provides secure thin-client access to the back-end Windows applications Acxiom hosts. There's no need to open another port in the firewall at the customer site, since all traffic passes through HTTP Port 80, Mize says.

The Downside

"IPsec is the mainstream approach, but it's not suitable for every remote access situation," says Jim Slaby, an analyst at Giga Information Group Inc. in Cambridge, Mass. But although an IPsec VPN increasingly isn't necessary for many remote access needs, it still has a role in most organizations. "SSL solves all the remote access issues except one:" providing access to client/server or other applications not accessible from a browser, Slaby says.

Unlike IPsec VPNs, SSL VPN appliances don't typically allow direct access to network file shares. One vendor, Seattle-based Aventail Corp., provides client software to access shared files on Windows servers. But that requires loading client software and doesn't support Network File System (NFS), which is commonly used on network-attached storage appliances.

With organizations increasingly Web-enabling their client/server and legacy applications, browser-only access is less limiting than it once was. But SSL VPN and application vendors have also come up with other work-arounds, such as adding client software or embedding proxy capabilities into appliances.



"Originally, the thinking around SSL VPN was to give every application a Web front end, but now you can just put in a gateway at the edge of the network," says Lisa Phifer, vice president of Core Competence Inc., a consulting firm in Philadelphia. The Web SSL session ends at the gateway, which then connects to whatever back-end application is requested. The gateway handles any necessary transformations or conversions and presents an application interface to the client.

On the back-end server side, Meta's Thompson identifies several possible gateways. They include Web proxies, which may dynamically rewrite Web addresses, masking internal addresses for security purposes; transactional proxies, which translate HTTP for use with File Transfer Protocol, SMTP and other applications; Socks-based proxy servers, which require client-side ActiveX controls or Java applets to enable access to client/server applications; screen scrapers, which reformat terminal-session displays for Windows or browser clients; and Windows thin-client systems, like Fort Lauderdale, Fla.-based Citrix Systems Inc.'s MetaFrame and its NFuse front-end software for Web browser access. Some functions may be embedded in SSL VPN appliances and associated client software, or a separate proxy server may be required.

Most users need access to a range of applications, so vendors have responded by putting different combinations of features into their products. Vendors also differ in the level of product manageability offered and in how easily their products can tie into an organization's existing directories for authentication and authorization.

With a proxy server, Java or ActiveX client components may be downloaded automatically the first time the user accesses the resource. This is how remote users typically access e-mail with Microsoft Exchange or Lotus Notes. On the back end, some sort of transactional proxy, such as Microsoft's Outlook Web Access server for Exchange Server, may be required. And companies that need to provide remote users with only e-mail access may find that newer products, such as the forthcoming Exchange Server 2003, include their own SSL VPN services.

By using thin-client intermediaries such as NFuse, users can access back-end Windows applications. Both Tarantella and Citrix also offer their own SSL-encrypted remote access options for their thin-client products. (Citrix also recently announced its own SSL VPN software offering, called Secure Access Manager.) But not all companies want the extra complexity and expense of adding a thin-client layer to their IT infrastructures just to allow remote access to client/server and Windows applications.

The SSL VPN market continues to expand as vendors rush into the space, but the future of many of them is questionable, analysts say. "The market will coalesce around a few," says Slaby, who expects large network-equipment and IPsec VPN vendors to sweep into the SSL VPN market.

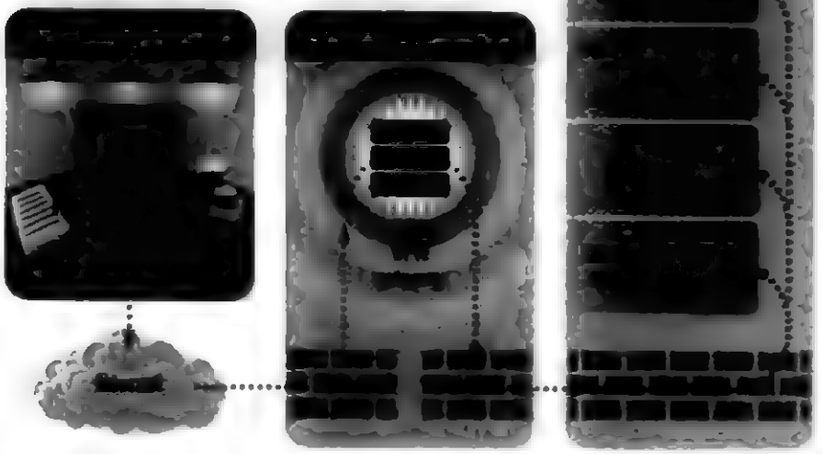
Eventually, SSL VPN functionality may simply be incorporated into other network security products. "There will be consolidation of the infrastructure at some point," says Thompson, and users may see SSL VPN features merge into firewalls, portal gateways or other network-edge devices.

An SSL VPN appliance makes secure remote access easier, but it's not indispensable. "Much of the functionality of remote access can be achieved with the use of tools that many organizations already use in their customer-facing applications," Thompson says. By using security tools, portals, Web access control tools and SSL-enabled applications, some companies might avoid buying SSL VPNs altogether.

Radding is a freelance writer in Newton, Mass. You can reach him at alanradding@attbi.com.

Anatomy of an SSL VPN

SSL VPN appliances provide remote access to Web-enabled applications and resources without requiring VPN client software to be installed or firewalls to be modified. Clients use only a Web browser, and encrypted HTTPS traffic passes transparently through firewalls. Access to client/server applications requires a browser plug-in. Some vendors also provide access to file shares, but that requires agent software to be installed on the client.



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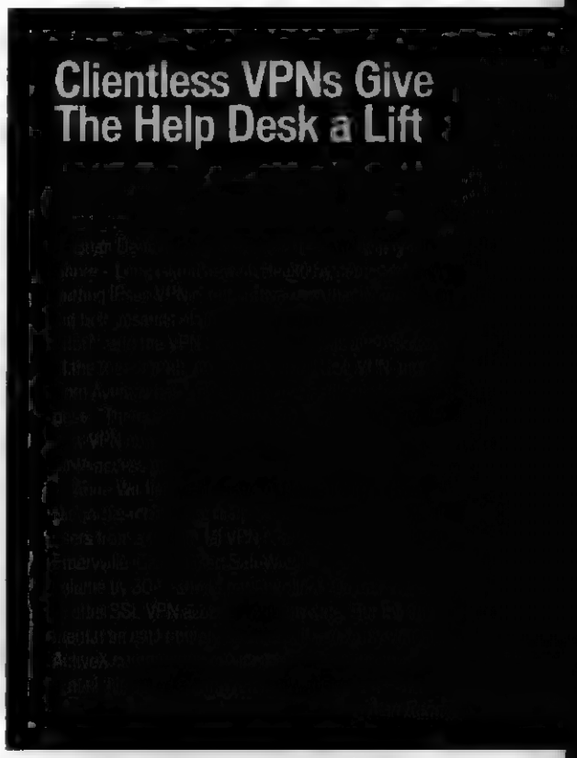

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SSL VPN Appliances

PROS

- Client-free setup
- Easier to configure and manage than traditional VPN products
- Faster deployment

CONS

- Work best with applications accessible through a Web browser
- Puts another box in crowded security perimeter
- SSL VPN access functions are already built into some applications

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The SSL VPN market continues to expand as vendors rush into the space, but the future of many of them is questionable, analysts say. "The market will coalesce around a few," says Slaby, who expects large network-equipment and IPsec VPN vendors to sweep into the SSL VPN market.

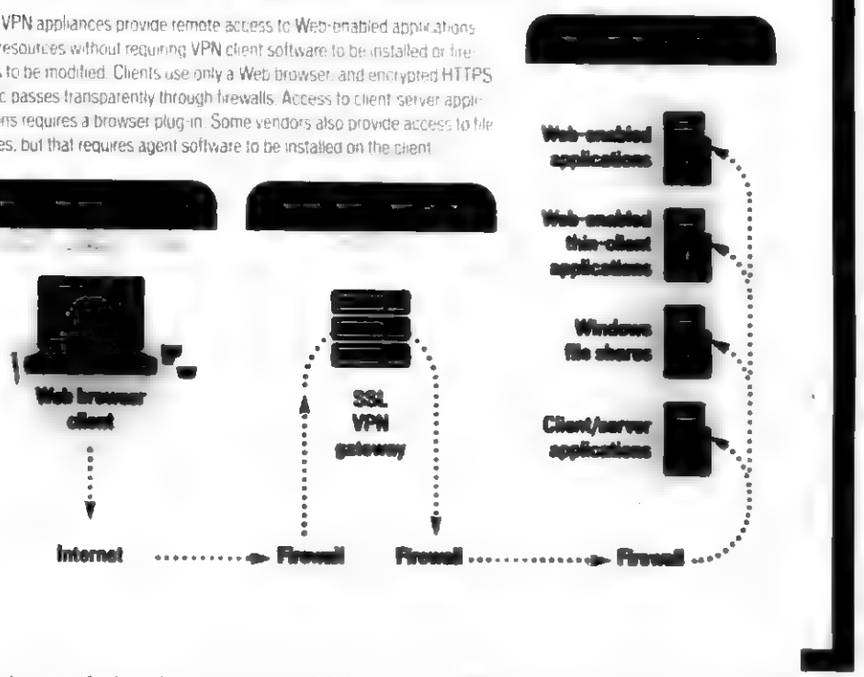
Eventually, SSL VPN functionality may simply be incorporated into other network security products. "There will be consolidation of the infrastructure at some point," says Thompson, and users may see SSL VPN features merge into firewalls, portal gateways or other network-edge devices.

An SSL VPN appliance makes secure remote access easier, but it's not indispensable. "Much of the functionality of remote access can be achieved with the use of tools that many organizations already use in their customer-facing applications," Thompson says. By using security tools, portals, Web access control tools and SSL-enabled applications, some companies might avoid buying SSL VPNs altogether.

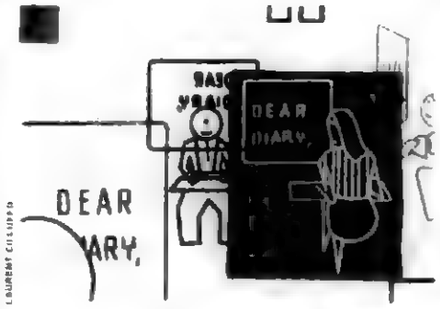
Radding is a freelance writer in Newton, Mass. You can reach him at alanradding@attbi.com.

Anatomy of an SSL VPN

SSL VPN appliances provide remote access to Web-enabled applications and resources without requiring VPN client software to be installed or firewalls to be modified. Clients use only a Web browser, and encrypted HTTPS traffic passes transparently through firewalls. Access to client/server applications requires a browser plug-in. Some vendors also provide access to file shares, but that requires agent software to be installed on the client.



Blogs



DEFINITION

A weblog, or blog, is a Web site where an individual records his thoughts and opinions, comments from others and links to other Web resources. A blog can be a personal journal or an interactive forum. Most are public and searchable on the Internet. Some companies maintain public weblogs as communication vehicles for employees.

BY RUSSELL KAY

DIARIES, journals, columns, essays, musings, daybooks, chronicles, logs and memoirs — all are ways in which people have kept records of their thoughts and feelings as well as events taking place around them.

In our computer-literate, information-based society, the creation of an electronic equivalent of these personal journals was inevitable. It's called the weblog, often abbreviated to blog, and it has expanded the possibilities for comment, expressing opinion and public discourse.

Traditional diaries come with lockable straps designed to keep others from reading one's private thoughts. In today's world, however, attitudes toward such privacy seem, on the whole, quite different than they used to be. Weblogging represents a distinct movement to share thoughts publicly.

Early weblogger and developer Dave Winer (*www.scripting.com*) says weblogs have the following characteristics, which he sums up in the phrase "personal Web-based publishing communities":

■ **Personal.** Blogs are created by a single person, expressing a distinct personality.

■ **Web-based.** They're frequently updated, inexpensive to maintain and accessible via a Web browser.

■ **Published.** Automated publishing tools help the author present his words in an attractive format, and maybe even syndicate them.

■ **Communities.** Blogs link to other blogs and sites, acknowledging that they're part of a larger world.

One other category of weblog is a community blog, which is generally updated frequently by many people and often has an imposing presence. The best-known and perhaps earliest example of this type is *www.slashdot.com*, a good site for news and sometimes offbeat commentary on Linux, open source, gadgets, privacy and other computer-related topics.

Weblogging has been around as a distinct form of communication since the 1990s. By one account, the first bloglike page, with personal comments and links, was Marc Andreesen's "What's New" page for NCSA Mosaic in June 1993 (*http://archive.ncsa.uiuc.edu/SDG/Software/Mosaic/Docs/old-whats-new/whats-new-0693.html*).

Jorn Barger coined the term *weblog* in December 1997 for his "Robot Wisdom Weblog" (*www.robotwisdom.com*), and in 1999 the shortened form, *blog*, appeared.

At the beginning of 1999, the best-known list counted 23 weblogs in existence, though there were certainly others. In early January 2003, Pyra Labs in San Francisco reported over 1 million registered users of Blogger, its free software and hosting site. (One month later, Google Inc. bought Pyra.)

The Impact of Blogging

Most webloggers seem to be avid readers of other blogs and maintain links to them on their own weblog pages. Many Web sites exist just to aggregate links to blogs, often on a geographic or topical basis, and many weblogs are members of Web rings — linked sets of Web sites that provide navigation to one another. Surprisingly, many webloggers don't seem much concerned with computers except as a simple tool.

To understand the power of the blogging community, ponder what some consider racist comments made by Sen. Trent Lott about retiring Sen. Strom Thurmond and reported by ABCNews.com last year. The first people to comment on the situation were a couple of politically minded pundits who discussed it at length in their blogs over a weekend. The issue spread quickly in the blogging community until the national news media was forced to examine Lott's remarks and history. The result was Lott's resignation as majority leader of the U.S. Senate.

It's also hard to overestimate the importance of personal narratives and statements in recording history. From Samuel Pepys' notes on life in 17th century England to Anne Frank's diary about her experiences in World War II Amsterdam, records of private experiences and thoughts are crucial to understanding the cultures and times in which they were written.

QUICK STUDY

PR Move

A recent development is the use of public weblogs as vehicles for business communications. In his own blog, Dan Bricklin, author of VisiCalc and founder of Trellix Corp. in Cambridge, Mass., comments on the usefulness of public blogs: "A normal part of the job of many consultants entails going to meetings and conferences and being active in trade associations where they 'network,' show off their expertise, appear on panels, etc. A blog is a way of showing your expertise and establishing yourself as a trustworthy authority without doing the travel. . . . (A blog is an excellent way to build up your 'authority' and move up politically in a trade association, too. Your readers would be others in your field, not customers.)"

For example, in January, Jupiter Research, an arm of Jupitermedia Corp. in Darien, Conn., started posting its analysts' weblogs, hosted from a common page (*weblogs.jupiterresearch.com*).

Starting Your Own

Probably the easiest way to start a weblog of your own is to go to Pyra's site at *www.blogger.com* and sign up. The site will lead you through the necessary steps to set up your weblog. Blogger doesn't charge for its basic service unless you want your own domain name, but it does offer upgraded services at a price. Other sites offering similar services (not tested by the author) include *www.pitas.com* and *www.diaryland.com*. ■

Kay is a Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

Software Tools For Blogging

Blogger
www.blogger.com

WebCrimson
www.webcrimson.com

Radio UserLand
http://radio.userland.com/

Blosxom
www.raelity.org/apps/blosxom
(A complete blogging application in 61 lines of Perl.)

CityDesk (for Windows)
www.logcreek.com/CityDesk

Tinderbox (for Macintosh)
www.eastgate.com/Tinderbox

Movable Type
www.movabletype.org

BigBlogTool
www.bigblogtool.com

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Merger Security Hinges On Gateway Appliance

The best short-term fix for handling acquisitions may be to use an integrated security product. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

OUR COMPANY is frequently involved in mergers and acquisitions, and we typically don't know the security posture and integrity of the IT resources in the company we're acquiring.

In the past, rather than conducting an upfront security audit, we simply opened the floodgates to allow network traffic to flow from the acquired company into our trusted environment. In one case, that allowed a virus to propagate through several parts of our network, requiring many hours of cleanup.

A security audit could have prevented that. But unless an upfront audit is written into the acquisition agreement, it can't be started until after the merger or acquisition is completed. Many target companies resist such upfront agreements, however, fearing the loss of sensitive information if the deal doesn't go through.

But that's not the worst of it. Once the acquisition deal is signed, the executive staff is in such a rush to integrate the companies that security assessments typically take a back seat to bottom-line profitability concerns.

Fear of the Unknown

It's difficult to determine the integrity of another company's infrastructure prior to establishing a trust environment between our environment and theirs. Here's what usually happens: The network team configures a dedicated circuit to the acquired company, throws up a firewall and asks the acquired company to configure its servers to set up trust relationships with ours. The most important goals are to give new employees access to our e-mail, human resources applications, company intranet and a few other critical applications. If the company we are acquiring sells a software product, its engineering team also needs access to our source code — our company's bread and butter.

What we fear most is that the newly introduced resources may be infected with a virus. It's also possible that the other company's servers don't meet our security configuration requirements and are vulnerable to an attack, or have already been compromised.

I've seen incidents where the e-mail server at the acquired company had been fully compromised when someone added a packet-sniffing device to the network. The company had contracted out the installation and configuration of its e-mail server, and no one on staff was capable of managing the resource. The server was never maintained properly, so the packet sniffer went unnoticed for more than three months.

> **We need a security gateway product that can act as an interim measure . . . mitigating the most common problems we might encounter during an acquisition.**

We need a security gateway product that can act as an interim measure until a full assessment can be completed, mitigating the most common problems we might encounter during an acquisition. We want something that offers good protection at a low cost and with few hardware requirements. The product must also be easy to manage.

We have other requirements as well. In the past, each company that we've acquired has had fewer than 200 employees and used minimal bandwidth. This is important, because any gateway product must be able to cope with expected traffic levels.

Symantec Gets the Nod

After a search, we selected the Symantec Gateway Security appliance from Symantec Corp. in Cupertino, Calif. This appliance combines virus protection, Internet content filtering, a virtual private network and an intrusion-detection system in one box.

We planned to buy several appliances and preconfigure them for easy and rapid deployment. We planned to use them only until we had validated the integrity of an acquired company's infrastructure. Then we would remove them, apply our current standards and put the gateway aside until the next acquisition. But our plan ran into opposition from the network group, which is responsible for the day-to-day management and configuration of our firewalls.

The network team currently manages Cisco Pix firewalls with Mountain View, Calif.-based Solsoft Inc.'s centralized management software, Solsoft NP, and they were uncomfortable introducing another firewall product — especially if they had to manage it. Doing so would mean additional training, familiarity with the product, support issues and extensive lab testing, the team complained. Like other departments within our company, the network group is already spread thin.

I explained that Solsoft NP may be able to manage the Symantec appliance's firewall component. This would mean that the network team wouldn't need to be intimate with the syntax or configuration of the access lists for the gateway device.

But they stood firm: They absolutely didn't want to manage any aspect of the firewall portion of the Symantec gateway. Instead, they suggested, why not use some of the extra Pix products they had lying around? These could work as an interim solution. But we'd still need the Symantec appliance for the other security functions.

We may end up not using the firewall portion of the Symantec product. But at this point, we'll get an evaluation unit in. Once we start lab testing, we'll have a better understanding of just how difficult the administration of the firewall is before making a final decision. ■

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum:

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■ Edison, N.J.
■ www.netforensics.com
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[redacted] netForensics' event correlation and risk management tool to collect security-related data from our intrusion-detection systems, network switches, routers and firewalls. Recently we upgraded to Version 3, which gives the netForensics graphical user interface a face-lift (see photo). The initial setup was quite lengthy, and it still takes some time to tweak the installation for maximum effectiveness. [redacted], the new Security Information Management desktop is more intuitive and easier to use than the previous one.

– Mathias Thurman

SonicWall Firewall Debuts

SonicWall Inc. announced SOHO TZW, a combined firewall and IPsec virtual private network security appliance that supports both wired and 802.11b wireless clients. According to the Sunnyvale, Calif.-based vendor, the basic system, which supports 25 users, sells for $995.

Sun, Symantec Launch Appliance

Sun Microsystems Inc. and Symantec Corp. are releasing a "no-hassle" IDS appliance. The iForce IDS Appliance is a 1U (one U equals 1.75 in.) rack-mounted appliance based on Sun's LX50 Solaris server and Symantec's NetProwler intrusion-detection software. The appliance, which ships this month, costs $21,995.

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BRIEFS

Enterasys Switch Line Announced

Andover, Mass.-based Enterasys Networks Inc. announced last week the Matrix N-Series line of switches for enterprise customers. The Matrix N3 and Matrix N7 switches have the ability to reach 1.68Tbit/sec. throughput and will begin shipping in May. Pricing wasn't disclosed.

SGI Launches Midrange Servers

Silicon Graphics Inc. in Mountain View, Calif., unveiled its new Origin 350 midrange technical server series. The modular, rack-mounted servers include global shared-memory architecture and can be equipped with two to 32 CPUs and up to 64GB of memory. An entry-level configuration with two CPUs and 1GB of memory sells for $23,790. The Origin 350 series is available now.

Opera Adds Web Navigation Tools

Version 7.10 of the Opera for Windows Web browser and the beta version of Opera 7.10 for Linux feature fast-forward and rewind functions. Oslo-based Opera Software ASA said they are the first browsers with buttons for speeding up Web navigation. The browsers can be downloaded for free at www.opera.com, or banner-free versions can be purchased starting at $39.

QLogic Rolls Out Multiport Switch

QLogic Corp. in Aliso Viejo, Calif., announced a new high-port-count Fibre Channel edge switch with 4Gbit/sec. throughput. The SANbox2-64 is aimed at the storage network middle ground between bladed directors and fixed-port edge switches. The scalable, modular bladed switch can be equipped with eight to 64 Fibre Channel ports and costs $1,000 per port.

ROBERT L. MITCHELL

IT Pulls a Hat Trick

MOST IT PROFESSIONALS are used to the idea of wearing many hats, as tight budgets and lean staffing have forced them to take on more than one role within their departments. Now, technology changes are blurring the roles between IT and external groups as well.

A broad, cross-industry convergence on a single set of communications technologies is becoming the new common denominator across what were formerly disparate corporate job functions. Mass adoption of TCP/IP and Ethernet across disciplines could soon begin to erode departmental barriers and redefine what is and is not an IT function. Turf wars are likely to erupt. And before it's over, IT managers may feel as though they've tried on more hats than the Village People.

The question is, as everything converges onto a common network architecture, how should that architecture be designed, how should it be managed, and who should have responsibility for the disparate systems that use it?

Consider building-automation systems. From heating and ventilation to surveillance and elevator monitoring, building automation will undergo a major transition to TCP/IP and Ethernet over the next 10 years. Traditional use of expensive, proprietary cabling systems, communications protocols and specialized converter boxes will give way to a common, structured cable plant and network infrastructure. The convergence of automated building-monitoring and control systems onto a single communications medium has implications that even those in the industry have yet to fully grasp. New applications are likely to emerge that will offer unprecedented integration — as soon as someone thinks of them.

And with the ratification this summer of the emerging Power-over-Ethernet standard, the local wiring closet will gradually evolve into a universal distribution system for low-power devices, ranging from security-card readers to IP surveillance cameras and even emergency backup lighting, time-card readers and wall clocks. Each will be remotely configurable and will feed back status information over Ethernet.

But with Ethernet fully democratized, who will control the infrastructure? You could create parallel, separately managed networks. But IT has more experience managing IP-based data networks, and sooner or later, someone is going to want to cross the IT and building-automation systems' data streams. For example, analysts say IT security is likely to merge with building-security systems over the next few years in order to provide a more comprehensive security picture.

Meanwhile, wireless LANs are following PDAs through the corporate back door, and departmental managers have begun acting like network managers, installing WLAN access points in a grass-roots effort to give mobile office workers access to the corporate LAN. Do you issue cease-and-desist orders and hope for the best, or do you take charge, set WLAN policy and begin your own deployment? Doing the latter means managing data over radio waves in an unlicensed spectrum that spills over business boundaries, is prone to security problems and doesn't like the office microwave.

WLANs also present a new learning curve in how to manage and troubleshoot a network that uses airwaves as its communications medium. Greg Murphy, president of WLAN management software vendor AirWave Wireless Inc., says a hospital's IT team called recently when WLAN performance began dropping off at regular intervals. AirWave traced the problem to a balloon vendor. With each delivery, the metallic-covered Mylar balloons floated upward, blocking an access point in the lobby.

WLANs clearly need to be managed by IT. Once IT assumes control, however, users will expect the same level of service they get on the wired network. Early management products can help by providing centralized configuration management and performance monitoring, but they also must be integrated with existing enterprise network management systems for end-to-end troubleshooting.

The voice/data divide is another departmental boundary that's falling fast. IP telephony is turning the Ethernet LAN into a giant telephone switch, with IP phones plugged into Ethernet jacks and traditional PBX functions like call management and voice mail running on network servers. As if that wasn't enough, WLAN IP phones are on the way.

In taking on traditional telecommunications department functions, IT must serve a constituency that has high expectations for signal quality, uptime and sophisticated feature sets. Suddenly, data networking staff need to understand the impact of issues like jitter, latency and packet prioritization, while the telecommunications folks bone up on TCP/IP. Do you merge these groups — or somehow move the boundary between them?

How such issues get resolved is likely to redefine IT's role in the organization. As an IT manager, you should take the initiative to drive that process before some other group does it for you.

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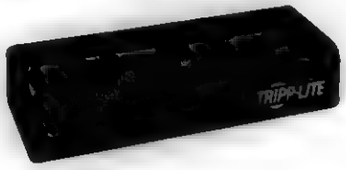

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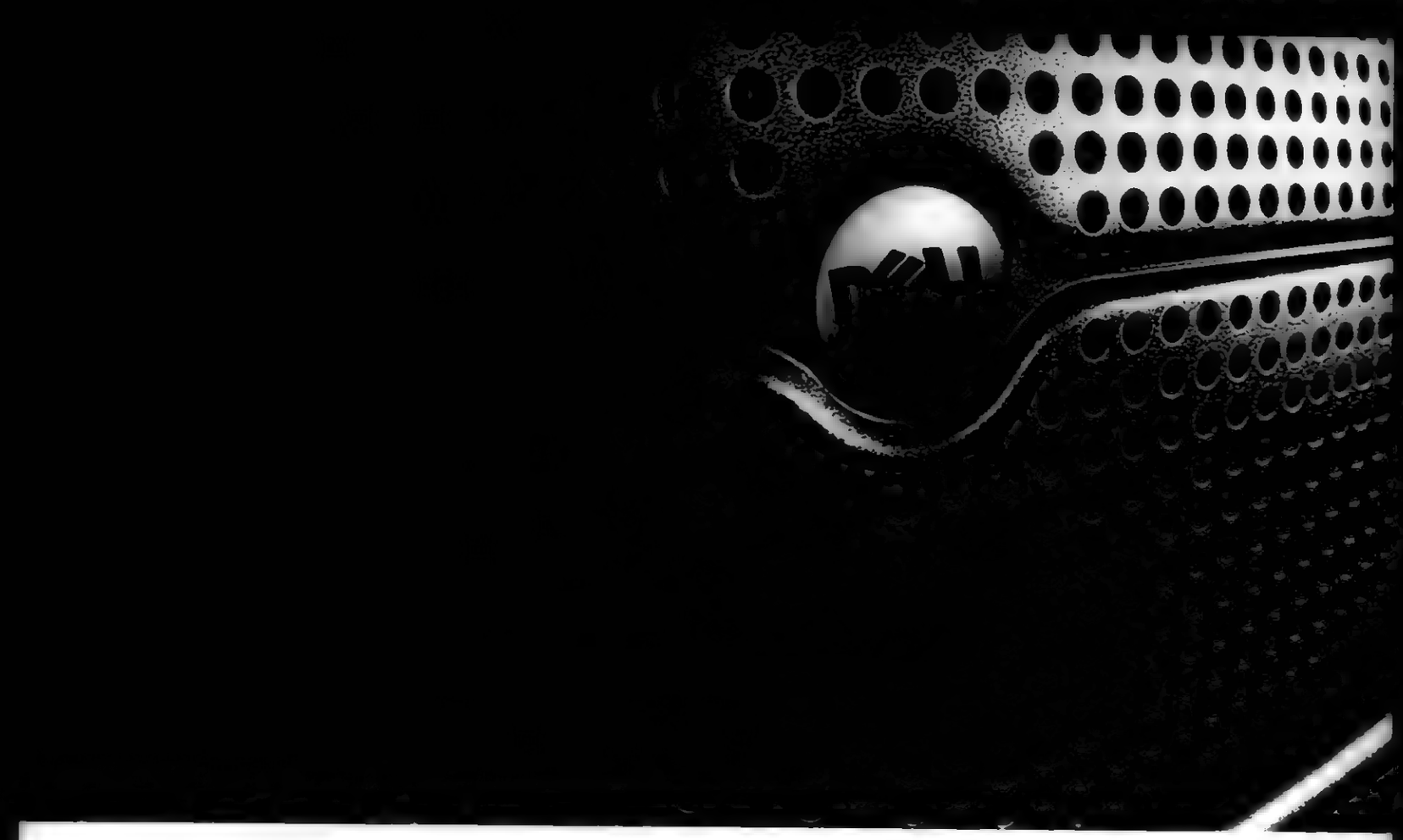

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STEAL THIS IDEA

And the Winner Is . . .

Southern California Edison CIO Mahvash Yazdi says the utility has launched an awards program to recognize IT excellence beyond the walls of the IT department. **Page 44**

Q&A

E-Business So Far

In their new book on e-business, two authors from the Wharton School analyze why some Internet ventures were profitable while others failed. **Page 46**

OPINION

Magna Cum Unemployed

With companies like Microsoft and GE setting up IT shops overseas and the economy slowing, IT professionals are watching job opportunities fade away, writes columnist Donald Finley. **Page 48**

IT WORKFORCE

THE WRITING IS ON THE WALL. If you are a programmer or an application developer, or work on the IT help desk or in data center operations, your IT job is in jeopardy, and here's why.

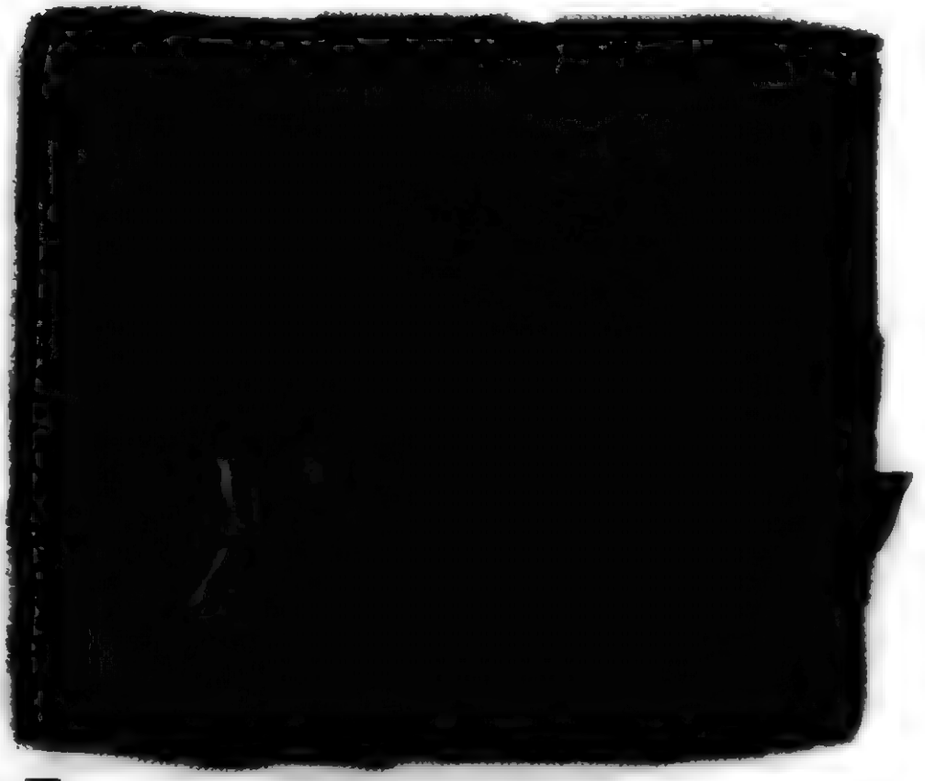
In an unrelenting push to lower IT costs, more and more companies are tapping cheaper offshore labor to handle routine tasks such as application maintenance and help desk support functions. Even companies that farm out IT work under pay-as-you-go and other hosted computing models to U.S. outsourcers — such as IBM and Hewlett-Packard Co. — are contributing to the loss of jobs, because these domestic service providers are also shipping IT work abroad. IBM Global Services, for example, is India's fifth-largest employer.

By 2015, 3.3 million white-collar jobs — 472,632 of them in IT and mathematics — and $136 billion in wages are expected to move offshore to countries like Russia, India, China and the Philippines, according to a November 2002 report by Forrester Research Inc. analyst John C. McCarthy.

In March, 212,000 U.S. computer and mathematical professionals were unemployed, according to the U.S. Bureau of Labor Statistics. Looking ahead, Meta Group Inc. analyst Maria Schafer predicts that up to 50% of U.S. IT employees could shift to contract work by 2007, as outsourcing in all forms continues

Continued on page 40

ISABELLE CARDINAL



Exporting IT JOBS

Yours could very well be the next one to go offshore.

By Thomas Hoffman and Patrick Thibodeau

Exporting IT JOBS

Continued from page 39

to increase and as more salaried U.S. IT employees opt to work as contractors to take advantage of the flexible schedules and the opportunity to work on a variety of projects.

Some industry experts draw an analogy between the thousands of U.S. manufacturing jobs that were sent overseas 20 to 30 years ago and the impact that offshore outsourcing is now having on U.S. IT jobs. Still, there are subtle but important differences between the two. Among them is that the forces behind the shrinking IT workforce go beyond companies seeking lower costs. IT managers are also struggling to strike a balance between the skills they want to have in-house on salary and the talent they can contract for on an as-needed basis.

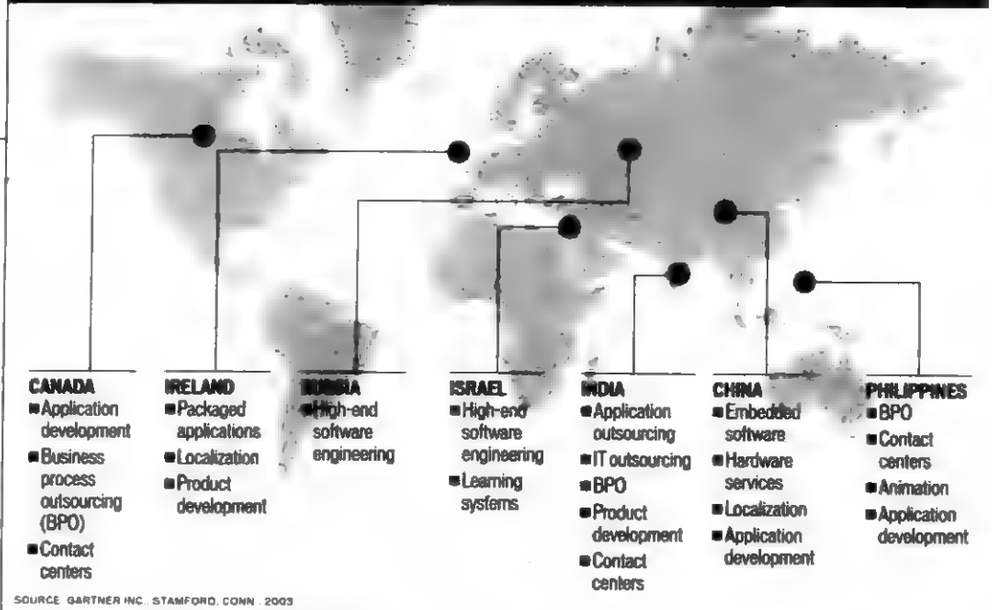
"It's not just about low cost. CIOs are interested in specialization and reliability," says Mark Hauser, CEO of Cap Gemini Ernst & Young's Americas division. Going forward, CIOs say they want a different mix of skills. They want their salaried IT employees to include experienced project managers and business/IT liaisons who can effectively communicate and broker IT project requirements between business units and IT departments.

Packaged Software Improving

Another factor contributing to IT job loss in the U.S. is companies' growing preference for a buy-vs.-build approach to software development. Purchasing software means that fewer in-house programmers and developers are required than when systems are created from scratch — even when a fair amount of customization is done to the off-the-shelf software. Sophisticated software development techniques and improved global bandwidth and communications are making it possible for companies to have various pieces of development or integration projects conducted in India or China, with the final assembly completed in the U.S. That's why there will continue to be demand for superdevelopers and top-notch integration experts who are adept at managing and coordinating different phases of a development project and pulling together the various components into a cohesive package.

"If you buy the argument that a lot of IT has become commoditized, [then] we are becoming inventors, creators, integrators and architects, and we are going to send the production offshore," says Steve Andriole, a senior consultant at Arlington, Mass.-based Cutter Consortium and an MIS professor at Villanova University in Villanova, Pa. Under this scenario, argues Andriole, U.S. IT organizations will continue to partner with business units to conceptualize IT approaches to business challenges and execute on those projects domestically — even if part of the project development itself is conducted overseas.

COUNTRY SPECIALIZATION BY NICHE



SOURCE: GARTNER INC., STAMFORD, CONN., 2003

The New IT Worker: Angry and Proactive

WHEN IT SPECIALIST JIM MANGI decided to help form a union at IBM in 1999 after the company changed its pension plan, the worst part was telling his father, a Big Blue retiree. "What's he going to think? What's he going to say to his son . . . who is going to start union organizing?" Mangi recalls. But as it turned out, his father was all for it. "He knows it's just not what it was," says Mangi, secretary of Alliance@IBM, which is affiliated with the Communications Workers of America (CWA).

Many high-tech workers are feeling under siege, and Mangi is among those who are fighting back. Job losses from the dot-com bust, benefits cutbacks, offshore development and foreign workers brought in on H-1B visas are fueling activism, lobbying and education efforts.

Much of what union organizers do is educate IT workers, who largely remain reluctant to join unions. Indeed, the CWA, which represents about 700,000 workers in technical areas, estimates that only about 5,000 of its members are in IT.

Mangi lets employees know when IBM is hiring H-1B visa holders by posting on a Web site copies of the federal form that employers must file when hiring workers from overseas. He says he does it to make people aware that even though IBM may be going through layoffs in the U.S., the company may also be applying to hire foreign laborers.

"It's a turning point in this industry," says Marcus Courtney, president of the Seattle-based Washington Alliance of Technology Workers, a high-tech workers' union that's also affiliated with the CWA. Offshore outsourcing and increased use of foreign workers are practices that were inconceivable in the 1990s, he says.

"To sell this workforce out after they helped create one of the most successful economies in the world – that should not be an agenda that workers need to embrace," Courtney adds.

A legislative offensive is beginning to build at the state level. A bill pending in the Washington Statehouse would require employers to give employees at least 60 days notice of a layoff of 50 or more employees. And a New Jersey lawmaker wants state contracts to prohibit offshore work.

The offshore trend can be compared to the overseas job exodus in manufacturing. The loss of relatively well-paying, blue-collar jobs hurt that segment of the workforce, and real wages for the bottom 25% of the workforce never recovered, says Josh Bivens, an economist at the Economic Policy Institute in Washington.

Dave Cooper, former CIO at Lawrence Livermore National Laboratory, a U.S. nuclear weapons lab, says the social costs of offshore development will exceed the corporate bottom-line benefits. Offshore work will discourage young people from studying IT in college, Cooper argues. What has "kept this country strong, both financially and physically, is the fact that we have been able to devel-

Surviving Offshore Cutbacks

JIM HONERKAMP, CIO AT CLOPAY CORP., a building products maker in Mason, Ohio, is one of the people shaping the future of the American IT workforce.

By shipping some of the company's IT programming and application development work to India, Honerkamp has reduced Clopay's IT staff from 90 people, including consultants, to 35. He has no regrets about this decision. Outsourcing many IT functions has kept his budget stable and allowed him to add services. The decision to outsource network management, for instance, let him add network monitoring and other services for the same price.

Outsourcing is a necessity, Honerkamp says. "You really don't have much choice. I don't see how we can justify $90 to $130 an hour," when offshore services charge a third of those hourly rates. "I think the generic programmer [in the U.S.] is really threatened by this," he says.

Indeed, the U.S. IT jobs most adversely affected by offshore outsourcing are programming-related. IT professionals involved in integration work on business-process projects or those who have new technology skills have the best chance of surviving.

The U.S IT professionals who are most in demand often have specific industry or software package skills, such as those used in health care or SAP and PeopleSoft systems, said Russ Teesmen, a manager at Vermilion Group/MFI, an IT recruiting company in Des Moines, Iowa. But professionals with general skills such as Java development and Visual Basic programming – "those are the guys really struggling to find new opportunities," he says.

There's also a need for qualified project managers, especially people who know how to bring projects in on time, notes Marty Clague, president and CEO of Farmington Hills, Mich.-based Covansys Corp., which provides offshore IT services in India. IT workers with communications technology and networking skills are also needed in the U.S., according to Clague. There aren't enough people who understand networks, how to run them, build them and protect them, he says.

But this career advice is based on the kinds of services being provided offshore today, not tomorrow. The future for U.S. IT professionals may get worse.

Advanced networking and storage technologies are working to turn IT into a utility, something that can be managed anywhere, anyplace, says Andre Mendes, chief technology integration officer at Public Broadcasting Service in Alexandria, Va.

"The truth is that as we continue to progress, the cost of providing a secure environment for a company is going to be too large," says Mendes. "There are going to be too many variables, too many unknowns, and at what point do you say, 'No, I want a company that does this for a living to worry about these things on a 24/7 basis.'"

With backbone networks operating at almost zero latency worldwide, there's nothing to stop the heart of a corporate IT department – its data center – from being moved offshore, Mendes says. "If communication links are not only ubiquitous but extremely reliable, then what difference does it make if it's down the block or around the country?"

– Patrick Thibodeau and Thomas Hoffman

To that end, more than a dozen CIOs at Fortune 1,000 companies and many other IT leaders at large IT organizations who were interviewed for this report say the IT worker they're looking for is someone who combines business savvy and broad technology acumen.

"We're trying to preserve the internal knowledge that's important to the business while leveraging lower labor rates and technological sophistication in different geographies," says Harriet Edelman, senior vice president and CIO at Avon Products Inc. in New York. The $6 billion beauty products company is in the early stages of creating its own network of regional development centers. It began by establishing a Web development hub in Hungary last year [QuickLink 37761].

Global Exchange Services Inc. (GXS), a Gaithersburg, Md.-based spin-off of General Electric Co. that provides transaction management services to more than 60,000 retailers worldwide, pays about $30 per hour for programming work in its company-operated offshore centers in India and the Philippines [QuickLink 37522]. In the U.S., GXS's total hourly programmer cost is $110 to $120.

The economics give companies little choice but to export programming work, especially for software maintenance and support. But increasingly, they're also exporting application development and infrastructure support work, says Rita Terdiman, an analyst at Stamford, Conn.-based Gartner Inc.

"You have to do it, otherwise the competition is doing it for you," said Tasos Tsolakis, GXS vice president of global technology.

Workers Find Comfort in Groups

On the IT employee side, the offshore movement is changing workers' attitudes toward their employers. To protect their livelihoods, programmers and others are embracing strategies more common among blue-collar workers. These include joining unions and lobbying legislators. "Every day you go to work, you don't know if you are going to have a job that day," says Linda Guyer, president of Alliance@IBM, an Endicott, N.Y.-based union of roughly 5,000 IBM workers. "You don't know whether you are going to be required to train your replacement" from India (see "The New IT Worker: Angry and Proactive").

The union was formed in 1999, when IBM made unpopular changes to workers' pension plans. Today, the union continues to play mostly an educational and informational role. For example, it lets employees know when IBM is hiring H-1B visa holders by posting on a Web site copies of the federal form that employers must file when hiring overseas workers.

Even though it has no bargaining rights, the union says it can still exert pressure as a voice of influence. "We're small, but we think we carry a lot of weight. The executives are aware we exist, and I think we are a very effective pressure point," Guyer says.

Some IT executives say they have no choice but to outsource. Sue Unger, senior vice president and CIO at DaimlerChrysler AG, says her company last year began to outsource maintenance for 150 core applica-

- Many CIOs will investigate or pursue IT offshore outsourcing this year for three reasons: cost savings, access to specific skills and a general sentiment that internal staff can't be trained quickly or effectively in new skills.
- IT and business leaders who outsource development, support and services must redirect their employees to critical roles such as leadership, architecture, business analysis, business enhancement, project management and vendor management.
- Discontinuity in IT jobs, skills and support roles will create upheavals in compensation, rewards and incentives at some companies. The ones that move cautiously and respectfully will keep performance high and defuse employee anger.

SOURCE: GARTNER INC.

op these technologies and lead the rest of the world," he says. "If we no longer have U.S. citizens who are willing to [study IT in college], it's going to hurt us socially in an economic sense."

But Steve Andriole, a senior consultant at Cutter Consortium, and an MIS professor at Villanova University, says the U.S. will still be the place where technology ideas are born. "I think the risks are lower that we will lose our core competencies," he says. And that has to do with the volatility and rapid pace of change of technology, which sees new developments every two to three years, vs. 10 to 15 years in manufacturing.

"Technological innovation is still largely U.S.-centric," he says. "In manufacturing, it's not."

– Patrick Thibodeau and Thomas Hoffman

SAVING JOBS, RAISING COSTS

Protecting IT and other state jobs raises costs in New Jersey.

QuickLink 37913
www.computerworld.com

Exporting IT JOBS

Continued from page 41

tions that support its engineering, manufacturing and sales activities to Infosys Technologies Ltd. and Syntel Inc., both in India. The move allowed DaimlerChrysler to cut loose high-priced U.S.-based consultants who were used for strategic projects and replace them with 100 DaimlerChrysler IT staffers and on-site contractors who had been doing maintenance work.

"Companies are in a death spiral if you try to do everything inside," says Unger.

William Belding is a beneficiary of that transition. Belding joined DaimlerChrysler in 1996 as a client/server programmer/analyst. He focused on quality reporting for the automaker's data warehouse. Since those tasks were sent to India last year, Belding has taken on responsibility for the security infrastructure of the company's Web-based Dealer Connect portal.

"It's a good opportunity for me to see something new, to extend my career in the right direction," says Belding.

But if the previous century's outsourcing of U.S. manufacturing jobs is any barometer, many more displaced IT workers may have to settle for less. Blue-collar manufacturing workers who lost their jobs typically faced a lower standard of living, and the same fate could face programmers and others, says Josh Bivens, an economist at the Economic Policy Institute in Washington. High-tech outsourcing isn't on the same scale as manufacturing's, "but it has a familiar feel to it," he says.

James Pace, a Connecticut IT mainframe consultant who had been working at an insurance company, lost his job in January. He says he believes it was a result of offshore outsourcing. Pace says IT workers affected by offshore outsourcing are taking lower-paying jobs, such as restaurant managers and police officers, and that decreases their spending power. "Everything is a trickle-down effect," says Pace.

INTERNATIONAL BACKLASH

U.S. and European government officials are considering proposals that would slow down the growth of offshore outsourcing.

QuickLink 37915
www.computerworld.com

SALARY COMPARISON

A look at programmers' annual salaries in various countries illustrates **why offshore outsourcing is becoming popular** *among companies trying to cut costs. The average salary for a systems programmer in the U.S. is $63,331.*

NOTE: Base annual salaries in U.S. dollars

There's More to Consider Than Cheaper Labor

than lower labor rates. Industry experts and CIOs with offshore experience caution would-be customers to carefully examine all of the risks, including the hidden costs. It's also important to protect intellectual property, examine the geopolitical risks in the region where the work will be done and effectively communicate the company's overall outsourcing strategy to stateside workers.

Offshore outsourcing "creates some stressful situations, some motivational factors and some confidence factors with your own people," says Rick Greenwood, CIO at GMAC-RFC Residential Capital Group in Minneapolis. Greenwood addresses those issues, in part, by keeping his company's most important IT work in the U.S.

"We're very careful not to give away what I would say is a core competency and core business knowledge," he says. Instead, he and other IT managers at the company try to maintain those competencies by providing IT staffers in the U.S. with continual training and moving them to high-impact projects.

FAST FACT

is graduating roughly IT professionals annually, vs. the U.S.

Scrutinize Political Risks

Companies that exclusively outsource to a third party in a single country run the risk that a political situation, such as armed conflict between Pakistan and India, could shut down offshore IT operations. That's an important consideration for Delta Air Lines Inc., which wants offshore work scattered in wider areas.

"We're trying to manage the risk of the political environment," says Curtis Robb, president and CEO of Delta Technology Inc., the IT services arm of the Atlanta-based airline. The company has awarded IBM a contract to provide offshore IT services because IBM has 16 regional centers worldwide.

More than 90% of outsourced application maintenance, help desk and desktop maintenance work and a limited amount of call center and customer service work is currently being sent to India, according to Avinash Vashistha, a senior adviser at NeoIT, a San Ramon, Calif.-based offshore services advisory firm. That figure excludes IT work outsourced to Ireland and Canada but includes other countries such as Israel, says Vashistha.

Experts say outsourcing to India can reduce IT labor costs by up to 50%, but most customers underestimate the indirect project and program management costs.

"When you send your people overseas to visit these sites frequently, your costs go from $42 an hour to $85 an hour," says Steve Andriole, a senior consultant at Arlington, Mass.-based Cutter Consortium and a professor of MIS at Villanova University. Andriole's calculation includes travel costs plus the cost of lost productivity that occurs when a U.S. IT worker is removed from his daily tasks and sent overseas for a few weeks.

Those costs can go even higher when project requirements "creep" or if a development problem emerges at an offshore programming house, says Andriole. "If you have to drop in 10 people from the states, and they spend a month or two there, guess what? You've just erased most of your cost savings."

Another risk of moving IT work offshore is the potential loss of intellectual property and business-process secrets. Some IT managers worry that offshore outsourcers will copy and sell that knowledge or repackage it and present it to a competitor.

"If we send development of too much of our core business out of our control, what happens to that when our competitor goes to the same third party and says, 'We want to do what they did?' " says Richard Nolle, vice president of systems at Reinsurance Group of America Inc. in Chesterfield, Mo. "The economics is driving me to it [outsourcing], but those kinds of concerns are making me cautious," adds Nolle, whose company already sends application development work overseas.

One way to avoid these problems is "by trying to break up key pieces" of work being sent offshore so "no one can easily assemble those pieces," says Dennis Roell, IT manager at Betts USA Inc. in Florence, Ky., which makes packaging products such as toothpaste tubes. "Think of it as encryption — you want to reassemble the message," says Roell.

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Continued from page 41

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SOURCE: IDC MANAGEMENT CONSULTING, 2002

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DB2 Information Management Software
See DB2 software connect data, near
See DB2 software connect formats, old
See DB2 software create insight, again
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ftware. You can now leve
every scrap of data, no matter where
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or Microsoft® – goodbye "rip and replac
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IBM

And the Winner Is...

An IT awards program fosters collaboration between business and IT.

By Melissa Solomon

KATHY FONG KNOWS NUMBERS. As a certified public accountant, it's her job. But technology? She's no rookie, but no expert, either. So when she received Southern California Edison's (SCE) first-ever CIO Excellence in IT Award, she was simultaneously flattered and taken aback.

It was no mistake. Fong was one of 10 employees — including three from outside IT — to receive the new annual award in March from Mahvash Yazdi, CIO at the Rosemead, Calif.-based energy utility. "What's unique about our program is we decided to take it to a new level and recognize and award our internal clients," says Yazdi.

STEAL THIS IDEA

Honoring business unit employees with IT awards may seem counterintuitive, but Yazdi says it helps promote the value of IT/business partnerships companywide.

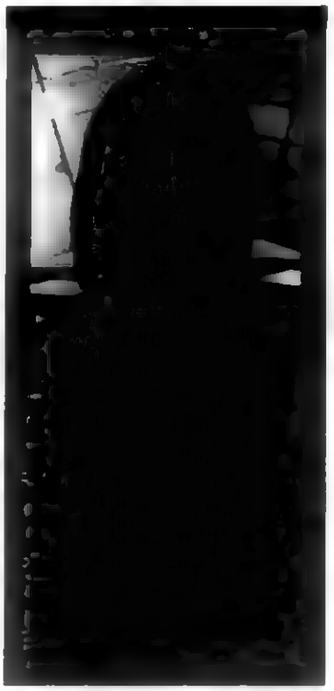
Such awards aren't something that Sue Goldberg has seen. But the president of Northeast Training Group Inc., an IT training consulting company in Chestnut Hill, Mass., says they're a great way to promote collaboration by shining a light on those who live it.

"It's almost like an Academy Award," Fong says. "It's probably the closest I'll ever get to that."

How It Works

The names of the award categories — Commit and Deliver, Operational Excellence and Innovation, and Technical Literacy — reflect the core strategies and principles of SCE's IT department. Yazdi's team wanted to choose role models who demonstrate day-to-day actions in line with those principles.

Fong has spent the past year and a half leading a cross-functional project team that's integrating systems across various business units so that meter readings, billing and ledgers, for instance, are tied together into a whole system rather than operated as independent silos.



John Ballance, director of transmission and distribution engineering, won the Innovation award for teaming with IT to implement an Internet-based training system that veteran engineers can use to conduct lectures for junior engineers scattered around the state.

It was wonderful to be honored by the IT department, Ballance says, but recognizing IT employees is just as critical. "A large part of the company interacts with those people," he says. "So you start putting faces to names of people who are doing extraordinary jobs."

Paul Killins, winner of the Commit and Deliver award, is one of those IT people, says Yazdi. When SCE learned it had to take over energy procurement from the state by Jan. 1, Killins, SCE's IT energy procurement manager, led a team to get a combined procurement and risk management system in fast. The system and the business processes supporting it had to be able to manage SCE's portfolio of power-generation assets, its long-term energy contracts from outside companies and its spot-market options to determine the best source of energy at any given time. The team conducted a warp-speed market study, hammered out a contract to purchase Nucleus energy-trading software from New York-based Caminus Corp. (since acquired by SunGard Data Systems Inc.) and teamed with Caminus staff and consultants from London-based PA Consulting Group to customize and install the software.

At the heart of the system is a client/server application with a robust infrastructure on which to run the systems: Windows 2000 servers and an IBM Regatta cluster on an Oracle database.

What could have been a yearlong project took four months. "It was the most challenging project I've worked on in my entire life," says Killins.

Rolling Out Your Own

If you create an IT award program, spend a lot of time spreading the word so enough nominations come in, advises Mariette Keshishian, manager of training and communication for IT at SCE. The company's newsletter, cross-functional management meetings, e-mail and its intranet all helped get the word out, says Mary Fitzpatrick, manager of IT communications at SCE.

Fitzpatrick also suggests that awards committees put careful thought into who gets recognized and in what way. For instance, would finalists be embarrassed by being publicly named, since they didn't win? And what's an appropriate prize for the winners? SCE asked the finalists' managers to recognize them within their units, and the winners received $1,500 in cash, a crystal desktop award and companywide recognition, says Fitzpatrick.

But the user-award piece isn't for everyone, says Keshishian. If it seems forced, it won't work. If you have a poor relationship with your users, an award isn't going to magically make things better. You need to have a good relationship first, and then the award will seem genuine.

Solomon is a freelance journalist in New York. Contact her at melissasolomon7@hotmail.com.

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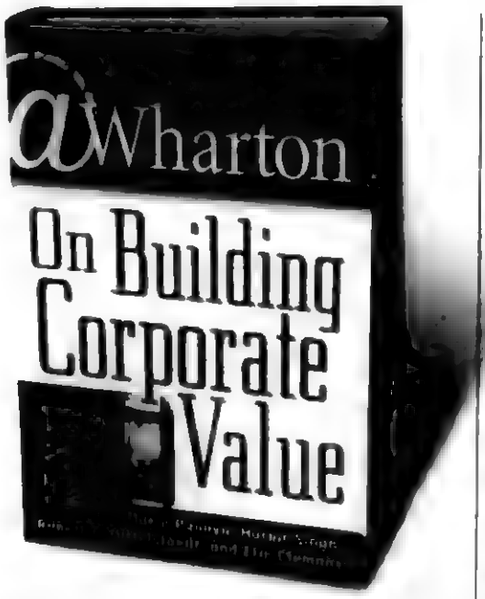
E-Business So Far

Two Wharton School authors talk about winners, losers and brain arbitrage.



In 1999, the Wharton School of the University of Pennsylvania launched Knowledge@Wharton *(http://knowledge.wharton.upenn.edu), an online research and business analysis journal designed to go head-to-head with the* Harvard Business Review *by offering business insights and research.*

Now, **Robert E. Mittelstaedt**, *vice dean and director of the Aresty Institute of Executive Education at the Wharton School, and* **Mukul Pandya**, *editor of* Knowledge@Wharton, *have written a book,* Knowledge@Wharton: On Building Corporate Value *(John Wiley & Sons Inc., 2003) takes a look at the ups and downs of e-business. They recently spoke with Kathleen Melymuka about the lessons learned so far about Web business strategies.*

So, has the Internet changed everything?

MITTELSTAEDT: It didn't change everything in the way people anticipated, but it did [show] that bricks-and-mortar businesses can differentiate themselves if they really learn to use the Internet — and IT as a whole — because the principles are the same, and the Internet is nothing more than a very easily accessible platform.

In the book, you talk about some important consequences of the Internet. Tell me about the "integration effect."

MITTELSTAEDT: It's the ability to apply 20-year-old IT principles in a ubiquitous fashion so that everybody has access, and you get your customer to do your work for you across a whole spectrum of things.

Can you give an example?

MITTELSTAEDT: US Airways has given you the ability to print your boarding pass before you leave home and skip all the check-in lines. They haven't changed the fundamental chain of activities, but they've pushed a piece of that work out, and they get the customer to do it for them. The technology has integrated the work in a different way; diffused it.

How does the Internet add value to an organization?

PANDYA: *Knowledge@Wharton* itself is an example. It has taken academic research, which was primarily distributed through academic journals meant for specialists. Using the Web, we set up a multilayered Web site where you can go from a one-paragraph summary of a research paper, click through to a plain-English article spelling out the implications of that research, click through to a PDF of the paper itself and look at related Web links. The Internet allows you do something that is impossible in print: that is, explore this topic at four different levels of depth. The impact that has in terms of Wharton's ability to relate academic research to management practice is enormous.

Why do companies fail at using the Internet?

MITTELSTAEDT: In the book, we talk about the story of Webvan vs. other online grocers. We predicted Webvan would never work [because] they decided to reinvent the whole system. They started from scratch and ignored the entire infrastructure and in the process took on enormous debt, which there was no way to ever work off in a low-margin business, even with efficiencies from technology. While Webvan was failing and destroying $1.2 billion of capital, a company called Tesco in the U.K. was using their existing infrastructure, using their stores as picking points, putting limits on [deliveries]. And as an incremental activity, it was profitable. It was not profitable as a stand-alone activity in the way Webvan tried to pursue it. The economic model didn't work. So the model matters.

What are some of the other major risks in e-business, and how can companies work against them?

PANDYA: Quite a few of the errors were driven by not looking at the business itself but being swayed by financial considerations, [like] the stock valuations, that spinning out a separate Internet division could bring about. Companies that looked at the business and saw how using the Internet and other forms of IT could enhance the business — those were able to drive more value creation.

MITTELSTAEDT: There were also competitive risks. If what you do is easily imitated, and you don't have anything that locks in your customer in some way, you run the risk of simply being copied and made irrelevant.

Most of what we've been talking about has been business-to-consumer. What's the state of B2B?

MITTELSTAEDT: The name has gone out of fashion, but that's where the bigger impact really is. Wal-Mart has an unbelievable computerized supply chain and inventory management system that goes over the Internet, but the Internet didn't make that happen. The Internet makes it easier and cheaper . . . and for smaller businesses to duplicate functions, [like] automatic ordering, that enable them to compete with bigger companies in some cases.

PANDYA: One area in business-to-business I find fascinating is the way the Internet and IT are making it possible to outsource work across borders. You have companies like Amazon or Dell that have set up customer contact centers in India and Singapore, and these are very often operated by different companies than the parent. This allows you to integrate the operations of a company in the West with a low-cost provider in another country and get the benefit of that cost differential. This has been going on in things like software development, but increasingly . . . it's all kinds of services that require educated people to interact with technology. The term I've heard used for it is "brain arbitrage," because you're moving work to where it can be performed most effectively.

What are the lessons companies should be taking away from the whole e-business experience?

MITTELSTAEDT: You can't violate the laws of economics. And there's no such thing as a sustainable competitive advantage. Technology can give you a temporary advantage while you figure out what the next thing after that is going to be.

PANDYA: The Internet changes a lot, but you have to work pretty hard to discover what it changes, and if you don't recognize that, then you pay the price for it.

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@yahoo.com.*

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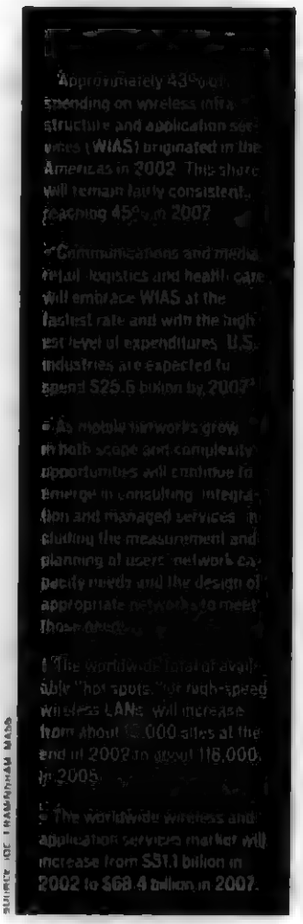
BRIEFS

Financial Outsourcer Creditek Names CIO

Creditek LLC, a leading provider of revenue-cycle business-process outsourcing in Parsippany, N.J., this month appointed Bruce Blair as senior vice president and CIO. Blair will lead Creditek's technology team in managing all internal and external systems, including the development, launch and implementation of advanced client business-intelligence and reporting systems.

Blair was previously president of Iselin, N.J.-based GovXcel, a provider of software used by municipalities to automate back-office functions; CIO at Verticalnet Software LLC, a Malvern, Pa.-based provider of collaborative supply chain software; and a first vice president at Merrill Lynch & Co.



DONALD FINLEY ■ PEER TO PEERS

Magna Cum Unemployed

WHEN I CHANGED my college major from mechanical engineering to computer science in 1998, I had few reservations about making the switch. After all, the salaries of the two professions were comparable, and IT seemed to be thriving.

Unfortunately, my graduation in December 2000 roughly coincided with the crash of the dot-coms and a dip in the economy, which made job searching much more difficult.

No fear, I thought, I have an academic record that will impress employers and help me stand out among job candidates. I had graduated magna cum laude, made the dean's list multiple times, won awards for academic excellence — and no one seemed to care. The liability of my inexperience seemed to outweigh any advantage that a solid academic background provided.

The slowing of the economy has left many experienced IT professionals looking for jobs, and companies have their choice of workers with proven track records. This means decreased opportunities for entry-level programmers with résumés heavy on skills and education and light on job history.

Illustrating this fact are the employers and headhunters who call to express interest in the skills I have listed on my résumé online. One of their first questions is, "How much experience do you have?" Answering this potentially damning question with honesty usually ensures no future correspondence.

The lack of opportunities made me increasingly worried, and in September 2001, I committed an act of desperation. I had been job searching by myself and through employment agencies for almost eight months when I accepted a knowledge management position at a government agency in Washington, where living expenses are high and the pay is low. The job was part intern/part employee and kept me on the periphery of working with IT (checking e-mail was my sole interaction with computers). After six months in the program, I decided to return home and earnestly look for opportunities in software development, the area of most interest to me.

Searching online job sites yielded few possibilities for someone with my level of experience; I fared better by contacting hiring managers directly. After three months of research and many phone calls to managers, I landed a job as a Web developer at a struggling e-learning company. But after being told almost every week for six months that the office might not be open the following week, I was searching for another job by December 2002.

During this time, I had also enrolled in a graduate program, thinking that another degree might help me find a job. However, since starting the program, I have considered the possibility that even this move may not help, because there are factors affecting the job market that are beyond my control.

For instance, the controversial H-1B and L-1 visa programs exacerbate the situation by importing foreign IT workers, placing them in direct competition with American workers for jobs. This, by far, is the most disturbing discovery to me. Abuse of these programs is obvious, and their necessity escapes me.

My heart sinks when I read stories about IT workers such as those at Siemens in Lake Mary, Fla., who were replaced by L-1 visa workers and made to train their replacements. The matter is compounded by the trend of sending IT jobs offshore, as summed up in the ominous proclamation of Ann Livermore, HP's services chief, when she stated, "We're trying to move everything we can offshore," in an interview in a December 2002 *Forbes* article. Taking these things into account, I am convinced that the IT industry is being undermined.

This point was driven home as I sat with the head of the computer science department at my university and we spoke about the scarcity of IT jobs. "I shouldn't be saying this, because I am from India," he said, "but India has really prospered through this." I told him that I was aware of all the outsourcing, but he explained that companies such as Microsoft were going a step further and setting up shop in India. Then he reassured me that creative IT jobs such as research would be safe in the U.S., but he corrected himself midstream by saying that GE was in the process of constructing a research center in India.

Finally, he punctuated his remarks by saying, "It's been a tough three years," an understatement with which I emphatically agree. ■

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BRIEFS

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SOURCE: IDC, FRAMINGHAM, MASS.

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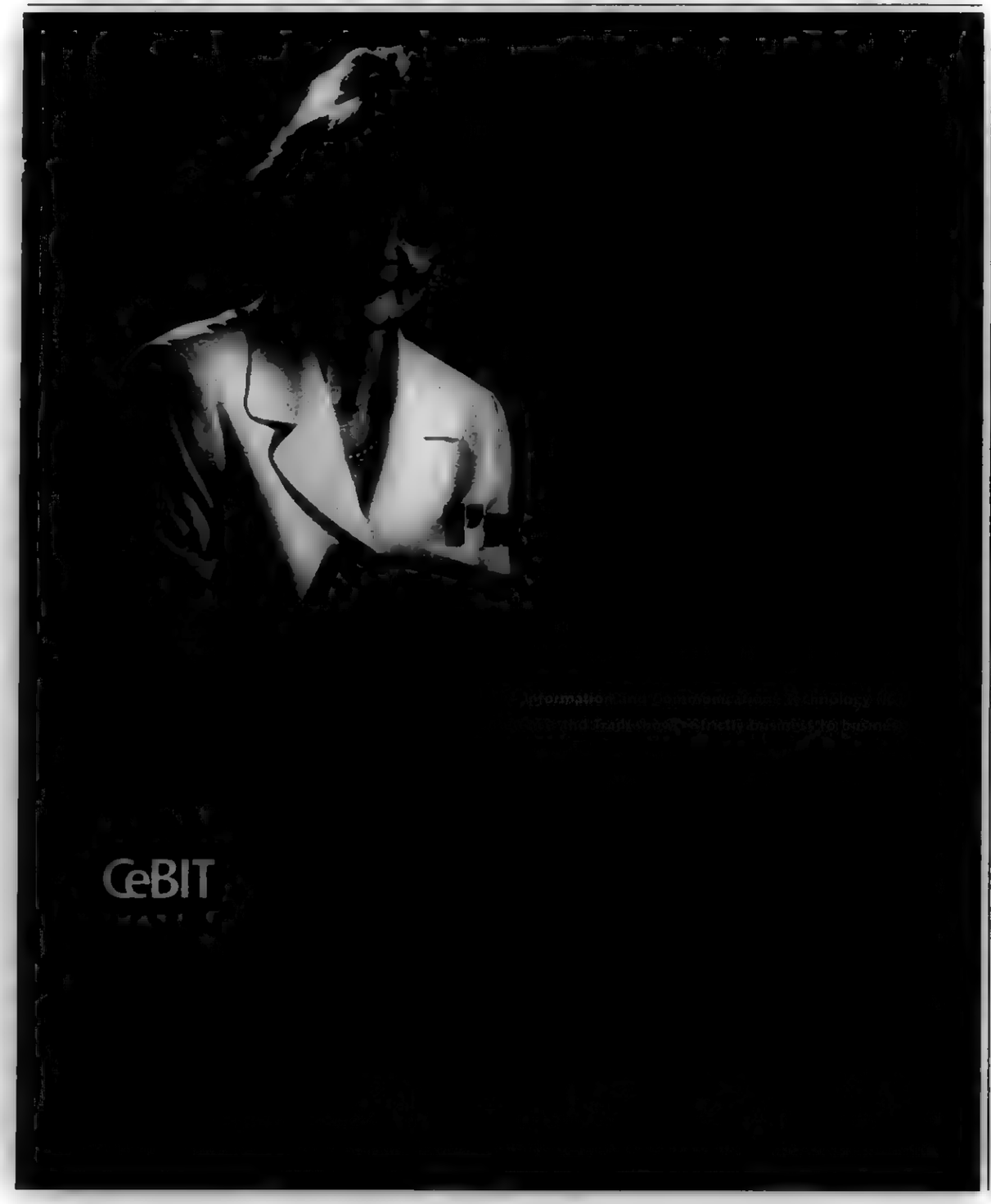
Tyson Integrates IT, Cuts Costs After Merger

BY MARC L. SONGINI

A massive IT consolidation and integration project phase was wrapped up on time and on budget at Tyson Foods Inc., despite its considerable complexity and demanding schedule.

The multimillion-dollar effort involved integrating the IT operations of Springdale, Ark.-based Tyson and 17 independent companies of the Foodbrands America Inc. unit of meatpacking conglomerate IBP Inc. Tyson purchased IBP in September 2001.

The integration was finished in August, says Tyson's new CIO, Jeri Dunn. In the process, Gary Cooper, the former CIO and head of the project, became chief technology officer. In his new role, Cooper oversees all servers, databases and other IT-related assets for 12,000 end users at the company.



Cooper says that as part of the makeover, Tyson changed its e-mail infrastructure to Microsoft Exchange software, eliminating Lotus Notes seats. It also extended its WorldCom frame-relay network to the IBP network and now runs videoconferences over those lines.

Tyson inherited 19 systems in the merger and has reduced that number to two. The next step is to get rid of one more, says Cooper, noting there are also significantly fewer AS/400 applications running now.

There is still work under way to move the multiple back-end systems, many of them homegrown, to an SAP ERP backbone. SAP software already handles payroll, general ledger, purchasing and accounts-payable functions. Tyson is also rolling out supply chain management software from Manugistics Inc. for its chicken businesses.

Streamlining has reduced head count and maintenance costs. Dunn says this has cut hundreds of thousands of dollars in IT-related costs. "The reductions were not pleasant," she says, but they were necessary.

Tyson is evaluating business processes and IT support to see what areas are unique or add value and can be retained or standardized. It's also planning the consolidation of the fresh meats division of IBP.

Cooper is hesitant to say whether lessons were learned from the project. "We've acquired so many companies and integrated so many systems," he says. "It's a bag of tricks you use, and there are not a lot of 'aha's. It's always hard work."

MEATY INTEGRATION

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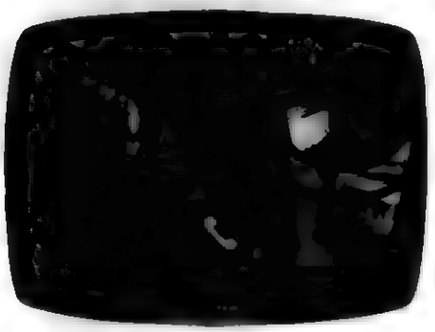
IT Careers: Industry Drives Online Degree Trends



More than 20,000 people in the United States are finding a new way to quickly morph current skills into emerging job requirements. Colleges and universities are using online coursework to stay in step with rapidly developing technologies, pushing online curriculum that in the past would have taken years to develop. From data mining to infrastructure security and systems networking, the new degree programs are allowing IT professionals to transform with the industry.

These aren't diploma mill programs, either. Universities ranging from Stanford University to Massachusetts Institute of Technology, from Boston University to James Madison University and the University of Missouri-Rolla, are enrolling students for classes conducted via the Internet. "Traditionally, residential universities and colleges have been slower in meeting emerging technology needs," says Vicky Phillips, author of *Best Distance Learning Graduate Schools-Technology 2003*. "We're noticing that schools are choosing to put newer concentrations, such as cyber security, online to be market responsive."

Tanya Zlateva, chairman of the online computer science graduate program at Boston University, says demand for online courses follows the IT industry trends. "We offer a blended program of four face-to-face meetings during the semester and web-based learning," Zlateva says. The university added an IT security focus to its graduate programs this year, and will offer a full concentration IT security program beginning Fall 2003. "It's relatively easy to put material online," she adds. "But by adding streaming video and interaction, access to lab work online and other facets, the program has greater value."

However, online study isn't for everyone, cautions Phillips. Top on the list to consider: your own learning style. If you've taken online, CD-ROM or correspondence courses in the past, you know whether you're up to it. "You need good time management skills and self-motivation," says Phillips. "It's a large psychological factor." Phillips' research indicates retention rates for online students are slightly – though not significantly– lower than those in on-campus programs.

Secondly, look for accreditation by the regional association accrediting schools and colleges for the main campus, as well as any other accreditations, such as those for business, engineering or technology. If the accreditation isn't from a group belonging to the Council for Higher Education Accreditation (chea.org), you may want to reconsider. Then find out how much you'll interact with faculty and other students. You may need access to a satellite link-up or to travel to campus. Usually students in an online class interact via bulletin board or through conference calls. The more you interact with students and faculty, the more likely you'll stay in the program.

Financial assistance is another factor. Not all online programs qualify for low-interest student loans, nor do all corporate reimbursement programs apply. Public universities frequently apply in-state tuition/out-of-state tuition rates just as they would for resident students. Some, however, have a single distance-learning tuition structure. In terms of cost, compare overall tuition costs, the value of a national brand name degree, and the cost of access – visits to campus or satellite links, for example.

"We haven't yet seen the peak in enrollment for online degree programs," predicts Phillips. "With learning, once is not enough."

IT Careers

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Programmer Analyst. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Under direct supervision, analyze, plan, develop, test and document computer programs including business and web applications and network communication programs. Evaluate user requests and software program requirements for new and modified programs. Write specifications, code, test and debug computer programs. Use of Oracle, Java, JavaScript, MQ Series, JSP, EJB, J2EE, WebLogic, UNIX, Servlets and Windows NT. Reqs Bachelors or equivalent in Computer Science or related degree. Plus 1 year in the job offered or 1 year in a related occupation including Systems Analyst or Web Developer or related experience. Will accept 3 years of college education and 3 years experience in lieu of required education and experience. $63,000/year, 40hrs/wk, 9AM-5PM. Respond by resume to EMPLOYMENT PROGRAMS PO Box 46547, Denver, CO 80202, and refer to Job Order No. CO5042383.

SENIOR PROGRAMMER/ ANALYSTS

MARA CONSULTING, INC., a California-based Corporation, has immediate openings for Senior Programmer/Analysts with at least five years experience in Natural/ADABAS/Programming who have worked on IBM mainframe platforms utilizing MVS/XA ESA and OS/390 Operating Systems. Applicants must also have at least four years of formal academic training in computer data processing, Computer Science or a related field culminating in government diplomas or a Bachelor's Degree. Must be willing to travel from the Sacramento, California area to temporary work sites throughout the United States to be paid, at least, the prevailing wage in that area. Employees will remain employed by MARA CONSULTING, INC., (www.maraconsulting.com) with continuing benefits. Send your resume with current address and telephone number to MARA CONSULTING INC. 8577 Almond Bluff Court, Orangevale, CA 95662 or email to maraconsult@pacbell.net. EOE

Avon, a world leader in the health and beauty products industry is seeking a Technical Manager, Webmaster at its headquarters in NYC. The Technical Manager, Webmaster migrates all the existing sites to Interwoven Teamsite Server. Develops and designs templates. Data capture forms and workflows. Designs and develops internet and intranet websites for the company utilizing technologies such as CGI scripting in PERL, JavaScript/VBScript, JAVA ASP, Cold Fusion web development tools, Flash, Photoshop, UNIX, NT Teamsite server administration. Develops a Content Submission System. Provides local technical support to the web content team. Performs server side management of Teamsite server.

Must have a Bachelor's or foreign equivalent degree in Computer Science or Engineering and 2 years experience. The required experience must include: (i) 2 years in Web site development in Interwoven Teamsite Server, Web Development and Web development tools, HTML, ASP, Java, JavaScript, XML, VB Script, CGI Programming - PERL, C++, and (ii) 1.5 years in SQL Server, MS Access, Photoshop, and Flash.

Please send resume to: Attn: HR Specialist, Avon Products, Inc., 1345 Avenue of the Americas, New York, NY 10105. Fax (212) 282-6349. E-mail jobs6@avon.com

Software Developer. Internet Applications wanted to develop & maintain customer-centric internet applications that maintain & enhance company's leadership position; develop & deploy eCRM platforms to customize & automate business transactions with constituents using Delano for encapsulating business logic such as survey formats/questionnaires, e-mail attachments, newsletters & periodic updates; use T-SQL to extract data from SQL Server database; implement eCRM pilot projects consistent w/ strategic initiatives, using state-of-the-art tech such as XML, ASP, Perl, Lotus Notes/Domino, & OCR for Forms; provide support from Tech Services to Marketing & other business units for customer-focused technology products & services; support Tech Services in adapting, modifying, & /or replacing existing technologies to create & maintain comprehensive integrated user services. Must have Bach. deg in Comp Sci or related field, & 2 yrs exper in Internet & relational database design, development & production in a realtime production environ. w/ reporting & data analytical skills, incl. exper in developing with HTML, XML & ASP, Lotus Notes/Domino, Delano & scripting in OCR for Forms. Salary $88,000/yr. Send 2 resumes to Case#2002012192, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

Programmer/Analyst: Dev sports related websites. Understand/define client req.: design, dev, test/implement solutions, use Visual Basic/other programming technologies. Dev reusable object library. Req: 3 yrs exp, 9a-5p. Resume: E. Derechlo, TWI Interactive, 20 Guest St., #400, Brighton, MA 02135.

Lead Software Release Engineer. Responsible for all aspects of the planning, design and development of support software product lines. Duties include building and leading project teams in development activities for high quality software meeting tight market deadlines. Ensures development of software requirements and specifications. Works in C/C++ UNIX Wind River Systems support systems. Reviews evaluates and approves software project technical proposals, methods and schedules. Manages technical staff to achieve design objectives. Monitors progress on projects to ensure fulfillment of product scheduling objectives. Works with Module Development to integrate software and hardware compatibility issues. Participates in TQM activities, including responsibilities designed for the company Quality System and ISO 9000, oriented at continuous process improvement in Software Engineering as well as in overall product development. Requirements include a Bachelor's degree or equivalent in Computer Science, and Engineering discipline or related field and three years of experience in the job offered or related field of system software product development. Applicants must have unrestricted authorization to work in the United States. Salary $89,257-$100,000/year, 40 hours/wk. *Respond with two copies of resume to Case #2002004420 Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

PRINCIPAL SOFTWARE ENGINEER Design, implementation, testing and maintenance of software components and subsystems which are incorporated into one or more company software products, utilize contemporary techniques and tools including Visual C++, Microsoft Foundation Classes and Various Microsoft Windows multimedia APIs to develop software, works with product features relating to visual display and synchronization, user interface, utilization of DirectX filtergraphs and audio recording and playback "engine". Duties include project management and design utilizing knowledge of Windows system internals and digital signal processing (DSP). Requires B.S. or equivalent in Computer Science, Mathematics, Electrical Engineering or Physics plus 5 years exp in job offered or 5 years directly related experience including image processing and audio/music. Rate of Pay: $110,000/year. Hours: 40/week, 9 am to 5pm. Reply by resume only (2 copies) to Case #2002013326, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114

VP - Solution Engineering & Consulting. Lead a group of Engineers responsible for developing and deploying Real Time Locating System (RTLS) solutions. Requirements and duties to include: Managing the development and deployment of new applications. Directing complex projects requiring system integration, hardware engineering and software development. Manage product complexity and versioning control. Integrate wireless networking S/W & Radio Frequency (RF) hardware devices. Degree in Computer Science/Engineering and extensive experience req'd. Job location is at Newton, MA. Send resume to Thomas Bacon, Wherenet Corporation, 5820 St. Clair Highway, Clare, Michigan 48064.

SENIOR SYSTEMS ANALYST

The Senior Systems Analyst SAP Business Warehouse Reporting position has primary responsibility for maintaining and supporting the ConAgra SAP Business Warehouse Reporting Tools. The will include providing consultative services and implementing reporting solutions for the SAP ConAgra Operating Units, and providing customer training and support for the reporting tools. At the direction of the Manager for Enterprise Data Warehouse and Reporting, the incumbent will work with the Data Warehouse Team Operating Units and business consultants to successfully deliver Enterprise Data Warehouse projects for the application of information technology. Will conduct the design development, implementation and support efforts of the SAP Business Warehouse Reporting applications, perform execution of systems maintenance, enhancement and production support to ensure that service level expectations for functionality, performance, security, and control are fulfilled ensure that methodologies, architectures and standards for systems development are used in the areas of structure systems development life cycle, time accounting systems, documentation, development architectures, coding and testing standards, quality assurance and change control, and configuration management. Position requires minimum of a Bachelor's degree in Computer Science, Business or a related field and four (4) years experience in a position that involves implementation of complex systems projects. Position fulltime M-F. Salary $75,000/year. Job is located in Omaha, Nebraska.

Interested applicants may submit their resumes to: jobs.conagra@conagra.com, click on "careers" then "apply now". Note: You must type in the following code of C-CMR-2301 in the box labeled "in what job are you interested" in order to apply for this position. Failure to correctly enter this information will result in non-consideration for the position. You may also submit your resume to ConAgra Foods, Inc., Attn: Judy Mackey, Human Resources CC-230, One ConAgra Drive, Omaha, NE 68102

SYSTEMS ANALYST II & ANALYST, LEAD WEB SYSTEMS IT

ADT Security Services, Inc. has immediate openings in its Aurora, Colorado and Boca Raton, Florida offices for experienced Systems Analysts.

Must possess at least a Bachelor's in Computer Science or a related field and relevant work experience with Oracle Applications, Oracle Databases, Oracle Tools and PL/SQL for Aurora opportunity or relevant supervisory/field experience with small teams and web development experience including Cold Fusion, J2EE technologies and Electronic Data Interchange (EDI) for Boca Raton opportunity.

Resume and/or cover letter must reflect each requirement above and specify reference code SAHM-ntLPS or it will be rejected.

Forward resume to Theresa Mae, ADT, One Town Center Road, Boca Raton, FL 33486-1010

Business and Quality Assurance Analyst (BA/QA) needed to take part in defining Visibility's testing process and protocols, develop test scripts with the BA/QA Team execute testing plans using manual, automated, and performance test scripts. The BA/QA will also work with Application Developers and the Product Team to ensure test scripts accurately test against requirements, user interface design and user acceptance, identify & resolve application issues with application developers and assist the technology infrastructure team in testing accessibility security, etc. Ideal candidate must have Masters in Computer or related field + BS in Engineering or Computer related field. Must have knowledge of SQL, ASP, Visual Basic, HTML, JavaScript, MS Visio and MS Project. This is a full time position from 8a.m. to 5p.m. Please fax or send resume to Sheri Darencher at (312) 577-0788 Visibility Inc., 225 N. Michigan Suite 1600, Chicago, IL 60601

PRINCIPAL SOFTWARE ENGINEER Duties include: PSE responsible for applying SW engineering principles, processes, theories and concepts on multiple platforms, operating systems and computer architectures to develop highly complex computer SW solutions for business applications. As technical and team lead for development groups, PSE will assess design and document detailed functional specifications and requirements and implement, test and debug highly complex modules. Duties include: determine technical requirements for project assess and implement metric measures, perform cost/benefit analysis at project or cross-platform level, develop multi-threaded network applications and services using C and C++, development of drivers and implement security protocols. Effectively communicate with team members, management and clients on project progress, modifications and solutions. Min Reqs: MS (foreign equivalent accepted) in CS, EE, or related plus 2 yrs exp in the job offered or in a related occup performing SW engineering design or development OR in the alternative BS/BA plus 5 yrs progressive exp in job offered or in related occup performing SW engineering design or development PLUS: all candidates must possess demonstrated knowledge and work experience with: (1) SW development of multi-threaded network applications and services using C and C++; (2) Manipulation of device drivers or virtual drivers; and (3) Implementation of security protocols (e.g. IPSec, TLS, Radius). Basic pay of $88,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002 008696 Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114

Junior Programmer (North Palm Beach, FL) Write and fix system software in PERL, HTML and JAVASCRIPT in a Unix Environment. Program Perl Modules/APIs utilizing ODBC/DBI utilities. Produce system documentation for new products. Technical support for website and performance degradation. Troubleshoot reservations systems, including writing code. Utilize knowledge of Apache running Raven and Modperl. XML, Perl, Perl ODBC/DBI, HTML, Javascript, Windows NT and Windows 2000, Unix, IPVCE, Sabre and Pegasus. Minimum of Bachelor's degree in Computer Information Systems and 6-month experience in job offered or 6-month experience as a Technical Support Assistant, 40 hours/week, 9 a.m. - 5:30 p.m. $46,000/year. Please send two resumes to: Jean Wroblewski, President, WorldChoice-Travel.com, Inc., 11300 U.S. Highway 1, Suite 300, North Palm Beach, FL 33408

Full time position to work as System Engineer. Requires knowledge and technical background coupled with broad functional knowledge in Supervisory Control and Data Acquisition /SCADA/ systems. Primary requirement is expertise and strong skill set in C, C++ shell scripting network programming. Pref 'C' PL/SQL Oracle Database and Unix system administration with disk, raid, clearcase, CVS, RCS preferably on DEC Tru64 Unix. Industrial automation programming experience with RTU's, PLC's & at least one GUI SCADA software package such as Oasys' solution FOCAS, OMS/TE 9.x is required on Windows XP. Developer2000, BAMM, TOAD is desirable. Requires Master of Science degree in Computer Engineering or equivalent and 1 year of experience in the job offered. Applicants should send resume to: Pyramid Consulting Inc., 6865 Providence Drive, Nationwide fax 480/60

SYSTEMS ANALYST

Under general direction, will provide application support for a warehouse management system. Will facilitate and perform analysis, design and programming, testing and implement systems and enhancements, work across projects to synchronize project plans and deliverables including project planning, project management, structured systems development life cycles, time accounting, systems documentation, coding and testing standards, quality assurance and change control and configuration management, develop cost analysis estimates, and perform troubleshooting root-cause analysis, solution development and implementation of large and/or multiple projects. Experience working with cross-functional information technology organizations and advanced knowledge of software development practice, concepts, technology and methodology required. Position requires minimum of a Bachelor's degree in Computer Science, Business or a related field and two (2) years experience in field of information technology related to an Open Systems Applications Development environment. Previous experience supporting warehouse management systems (Red Prairie EXE Catalyst) preferred. Position located in Schaumburg, Illinois. Fulltime M-F Salary $80,496/year.

Interested applicants may submit their resumes to www.conagra foods.com, click on "careers" then "apply now". Note: You must type in the following code of C-CMIS254 in order to apply for this position. Failure to correctly enter this information will result in non-consideration for the position. You may also submit your resume to ConAgra Foods, Inc., Attn: Judy Mincey, Human Resources CC-255, One ConAgra Drive, Omaha, NE 68102.

Senior Software Engineer. Responsible for designing, specifying, coding and testing of new features as well as participating in code reviews and design discussions for additions to HACMP software the company produces. Duties include: writing functional requirements; working on complex technical designs and producing design documents; technical mentoring of junior engineers; reviewing functional requirements and design documentation of less senior engineers; coding and testing own features and components of other features; and fixing most defects. Utilize knowledge of Unix networking, Unix Systems Programming, Distributed Systems or Availability Management. Requirements include a Bachelor's degree or equivalent in Computer Science, Electronics or related Engineering field with at least five years of work experience in the job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $90,461/year 40 hours/wk. Respond with two copies of resume to Case #200200827. Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

KidSmart Software Co. is looking for programmer/system analysts. Qualified candidates must have minimum BS. Exp. using PowerBuilder 7.0, Data Architech 6.0, Citrix Server, Sybase (ASA8.0), MKS is plus. Good salary with full benefits. Please apply at jobs@ksc.com. EOE.

Programmer or system analysts wanted by RS Systems Company. Ideal applicants should have BS with experience. Skills in following areas preferred: Coldfusion, Java, JavaScript, DreamWeaver, HTML, VBScript. Send resume with wage request to jobs@rssystems.com.

Software Engineer with Bachelor's degree in Computer Science and two years experience in development using .NET framework, Peoplesoft 8.0, software development life cycle under CCM level 5, ISO 9002. Send resume to: International Computerware Inc., 277 Main Street, Marlborough, MA 01752.

Software Engineers - Responsibilities include design, development, testing and implementation of multi-user, real time applications using COBOL, CICS, DB/2, JCL, VSAM, EASYPLUS and MVS in a mainframe environment. Perform detailed business analysis and develop efficient and flexible applications in batch and on-line modes. 2 Years experience on the job with a Master's degree or 5 years with a Bachelor's degree in Engineering/Science/Mathematics or equivalent. Salary $89K/Year. Please send applications to 705 Mermaid Dr #308 Deerfield Beach FL 33441 USA.

Software Engineer: Dsgn and dvlp med. s/ware applns using C++, SQL Svr, MUMPS & related tools. Install, admnstr & maintain network sys; Database admin. Remote cust support thro WAN; Dsgn & dvlp CACHE Database Sys. Requires BS or eqvlnt in Comp Eng & 5 yrs exp in applin dvlpmnt and/or sys admin and/or network eng and MCSE for Win 4.0. Apply: Integrated Informatics, Inc., 1805 Old Alabama Rd, Ste 320, Roswell, GA 30076. Email: kaps@i-i.com

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Consultant sought by NYC Computer Consulting firm to analyze user needs, to dsgn, dvlp & implmt medium to large scale applics using technologies such as Lotus Notes/Domino, Lotus Script, C/C++, SQL & HTML. Must have BS in Comp Sci or Engg, Info Systems Engg or related w/2 yrs of relevant work exp. Send resume to Gemini Systems, HR #CMG, 61 Broadway, Ste 925, NY, NY 10006.

MphasiS-BFL Ltd. and its subsidiary MphasiS Corporation has multiple openings for the following positions at its office in New York and unanticipated client sites throughout the U.S.: Programmer Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager, Finance Manager. Please send resume and salary history to hr@mphasis.com or mail to 444 Park Avenue South, Suite #503, New York, NY 10016.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree" in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with ClearBasic programming also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree" in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Oracle and UNIX Scripting also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

COMPUTER SYSTEMS ENGINEER wanted by hardware & systems support Co. in Houston, TX. Must have B.S. in Comp. Engineering (or Electronic & Comp. Engineering) plus exp. Respond by resume only to: Mr. S. Ye ID-Melody Computers, Inc. 5800 Ranchester, Ste 160, Houston, TX 77036.

Programmer Analyst. Wilmington, DE. Bachelors in Comp or Electronics or MIS + one year exp. in design, develop and implement net enabled applications utilizing Java, HTML, XML, Java/RMI, CORBA, EJB, C, SQL and PL/SQL and do OOP using C++ and C # for Windows 95/98/NT & Unix, design GUI using VB, Visual Age for Java and Developer 2000, design & develop RDMBS using Oracle, SQL Server, MS Access, DB2 and generate reports using JDBC, Forms 5.0, Reports 2.5. Respond to: HR Dept., Neotech Solutions Inc., 1170 Broadway, Suite 314, New York, NY 10001.

System and network administrator wanted by Printing Industries of Michigan Service Corp. Duties include system & network administration, install & configure servers, user support. Must have BS or equivalent with CCNA, MCP, MCSE. Please apply at nick@print.org. EOE.

Comp Consults is looking for programmer/system analysts, engineers or IT consultants. Our minimum requirement is BS plus some experience in following area: Oracle, Unix, C/C++, VB, Java, J2EE, EJB, XML, XSL/XSLT. Please send resumes to: imng@compconsults.com. EOE.

Exp'ed Prog/Sys Analysts, OBAs, Syst Admins, S/W Engineers required for branch locations in Elgin, IL; Lower Gwynedd, PA and Cherry Hill, NJ. Skill sets: C, C++, Java, Wireless, HTML on UNIX/Windows, VB, VC++, PB, Oracle, PL/SQL, Pro*C, VLSI/ASIC design, VHDL, C, C++, Shell scripts, UNIX, Windows Sys Admin; COBOL, CICS, DB2. Require BS/MS in CS/Engg(any branch)/Math/Business/Science (or its foreign equiv and/or equiv in edu & exp) and relevant exp. Travel required. High salaries. Resumes to HR, Fourth Technologies, 585 Tollgate Road, Suite I, Elgin, IL 60123. Indicate on resume the branch office you are applying for.

Innovision Technologies, a dynamic company, is looking for system analysts, IT professionals and software/project engineers. BS plus some experience is required. We offer attractive wage with full benefits, 401k and job is stable. Please send resumes to itt@innovisiontech.com. EOE.

Synergy has openings for IT professionals or engineers. Qualified applicants must have BS/MS with some experience. Strong background in TCP/IP Suite, Unix, DB2, Oracle, VB, SQL, IIS, Window NT and XML is plus. Send resumes to hr@synergycom.com. Travel is required. EOE.

Sr. Programmer Analysts - Job Entails and requires experience in design and development of applications using BAAN, Triton, SAP, Siebel, WinRunner and SEI-CMM. Software Engineers-Job entails and requires experience in design and development of applications using Oracle Applications (GL, OM, OE, PO and INV), Oracle, VB and Unix. Job Location: Dublin, OH. Relocation within USA Possible. Attractive compensation package. Send resume to Priya Venkat, Technology Software Inc., 5708 Clearfield Lane, Dublin, OH 43016.

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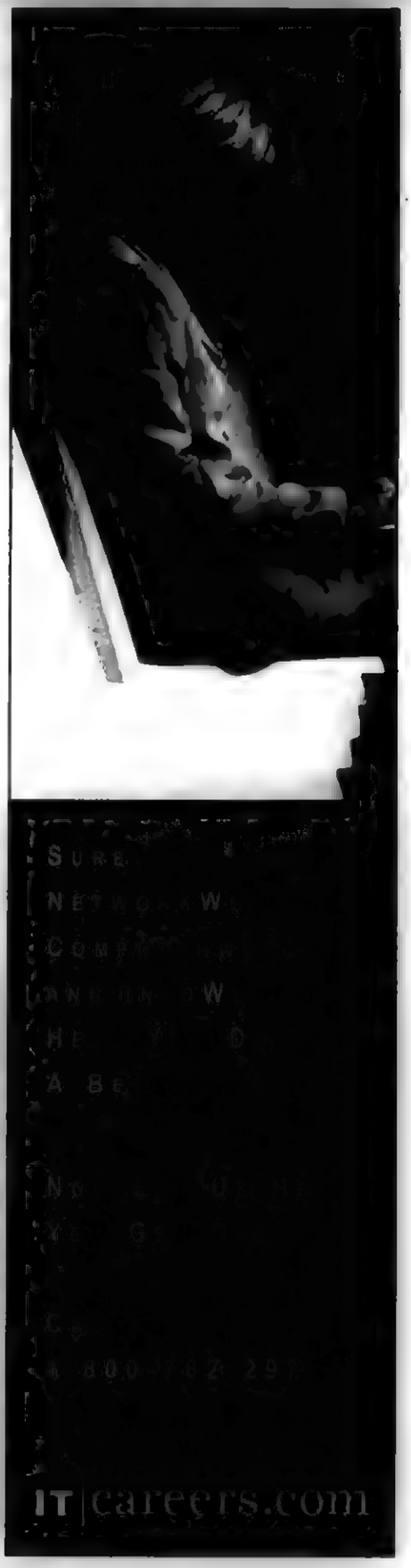
e-lite companies

e-merging companies

e-ssential companies

e-normous opportunities

IT careers



Farmers Telephone Cooperative has a Programmer Analyst opening in Kingstree, SC. Duties include design,develop web-based software applications especially for wireless communication industry; support, enhance web-based software applications, systems analysis, integration, coding, and testing. Skills include Java, Servlets, JSP and RPGILE programming. BS in Computer Science, Engineering or related field, 3 years experience. Send resume to FTC, Human Resources Administrator, P.O. Box 568, Kingstree SC 29556

Software Engineers to design, develop, implement & maintain engineering, business, accounting & management info applications & systems. Bach. in C.S., Physics or Engineering + 5 yr exp or Master in CS req. Send resume to Span Systems Corp., 230 Sherman Ave., #9, Berkeley Heights, NJ 07922.

International Programming & Systems, Inc. has employment opportunities for Systems Analysts with any of the following skills: COGEN, SAPIENS, TERADATA V8 Developers exp in STRATUS, UNIX; UNIX Systems Admin and Network admin Positions are available throughout the US inc. Hamilton & W. Trenton NJ, Philadelphia, PA, Seattle, WA. IPS also has openings for Sales and Recruiting staff in our San Francisco office. Electronic responses are encouraged. cllevoli@ipsamerica.com or mail resume to IPS 1875 So Grant Street, #300, San Mateo, CA 94402 (Fax) 650-572-8679. Principals only please.

Software Engineer to design, develop, test, implement web based applications using VC++, COM, ISAPI, Java, EJB, JSP, J2EE, MS SQL, C, NSAPI, WAP on Linux and Windows platforms. Tasks include System Architecture, and recommendation of Architecture and technology. Masters degree in computer science and three years experience. Send resume to Datum Software Inc, 6525 The Corners Parkway, Suite 312, Norcross, Georgia, 30092.

Software Dev. Comp located in New Jersey & California req. Software Engg. w/MS & 1 yr. exp or its equiv. & Prog Analyst w/BS & 2 yrs. exp in foll.

JD Edwards, HP-9000, IBM, AS/400, Oracle, DB2, Win NT, SQL/400, Cobol/400, JDE World Case, VB, VC++, COM/DCOM, Java, HTML, XML, ASP, JavaScript, SQL Server, UML, Object Oriented, Distributed Networking Systems.

Excel Benefits. Apply with resume to Attn: Recruiter, Systime Computer Corp. formerly Compuware Solutions, Inc. 181 Metro Drive #500, San Jose, CA 95110.

SAP CONSULTANTS Develop & implem functional modules such as FI/CO, MM, SD, PP, ABAP Progr.

PROGR ANALYSTS & DESIGN ENGINEERS Design, develop, implem, data migration, testing of Bus Applin, PDM systems-Metaphase/ Windchill/ Enovia, Auto Components. Skills such as C, C++, Java, Oracle RDBMS, SAP, Unix,CATIA,Pro Engineer, CAD/CAM req'd ICAD & other KBE OO sys devel need CAD/CAM/CAE exp.

BS, MS or equiv in CS, Mech, EE, Bus Adm, Finance or related field; & 1-5 yrs exp in the req'd area.

Positions available in Detroit, MI & at client sites throughout US. Pls mail resume to HR, 33533 West 12Mile Rd, #131, Farmington Hills, MI 48331

Software Engineer-Systems Analysis & Programming. Perform requirement analysis, design, programming, testing and implementation of telecommunications usage rating and invoicing system; develop and direct software systems to process local and long distance usage and products including rating, taxing, promotion application, reporting and revenue interfaces; provide 24x7 production support; implement monthly changes to comply with taxing rules and rates and international and National Terminating Point Master databases. Requires a bachelor's degree in engineering, computer science or management information systems or will accept bachelor's equivalent based on a combination of education and/or experience as determined by a professional education or experience evaluation service; also requires 2 years experience in the job offered or 2 years experience in the design and development of telecommunications usage rating and invoicing system. Salary range $68,000 to $74,000/yr; 40 hrs/wk, 8AM to 5PM, Monday to Friday. To apply, submit two (2) copies of your resume to: Case #200200773, Labor Exchange Office, 19 Stanford St., 1st Flr., Boston, MA 02114 EOE.

Programmer/Analyst to design, develop, test, implement, maintain and support web-based software in a client/server environment using JAVA, J2EE, JSP, HTML, SERVLETS, EJB, JDBC, SWING, CORBA, RMI, TCP/IP SOCKET, VISUAL BASIC, XML, ASP, C++, ORACLE, WEBLOGIC, WEBSPHERE, NETSCAPE APPLICATION SERVER AND SERVICES ON UNIX, SUN SOLARIS AND WINDOWS Platforms. Require BS Degree in Science, an Engineering discipline, or a closely related field with 2 years of progressively responsible experience in the Job offered or in the related occupation of Software Engineer. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers, Inc. 900 Old Roswell Lakes Parkway, Suite 300 Roswell GA 30076 Attn: JobMP

Pinnacle Talent, Inc., a premier IT Projects Consulting and Services company, has immediate, full-time opportunities for:

Software Engineers to research, design and develop computer software systems, in conjunction with hardware product development, applying principles and techniques of computer science engineering, and mathematical analysis; formulate and design software system, will use a variety of software tools, including, PowerBuilder, TPF, Sybase, Perl, Solaris, Java, and/or Corba. Master's degree or foreign edu equiv of same and 1yr exp required.

Systems Analyst to analyze user requirements, procedures and problems to automate processing or to improve existing computer system; review computer system capabilities; study existing information processing systems; develop new systems to improve production; will use a variety of software tools including: SAP R/3 Basis Administration, Oracle DBA, PL/SQL, Automated Testing Tools viz. Winrunner, Loadrunner, UML, Rational Rose, Websphere, Weblogic, Solaris, Unix and/or Windows. Master's degree or foreign edu. equiv of same and 1yr exp. required.

Programmer Analysts to plan, develop, test and document computer programs; applying knowledge of programming techniques and computer systems; evaluate user request for new or modified program; formulate plan outlining steps required to develop program; using structured analysis and design. Design new code/program or replace delete, or modify existing code/program to meet client needs; will use a variety of software tools including SAP/R/3, ABAP/4, Oracle Applications, PL/SQL, Java, J2EE, Java Servlets, MQ Series, Rational Rose, Websphere, Visual Basic, PowerBuilder, Oracle Database, C, C++ and/or Embedded Software. Bachelor's degree or foreign edu. equiv of same and 1yr exp. required.

For some positions, we also accept the degree equivalent in edu and exp. Travel and/or relocation required. Send confidential resume, salary requirements and position applying for to: **Pinnacle Talent, Inc. Attn: HR 1919, Midwest Road, Suite 210, Oakbrook IL 60523**

Programmer/Analyst to analyze, design, develop, test, maintain, implement and support web-based application software in a client/server environment using Java, J2EE, EJB, JSP, Servlets, JDBC, JavaBeans, XML, XSLT, WebLogic, Apache, PL/SQL, SQLJ, Oracle, MS-SQL Server, UML, Rational Rose operating under UNIX and Windows Platform. Require: BS Degree in Computer Science, an Engineering discipline, or a closely related field with 2 years of progressively responsible experience in the Job offered or in the related occupation of Software Engineer. Extensive travel on assignments to various client sites within the US is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, EVEREST COMPUTERS INC., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA-30076. Attn: JobMP

SOFTWARE ENGINEER to design, develop, enhance and maintain web-based application software and electronic invoicing systems using ASP.NET, Visual Basic, VB Script, Access, SQL Server and COBOL under Windows and UNIX operating systems. Require B.S. degree in Computer Science/ Engineering, or a closely related field with five years of experience in the job offered or as a Systems Analyst. Competitive salary offered. Send resume to: Apsolit Technologies, Inc., 638 Hillandale Circle, SW, Marietta, GA 30064; Attn: Job VO

Business Objects has an opening for the position of Regional Solutions Specialist to be based out of the Madison WI area. DUTIES: Utilize FORTRAN and HPUX expertise in Support Western Region ("WR") Pre-Sales organization's advanced Business Objects technologies such as extranet implementations, software customization, network and data security and application integration among other emerging technologies. Provide technical support by telephone and in person. Provide advanced technological support and training to pre-sales team through preparation of customized demonstrations, white papers, and educational seminars. Construct educational and technical resources. Provide case resource for field questions and cross-trains. Conduct individual research and testing. Ensure clear documentation of technical solutions implemented by the WR in order to build a library of technical field information for the pre-sales staff. Facilitate the creation of best practices documents for product implementation. Collaborate with and interface between groups to provide timely transfer of knowledge of new products and methodology. Create customized demos. Ensure advanced technical support and consultation for the WR. Utilize expertise in planning/executing large systems projects/IT plans to recommend and architect enterprise Business Intelligence Systems. REQUIREMENTS: Bachelor's degree or equivalent* in Business, or CE/Physics/other quantitative or scientific field, plus one (1) year experience in job offered or as Presales Engineer/Consultant. Systems Engineer or related. * Equivalent means a degree recognized by a professional evaluation service to be the equivalent of a bachelor's degree awarded by a US college or university. Experience/academic curriculum to include UNIX System administration for HPUX operating system, FORTRAN programming, targeting long-term systems projects, and IT plans for organizations, client/server/testing of large distributed computer applications. To apply for a position visit our website at www.businessobjects.com/careers or forward your resume (ref: CW0428) to Business Objects Americas, Attn: Staffing, 3030 Orchard Pkwy, San Jose CA 95134. EOE

Hardware Technologies, Inc. has immediate full-time opportunities for:

Software Engineers, To research, design and develop computer software systems, in conjunction with hardware product development, applying principles and techniques of computer science engineering and mathematical analysis; formulate and design software system, will use a variety of software tools including, PowerBuilder, TPF, Sybase, Perl, Solaris, Java, Corba. Master's degree or foreign edu equiv of same and 1yr exp required.

Systems Analyst to analyze user requirements, procedures and problems to automate processing or to improve existing computer system; review computer system capabilities; study existing information processing systems; develop new systems to improve production; will use a variety of software tools including, Apache, Java, JDBC, Oracle, PL/SQL, Servlets, Rational Rose. Master's degree or foreign edu equiv of same and 1yr exp required.

Programmer Analysts to plan, develop, test and document computer programs; applying knowledge of programming techniques and computer systems; evaluate user request for new or modified program; formulate plan outlining steps required to develop program, using structured analysis, and design. Design new code/program or replace delete, or modify existing code/program to meet client needs; will use a variety of software tools including, C, Fortran, Visual Basic, Oracle, Solaris. Bachelor's degree or foreign edu equiv of same and 1yr exp required.

For some positions, we will also accept the degree equivalent in edu and exp. Travel and/or relocation required. Send confidential resume, salary requirements and position applying for to: Hardware Technologies, Inc. Attn: HR, 4343 Commerce Court, Suite 618, Lisle, IL 60532.

Department of Computer Technology

Purdue University's Department of Computer Technology invites applications for a tenure-track assistant professor position at its West Lafayette home campus beginning in August 2003. The department's mission focuses primarily on teaching, educational and applied research, and industry/professional outreach. The position is focused on areas of database administration, database programming, and advanced database applications. The selected candidate must participate in both undergraduate and graduate education assignments. All candidates must have an earned Masters Degree (PhD preferred) and at least three years of industry experience. Preferred candidates will have knowledge and/or experience in deductive and knowledge databases, object-oriented databases, spatial and temporal databases, data warehousing and knowledge discovery, multimedia databases, and semistructured data and XML. Applications will be accepted until the position is filled. Send a detailed resume and academic transcripts to CPT Search and Screen Committee, Ad Code CW, Department of Computer Technology, Purdue University, 401 N. Grant St. W. Lafayette, IN 47907-2021. Questions should be directed to Professor Erick Slazinski (West Lafayette) at phone (765) 496-7582, or on the Internet at edslazinski@tech.purdue.edu. Purdue University is an equal opportunity/affirmative action employer.

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SOFTWARE APPLICATION ENGINEER

Perform analysis of NASA/USGS geo-science data and engineering of software to support the Global Earth Science communities. Development and support for analyzing, developing and maintaining data and software systems to support archives at DAAC, NASA and US geological survey datasets. Responsible for NASA's SIR-C/X-SAR (Spaceborne Imaging Radar-C/X-band Synthetic Aperture Radar) data and systems. Knowledge required in multi-parallel processing systems, analysis of raw-processed SAR and interferometric data. Concentration toward a long-term vision and support required to maintain historical data. Key skills require strong base in science with a possible focus toward atmospheric/geological science, complimenting software engineering skills and Aqua/Terra/Arid remote sensory knowledge. Programming knowledge of C, C++, Java, Fortran, Oracle, SQL/PLUS, server-side development skills and device I/O programming. 40 hours per week. $47,320/year. 8:00 a.m. to 5:00 p.m. Master's degree or equivalent in Computer Science/Geoscience or related field. Must have proof of legal authority to work in the United States. Send your resume to South Dakota One-Stop Career Center, 811 E. 10th Street, Sioux Falls, SD 57103-16500, (605-367-5300(T) (605-367-5308(F). Please refer to Job Order #SD1234280

Senior Software Engineer

Responsibility is to develop, complex multi-tiered applications, especially internet applications & to design & troubleshoot at all stages of development. Must then interact w/customer to understand & deal w/potential complications or special requirements. In developing application must formulate & develop application design using object oriented analysis & design techniques. Develop & deploy design under operating systems UNIX or NT as well as conduct application engineering & assist customers in writing applications using supported tools. Position requires an extensive amount of travel within North American region. Req's Master's in CS, Engineering, or related field or equivalent. BE and 5 years of post-baccalaureate progressive experience in position or a related occupation will substitute for a Master's. Also req's knowledge in server side Java or C++, knowledge in developing in UNIX or NT, knowledge in development using object-oriented analysis & design techniques, knowledge in various technologies & platforms including XML, JavaScript, SQL & familiarity w/various databases. J2EE specifications (including servlets, eb etc.), & concepts of Source control IDEs & system optimization. $30k-$30k, 40 hrs/wk, $87,000/yr. Submit 2 resumes to Case # 2002007361, Labor Exchange Office, 19 Stanford St., 1st fl., Boston, MA 02114

PROGRAMMER/ANALYST

Analyze existing and proposed new medical/clinical equipment. Evaluate medical equipment specifications and user requirements. Design, develop and program systems/applications for interfacing medical equipment with applications. Customize programs as required. Implement, verify and test interfaces. Set up and monitor equipment and interfaces. Perform quality assurance as required. Maintain requirements. Bachelor Degree or equiv in Bio-Medical Engg and 2 years of experience in the job offered or related occupation that. Head-Biomedical or Biomedical Engineer 2 years of work experience on medical/clinical equipment and familiarity with development tools like Pascal, C, Visual Basic, Oracle, Windows required. Full-time position (40/wk, 9am-5pm). Salary: $60031.00/yr. Overtime, n/a. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 215 Watson Powell Jr. Way, Suite 100, Des Moines, Iowa 50309-1727. Please refer to Job Order IA11017118. Employer paid advertisement.

J.D. Edwards is a one billion dollar global software company that is enabling collaborative commerce in the connected economy. We currently have openings in a number of areas, at all levels including software developer, business software developer, programmer/analyst, internet programmer, software quality assurance engineer, business software quality software engineer, technical consultant, web developer, database administrator, technical specialist, technical support specialist, applications consultant, and other IT positions. Positions are available at our world headquarters in Denver and at other locations throughout the United States, including San Francisco, Costa Mesa, California, Chicago, Texas, New Jersey, Boston, Charlotte, N.C. etc. Please visit our website for a complete listing of available job openings, locations and other information: www.jdedwards.com. J.D. Edwards is an equal opportunity employer.

Software Engineer-Systems Analysis & Programming. Perform requirement analysis, design, programming, testing and implementation of telecommunications usage rating and invoicing system; develop and direct software systems to process local and long distance usage and products including rating, taxing, promotion application reporting and revenue interfaces, provide 24x7 production support; implement monthly changes to comply with taxing rules and rates and International and National Terminating Point Master databases. Requires a bachelor's degree in engineering, computer science or management information systems, or will accept bachelor's equivalent based on a combination of education and/or experience as determined by a professional education or experience evaluation service, also requires 2 years experience in the job offered or 2 years experience in the design and development of telecommunications usage rating and invoicing system. Salary range $68,000 to $74,000/yr. 40 hrs/wk. 8AM to 5PM. Monday to Friday. To apply, submit two (2) copies of your resume to: Case #200200771, Labor Exchange Office, 19 Stanford St., 1st Flr., Boston, MA 02114. EOE

Software Engineer-Systems Analysis & Programming. Perform requirement analysis, design, programming, testing and implementation of telecommunications usage rating and invoicing system; develop and direct software systems to process local and long distance usage and products including rating, taxing, promotion application, reporting and revenue interfaces, provide 24x7 production support, implement monthly changes to comply with taxing rules and rates and International and National Terminating Point Master databases. Requires a bachelor's degree in engineering, computer science or management information systems, or will accept bachelor's equivalent based on a combination of education and/or experience as determined by a professional education or experience evaluation service, also requires 2 years experience in the job offered or 2 years experience in the design and development of telecommunications usage rating and invoicing system. Salary range $68,000 to $74,000/yr. 40 hrs/wk. 8AM to 5PM. Monday to Friday. To apply, submit two (2) copies of your resume to: Case #200200772, Labor Exchange Office, 19 Stanford St., 1st Flr., Boston, MA 02114. EOE.

Senior Technical Consultant: Responsible for working with customers and Systems Integration partners. Lead business scope and design workshops, develop test and deploy billing solutions using MetraTech's methodology and products. Responsible for obtaining and analyzing product and integration requirements, business object functionality, and integration with provisioning and customer care systems. Will outline and communicate business and technical solutions for the customer. Work with MetraTech's engineering and marketing teams to propose specific partnership initiatives as well as product enhancements. Requires: Bachelors in Computer Science and Engineering and 4 years experience in Software Engineering/ Development. Must have hands on knowledge of VC++, MFC, Visual Objects and Crystal Reports. 40hrs/wk (8:00 a.m. to 5:00 p.m.); $90,064.00/yr. Send two resumes/responses to: Case Number 200116126, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114

Lead Analyst (Boston & Waltham, MA) - Provide tech support & admin for UNIX servers. Manage Solaris & AIX administration of SUN & IBM servers. Work w/ sys development personnel to implement client server based apps. Diagnose & resolve complex sys problems, install, upgrade & configure UNIX, Solaris, & A31X servers, create & modify users & groups on server, implement fault tolerance through utilization of VXVM in Solaris & Volume Mgmt in AIX, implement sys security measures. Aid in maintaining corporate standards, policies & procedures for UNIX environment. Apply knowledge of Sun Solaris UNIX administration, Veritas Volume Mgr, DNS, TCP/IP, C/C++ & shell script programming. Support database servers such as Sybase, Oracle, & Informix. Be on-call at all times to respond to critical problems. Min req's: Master's in Comp Sci, Elec Eng'g, or rel. field, or equiv, no exp req'd. Alternately, will accept Bachelor's in Comp. Sci., Elec. Eng'g. or rel field + 5 yrs progressively responsible exp in database administration & programming. Must have unrestricted authorization to work in U.S. M-F, 8AM-5PM, 40 hrs/wk. Salary $85K/yr. An EOE. Send 2 copies of resume to: Case No. 200200729, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114

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Sr Programmer/Analyst to Analyze, design, develop, test, maintain, implement and support web-based and client/server applications using Oracle, Oracle forms, Oracle reports in Unix and Windows Platforms. Require BS Degree in Science, Business Administration or Engineering or a closely related field with 5 years of progressively responsible experience in the job offered or in the related occupation of Software Engineer or System Analyst. Extensive travel on assignments to various client sites within the US is required. Competitive Salary offered. Apply by resume to: Ravi Kandimalla, President, EVEREST COMPUTERS INC., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA-30076. Attn: JobJP

Programmer/Analyst: Analyze, design, develop, test, implement and maintain customized software applications in a client/server or mainframe environment. Will also provide in-depth trouble shooting and problem solving as well as analysis, design, development and implementation assistance to AS/400 programmers, system administrators, operators and end users. Must have 2 yrs exp in job offered or 2 yrs exp. in software development. Such experience must include AS400 and related tools. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $75,000/yr. Hrs: 8.00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case #200201344, Labor Exchange Office, 19 Stanford St., 1st Fl. Boston, MA 02114.

IT Specialist (Software Engineer) - Render consulting services and provide support and guidance to Web application development and deployment teams at various client sites throughout the U.S. Develop, implement and test web application products utilizing Java, JavaScript, J2EE, EJB and Servlet based on analysis of user requirements. Must have Bachelor's degree or equivalent in Computer Science or Electrical Engineering as well as either two years of experience in the job offered or two years of experience as a Systems Engineer. 40 hrs./wk., 8:00 A.M to 5:00 P.M., $85,000.00 p.a. Job Order Number WEB 318500. Applicants should send resume to the following address and must reference the job order number: Site Director, Pittsburgh/Allegheny County CareerLink, ATTN: ES Supervisor, 425 Sixth Avenue, Suite 2260, Pittsburgh, PA 15219.

SOFTWARE ENGINEER to design, develop, enhance and test web-based application software using Java, JSP, JMS, EJB, Servlets, JDBC, Java Beans, Java Swing, XML, Oracle, Rational Rose and BEA Weblogic under UNIX and Windows NT operating systems. Require: B.S. degree in Computer Science, an Engineering discipline or a closely related field with four years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Kevin Barfield, Total System Services, Inc., 1980 Barrett Summit, Suite 200, Vaughn Rd., Kennesaw, GA 30144. Attn: Job UB

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain client/server and web-based application software for the insurance industry using Java, C++, C, UML, JSP, Servlets, iPlanet Server, SQL Server, SQL and Oracle under Windows 98/2000/NT/XP, Novell, UNIX and SUN Solaris operating systems. Require B.S. degree in Computer/Systems Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. A M.S. with a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience will be accepted in lieu of the B.S. and two years of experience. Competitive salary offered. Send resume to: Infinity Insurance Company, P.O. Box 444, Birmingham, AL 35208. Fax at 205-803-8405 or E-mail at Jobs@infinity-insurance.com. Attn: Job MK

SYSTEMS ENGINEER

Specify, design, code, test and maintain systems software used by company application in the UNIX environments of Sun Solaris, IBM AIX. Track UNIX technology directions and ensure that company products are tailored appropriately for the UNIX environment. Knowledge of UNIX system services, threads, daemon processes, signals, client-server architecture. 40 hours per week. $85,000/year. Master's degree in Computer Science or related field. Must have proof of legal authority to work in the United States. Send your resume to: Madhavi Bhadbhade, Nebraska Workforce Development, Department of Labor, P.O. Box 94600, Lincoln, NE 68509-4600. Please refer to Job Order #SBAHS-LFME3-17441.

BSystems Inc. has several openings in S. Dakota, WA & elsewhere for Programmer Analysts, Systems Analysts, Software Engineers & DBAs w/at least 2 yrs exp in any of the foll: ESSCMD, Hyperion Essbase, Hyperion Analyzer/ Planning, Planet, Tomcat, Sun Solaris, PL/SQL, VB, Application Builder, ARCGIS, ARCView, ARCFM, VisualGen 2.2/3.1, CSP, MVS, COBOL, BlueMartini w/J2EE technologies, HP3000 MPE/X, Win NT. Some pos req bach others masters. Equiv deg &/or exp also accepted. Exc. pay & benefits. Please indicate pos applying for. Possible relocation reqd. Mail resume to: HR Dept., 300 N. Dakota Ave. Ste 503-B, Sioux Falls, SD 57104.

PROGRAMMER ANALYSTS req'd for Hickory Hills, IL office. Design & develop software applications using Developer 2000, Designer 2000, VB, Oracle, Cobol, C++ & Erwin. Develop & implement client/ server applications in oracle financials using synchronization techniques such as PL/SQL, Developer 2000 & Designer 2000. Perform system & integration testing. Bachelors req'd in Computers, Engineering, math or any related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Compro Consulting Group, Inc., 8619 W 95th St., Hickory Hills, IL 60457.

Sales Engineers needed. Seeking qual cand. possessing MS/BS or equiv. and/or relevant work exp. Duties include: analyze product value propositions, demonstrate products and create solutions for clients. 2 yrs. marketing experience required. Must be willing to travel and relocate. Mail resume & ref. to: Zycus, Inc., 3375 Scott Blvd., Santa Clara, CA 95054, ATTN: HR

The Whitaker Companies has an opening in the Houston Metro area for a Senior SAP/Technical Consultant. Provide Techno-functional solutions in SAP. Develop prototype solutions. Perform Functional Configuration programming in ABAP/4 Testing, Transportation to Production utilizing Inside or Revtrac software in various Asset Management, Human Resources, Time Management and Cross-functional by utilizing related software, Peregrine, MS-Office. Bachelors degree in Business, Information Systems or related field plus 3 years in job offered or 3 years as Programmer/Systems Analyst involved in developing Prototypes, customizing FI and Interfaces, Reports in ABAP/4 and related duties. Send resume to Whitaker Consulting 1200 Enclave Parkway, Suite 200 Houston TX 77077 www.whitakerconsulting.com, paul.choudhuri@whitakerconsulting.com

SOFTWARE ENGINEER to design, develop, maintain and support web-based application software in a client/server environment using C++, J2EE, BEA Weblogic Application Server, OOAD, SSAD, OOPS, Rational Rose, Perl, JavaScript, Oracle and DB2 on UNIX, SUN Solaris and Windows platforms. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076. Attn: Job VP

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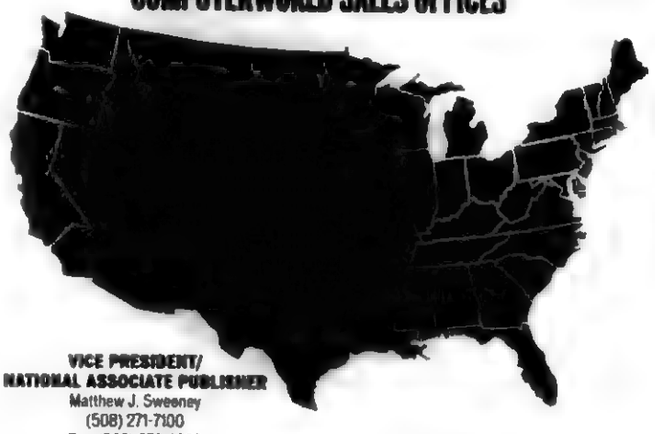

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Health Net

nology that will be used to support the network.

The eHealth network will capture patient data collected by hospitals — especially in emergency rooms — and automatically distribute information to health agencies. The project was in the works prior to the recent outbreak of SARS, or severe acute respiratory syndrome, and the network isn't being developed specifically to gather SARS-related data.

But Dr. Russell Ricci, general manager of IBM's global health care division, said automated syndromic surveillance technology that can collect information about symptoms like the high fever and respiratory problems that are common with SARS will be a key component of the three-month test.

In addition to emergency room data, syndromic surveillance systems can gather information about sales of over-the-counter medicines, Ricci said. However, that capability won't be part of the network test, he added.

The pilot project will demonstrate how to apply sophisticated data mining techniques to the health care industry and how to tie together stovepiped hospital information systems using commercial middleware tools, Ricci said.

The test version of the network will support electronic data exchange standards that were mandated by the Department of Health and Human Services in March, Marchibroda said. She added that eHealth officials hope that the pilot project will lead to the development of a full network, but that will depend on additional funding. EHealth is building the test network in a partnership with the New York-based Markle Foundation.

> **"Maybe eHealth can . . . demonstrate that it is possible [to build such a network].**
>
> **DR. SETH FOLDY,** HEALTH COMMISSIONER, CITY OF MILWAUKEE

Ricci said he couldn't quantify the cost of implementing a full nationwide network. "I would not even know where to put the decimal point," he said, adding that federal backing would likely be needed.

Dr. Seth Foldy, health commissioner for the city of Milwaukee, said he hopes that eHealth's efforts will lead to the eventual development of a system that would make it easier to exchange syndromic surveillance data. "This is not going to be easy, but maybe eHealth can build a business case and demonstrate that it is possible," Foldy said.

He noted that the surveillance data can alert doctors and public health officials to potential outbreaks of epidemics like SARS more quickly than is possible with traditional, diagnosis-based systems, which often require lab tests that take days to complete. Syndromic systems provide more immediate information about patterns of symptoms among patients, Foldy said.

Software Helps City Officials Track Outbreaks

Milwaukee's municipal government uses an emergency room management application that includes a Web-based syndromic surveillance system for spotting potential epidemics, said Dr. Seth Foldy, the city's health commissioner.

The emergency room application was developed by the Frontlines of Medicine Project, a nationwide collaboration among doctors and medical IT specialists that is marketed by Infinity HealthCare Inc.'s EMSystem division. Both the Frontlines project and EMSystem are based in Pewaukee, Wis.

Foldy said the Frontlines group added a SARS surveillance tool earlier this month. The SARS component consists of a Web-based form that emergency room personnel can download to record and track any SARS-type symptoms patients are experiencing as well as any recent trips the patients have taken to China or other countries where SARS outbreaks have been documented.

If a patient shows signs of the disease and has recently visited a known SARS zone, hospital workers are instructed to call Milwaukee's health department immediately. Otherwise, hospitals upload symptom data to local health officials at the end of each day.

Foldy said he would like to see the data transfer automated in order to free hospital clinicians from the need to fill out forms.

– Bob Brewin

Continued from page 1

Strike Threat

the deal with HP was announced, the IBOA served Bank of Ireland with two weeks' notice of possible "industrial action," which includes the threat of an all-out strike. That followed a vote in which 83% of the union members who took part sided with the plan to send the notice to the bank, according to a posting on the IBOA's Web site.

Calls to IBOA general secretary Larry Broderick weren't returned by press time, and it wasn't clear how many bank employees actually participated in the vote. But on the union's Web site, Broderick is quoted as saying that the vote "testifies to the huge concern and uncertainty" about the proposed outsourcing deal among IT staffers at Bank of Ireland.

The IBOA's top priority is to prevent the bank from proceeding with the outsourcing arrangement until there are "full negotiations and agreement" with the union, Broderick said. Otherwise, IT workers at the bank "will not be cooperating with any proposal to outsource," he warned.

SOURCE: GARTNER INC., STAMFORD, CONN.

Anne Mathews, a spokeswoman for Bank of Ireland, said bank officials "couldn't have meaningful discussions" with the IBOA until a preferred outsourcing vendor had been chosen. Mathews added that the contract negotiations with HP are expected to take four to six months to complete. The union will have a voice in those discussions, she said, declining to comment about what transpired during last week's talks with the IBOA.

Growing Unrest

In an April 18 research note about the strike threat, Gartner Inc. analyst Diane Morello wrote that she expects to see more actions by IT workers to protest "what they perceive as unsettled employment situations" as a result of job cuts and an increase in the amount of IT work being outsourced, sent offshore or farmed out to contract and temporary workers.

Morello said IT managers need to anticipate potential worker backlash against outsourcing deals, even if their IT departments aren't unionized. Companies that don't do so risk work slowdowns or other productivity drags, she said. "The important thing is to communicate honestly and respect your employees," Morello added (see box).

That's precisely what DaimlerChrysler AG executives did before the automaker last year began outsourcing maintenance of about 150 applications that support its engineering, sales and manufacturing operations to offshore services firms Infosys Technologies Ltd. and Syntel Inc., both based in India.

DaimlerChrysler held a series of "town hall" and breakfast meetings at its facility in Auburn Hills, Mich., in an effort to do "whatever it took to answer questions and concerns" about the outsourcing plan, said CIO Sue Unger.

Unger said the meetings helped her and other IT managers convey to the 100 internal staffers and on-site contractors who had maintained the applications being outsourced that they would be redeployed to work on more strategic efforts, such as Web services and portal software projects.

The outsourcing program has been "very successful," Unger said, adding that it has helped DaimlerChrysler cut its IT costs and provided the affected workers "with a brand-new career."

MORE THIS ISSUE

For coverage of how offshore outsourcing is affecting U.S. workers, turn to page 39.

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FRANK HAYES ■ FRANKLY SPEAKING

As Bad as It Gets

TIMES ARE TOUGH. Budgets are tight. Patience is short. We're faced with underfunded projects, understaffed operations and underappreciated challenges. The goal of getting IT right — making sure our technology works, and works for the benefit of the business — has never been tougher to accomplish.

Fortunately, one thing is still easy: screwing up.

What? You've forgotten how? Never fear! Just commit this list of a baker's dozen tips to memory — or clip it out and keep it handy — and you'll never be short of bad ideas again:

Assume. Assume you know what users need. Assume you know what managers expect. Assume you'll have no problems. Assume you'll catch up when the schedule slides. Assume no problems will show up in testing. Assume no one will mind all your assumptions. Why should they?

Expect. Expect support from management. Expect perfection from vendors. Expect clear specifications from users. Expect flawless execution from the IT staff. Hey, it could happen — so why not expect it?

Overpromise. Paint an improbably beautiful picture of glitch-free hardware, bug-free software and friction-free networks. Set an early delivery date. Make the list of features long. Keep expectations high. What else will spur you to do your best work?

Complicate. Avoid straightforward designs. Sneer at simple solutions. Encourage complexity. Who's going to respect technology that anyone can understand?

Alienate. Alienate the users who can explain to you what your systems need to do for them. Alienate the business managers whose budgets you'll spend. Alienate senior management, from whom all funding flows. What do you need anyone's cooperation for anyway?

Experiment. Users make the best guinea pigs. Production systems make the best testbeds. Untried technology offers its greatest rewards in mission-critical applications. When your original plans don't work out and the deadline gets near, why not give something completely untested a shot?

Deny. Deny responsibility. Deny promises you made. Deny failure. Deny the limits of your staff, your systems and your own abilities. Deny what's obvious to everyone else. Who should they believe — you, or their own lying eyes?

Change. Variety is the spice of life, and everyone loves something new. Change what users see on their screens. Change their passwords. Change what gets blocked by your filtering software. Change your help desk hours. Change your procedures. Change the rules. What's wrong with these fuddy-duddies — can't they get out of their rut?

Procrastinate. Delay that status meeting. Push back that code review. Put off those patches and upgrades and audits. Isn't there always time to get things done at the last minute — and if there isn't, can't you just push back that last minute one more time?

Withhold. Withhold information. Withhold cooperation. Withhold anything that would give users, business-side managers or executives a better sense of what to expect, when to expect it and how useful it will be if it ever arrives. Who ever heard of winning at poker without keeping your cards close to your chest?

Underestimate. Make low-ball guesses for cost. Predict a minimum of problems. Sketch out short development schedules. Everybody loves an optimist, so why plan for expenses and delays that might never materialize?

Avenge. Take revenge for perceived slights and possible acts of sabotage. Return real attacks and imagined affronts in kind. Pay back every case of stupidity, folly and ignorance, measure for measure. Why risk letting someone get away with it?

Ignore. Ignore problems, warning signs, complaints and objections. Ignore suggestions, feedback and test results. Ignore the recommendations of management and users. Ignore rumors and rumblings of discontent. Why sweat that small stuff? After all, you've got IT work to screw up. ◗

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- Computer Associates stakes its claim on crowded on-demand computing turf

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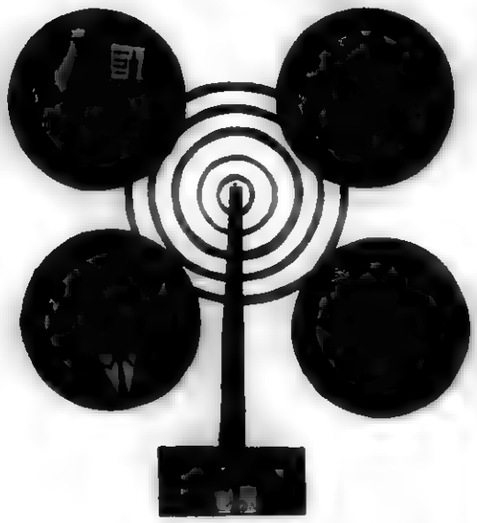

WIRELESS AT WORK

Wireless technology is laboring in some unexpected places these days, supplying the backbone for gritty applications in coal mines, at shipyards and even on the battlefield. Meanwhile, industry pioneers are still testing the technology's limits and inspiring a second generation of wireless adopters.

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A step-by-step checklist for wireless LAN deployment:
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RICH LILLARD

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Offshore Coding Work Raises Security Concerns

Outsourcing critical software development to foreign workers puts systems at risk, users say

BY DAN VERTON
MYRTLE BEACH, S.C.

SOFTWARE SECURITY

IT professionals are raising serious questions about the U.S. software industry's reliance on overseas software developers, arguing that the practice puts companies and the U.S. economy at risk.

A recent study by Gartner Inc. predicts that by 2004, more than 80% of U.S. companies will consider outsourcing critical IT services, including software development, to countries such as India, Pakistan, Russia and China. But some users said the trend needs to be given a sanity check in light of recent changes in the global security environment.

At last week's Techno-Security Conference here, users peppered a panel of corporate security officers with questions about the wisdom of outsourcing software development to cheap labor overseas, where there is little or no way to ascertain the security risk that workers may pose.

Of particular concern to some attendees is the work that is being sent to China. While not yet a major provider of outsourcing services, China has a significant economic espionage program that targets U.S. technology, the users noted. Also of concern are countries in Southeast Asia, particularly Malaysia and Indonesia, where terrorist networks are known to exist.

Speaking directly to Oracle

Offshore Coders, page 16

Pfizer Moves Broadband Out To Sales Force

Remote workers get routers, VPN software for distributed net

BY BOB BREWIN

Pfizer Inc. plans to have about 10,000 of its 13,000 field sales workers hooked up by year's end to either high-speed cable modem or Digital Subscriber Line services — a project that analysts said would create the largest corporate broadband network built for remote workers thus far.

Jay Stallard, senior manager of business technology and information sciences at Pfizer, said the New York-based pharmaceuticals maker will provide each of the workers with a low-end router and virtual private network software for connecting to the company's back-office systems.

The network hardware be-

Pfizer, page 53

Windows 2003 Compatibility Issues Upset Some IT Pros

Older versions of Exchange, SQL Server won't run on new OS

BY CAROL SLIWA

Some IT managers aren't happy. Others are more understanding. But all of those planning to upgrade to Windows Server 2003 will find that many older versions of Microsoft Corp.'s most popular server applications won't run on the new operating system.

Only SQL Server 2000 with Service Pack 3 can be installed on Windows Server 2003. Users running SQL Server 6.5 or 7.0 will have to upgrade or wait for the SQL release code-

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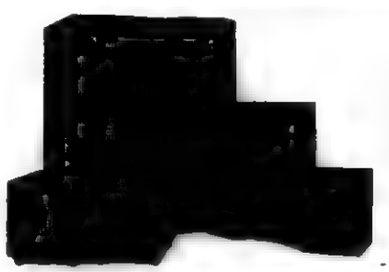

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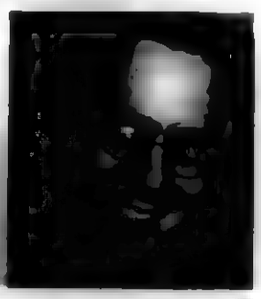
SPECIAL REPORT MOBILE & WIRELESS

Wireless at Work

Wireless is expanding its job description to include some gritty applications. Read how service technicians, bulldozer operators and police officers use the technology to get their jobs done. Also, industry pioneers are still testing the limits of wireless and inspiring a second generation of adopters. **PACKAGE BEGINS ON PAGE 27.**

30 Wireless Gets Down to Business. In the hands of creative pioneers, wireless technology is breaking new ground, with applications that range from the everyday to the extraordinary. Read about innovative wireless uses in 10 key sectors, including a WLAN upgrade at Carnegie Mellon University led by Chuck Bartel (below, left) and St. Vincent's Hospital's wireless voice technology pilot, led by Jim Stettheimer (below).



38 Working-Class Wireless. Thanks to a wireless system installed on all 10,000 of its trucks, Sears repair technicians can transmit data from customer sites anywhere in the U.S. to the company's back-end systems, says Sears IT executive Dave Sankey (right). Also, read how "smart" bulldozers use wireless to make their way around a coal mine and how a shipyard automatically creates payroll and cost records using wireless.

40 Analyst Report Card. Industry watchers from the top analyst firms weigh in on which wireless segments and vendors are making the grade for corporate IT. Vendors that sell gear and software for WLANs are earning top marks, but most mobile carriers are flunking out, analysts say. Also, results from our online survey reveal what readers had to say about their future wireless plans.

41 Vendor Views. Where is the wireless industry headed? Executives from Cisco, Intel, Enterasys Networks, Symbol Technologies and Proxim offer their takes on the future of WLANs, hardware, standards and security.

42 The Wireless LAN FAQ. Thinking of deploying a WLAN? Read answers to six frequently asked questions about capacity planning, interference and security concerns.

44 On the Heels of the Pioneers. They learned from the leaders, and now these second-generation adopters are adapting wireless technology to meet their own business goals. Read what prompted these smaller companies to go wireless, what tools they used and how their projects are working out.

Mobile & Wireless News
Get the day's news from *Computerworld*'s Mobile & Wireless World conference in Palm Desert, Calif., featuring end-user case studies and panel discussions. The four-day conference begins Tuesday, May 6.
www.computerworld.com/wireless

Idaho Police Department Installs WLAN Gear
A new Wi-Fi-based network at the Post Falls, Idaho, police department provides patrol officers in a 60-square-mile area with e-mail and direct access to the FBI's National Crime Information Center database.
QuickLink 38905

WLAN Deployment Checklist
Follow this step-by-step guide to ensure proper deployment of your wireless LAN. Read tips on network design, security protection and centralized management.
QuickLink 37765

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BY MARC L. SONGINI
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Niemiec, who is also CEO of Lombard, Ill.-based TUSC, an Oracle consulting and services firm, attributed the increase in user interest to Oracle Corp.'s alliance with Linux vendor Red Hat Inc. and its support for clustering Linux machines via its Real Application Clusters (RAC) technology.

Andrew Mendelsohn, senior vice president of database and application server technologies at Oracle, said as much as 15% of RAC users are running the clustering technology on Linux systems, up from almost none at this time last year.

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BETTER MANAGEMENT

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BY JAIKUMAR VIJAYAN

The clock is winding down for U.S. companies that exchange data with other businesses and subsidiaries in Canada to comply with a law providing broad privacy protections for Canadian citizens.

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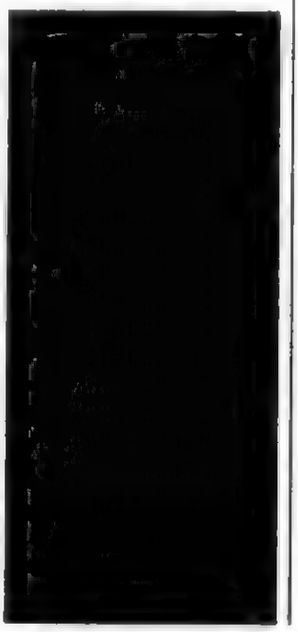

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IBM, Microsoft choose OASIS over W3C

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That's because another leading standards body, the World Wide Web Consortium (W3C), had already established a choreography working group to address the similar issues of describing, managing and executing business processes that are composed of Web services. The W3C's specification is called the Web Services Choreography Interface, or WSCL

Oracle Corp., which co-chairs the W3C's choreography working group, said it has worked hard — to date, to no avail — to encourage IBM and Microsoft to bring BPEL4WS to the W3C.

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Now it will apparently fall to companies such as Oracle, BEA, SAP and Sun Microsystems Inc. to monitor the two groups and make sure their work is complementary. Those are some of the vendors that have indicated their intention to sit on both the W3C's choreography working group and the OASIS technical committee for BPEL4WS, which will hold its first meeting May 16.

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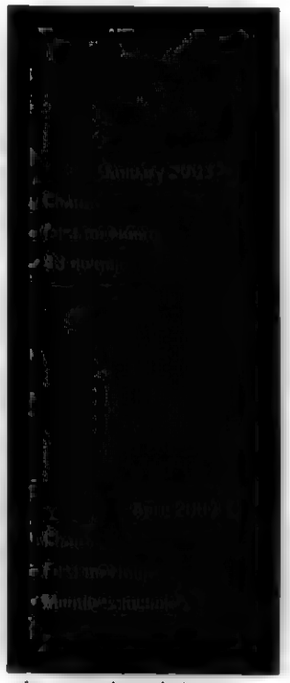

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But it doesn't expect big demand until standards are set

BY PATRICK THIBODEAU

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Grid Focus

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- Petroleum
- Electronics
- Agricultural chemicals
- Higher education

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Companies doing business in Canada must, as of Jan. 1

- Get an individual's consent to collect, use and disclose his personal information.
- Disclose the purpose for which information is being collected at the time of collection.
- Ensure that personal information isn't used for any reason other than the stated purpose.
- Ensure that personal information is retained for only as long as necessary to fulfill the reason for its collection.
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BRIEFS

Oracle Patches DB Security Hole

Oracle Corp. released a software patch for a security vulnerability that affects its Oracle8i and Oracle9i databases. Attackers could use the buffer overflow flaw to compromise data or take control of servers, the company said. Systems would have to be connected directly to the Internet without firewall protection to be attacked, Oracle noted.

Microsoft Issues Security Guides

Microsoft Corp. released a guide that's designed to help systems administrators secure computers running its new Windows Server 2003 operating system. The company also released a similar document for Windows 2000. The guides provide instructions on how to securely set up the two operating systems and mitigate various attacks, Microsoft officials said. Both can be downloaded from the company's Web site.

IBM Denies SCO's Charges

In a filing submitted to the U.S. District Court in Utah, IBM denied trade-secret theft allegations lodged against it in March by The SCO Group. IBM said it "has not engaged in any wrongdoing" or breached its Unix technology licensing contract with SCO. Lindon, Utah-based SCO claimed in its lawsuit that IBM was illegally using Unix code as part of its Linux services business.

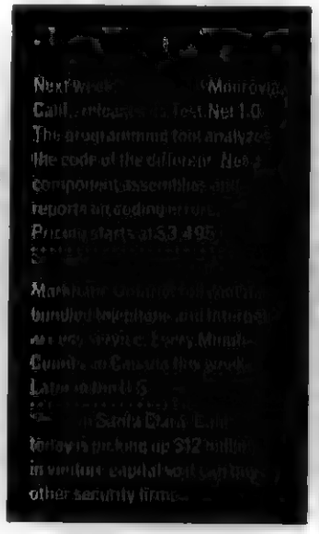
Server Sales Rise, Handhelds Decline

Worldwide server shipments rose 10% year over year in the first quarter, reaching a total of 1.2 million systems, according to Dataquest Inc. But San Jose-based Dataquest said shipments of handheld devices fell 11% in the quarter to 2.8 million units.

MARK HALL ■ ON THE MARK

Storage Vendors' Wild West Mentality...

... is working against users' interests when it comes to interoperability standards, rails Jon William Toigo, consultant, author, columnist and, starting tomorrow, founder and acting chairman of the Data Management Institute (DMI). Efforts by groups like the Storage Networking Industry Association to create workable standards are hampered by **vendors constantly taking potshots at each other** for competitive advantage, which is why the DMI is needed, he argues. Toigo says his group won't accept vendors as members, "although if they want to subscribe to a newsletter or buy a white paper, I don't care." The DMI will also evaluate vendor interoperability claims by testing their gear inside user data centers, then publish the results, Toigo says. He believes those published results **will likely bring on vendor lawsuits**, which is why he has located he DMI in his hometown of Dunedin, Fla. Florida, he says, has an anti-nuisance-lawsuit statute, which should shield him from vendors' lawyers. The commute isn't so bad, either. ■ Tony Barbagallo, VP of worldwide marketing for backup software provider Dantz Development Corp. in Orinda, Calif., agrees that the DMI confronts "a huge issue in storage resource management." But he thinks its charter won't affect his end of the storage industry, where operating system monopolies — uh, that is, OS standards — matter most. "We follow the APIs," he says. That's why tomorrow the company will release Dantz Retrospect 6.5 for Microsoft Windows. The upgrade backs up files faster because it streams multiple backup sessions to multiple tapes simultaneously. It's designed to **back up Microsoft Exchange at the mailbox level** and to be fully compatible with the .Net functions in Windows Server 2003. ■ Speaking of .Net brings to mind Web services and **how they're catching on – albeit, in small ways first with** more complex services coming in time. That's the strategy of Wayne Aiello, VP of e-business services at Corporate Express Inc. The Broomfield, Colo., office products company handles about 30,000 online orders per day. While individual orders are pretty small, only about $150, they **add up to more than $1 billion a year for the company.** Aiello doesn't think EDI is "less capable than XML," but all the B2B action between Corporate Express and its customers is in emerging Web services. Initially, Corporate Express leaned on its integrator, The Ultimate Software Consultants in Lombard, Ill., to set up XML-based data exchanges between its Oracle back-end systems and the 25 different customer applications. Now, after some intensive training, Aiello's team is integrating eight to 10 companies per month on its own. The next phase for Corporate Express will include **SOAP interactions that will enable customers** to generate purchase orders from their systems based on data coming from Corporate Express. ■ As Web services-based applications get more complex, tools such as Ultimus Web Services, which will be released today as part of the Ultimus Workflow Suite, will become all the rage. But Ultimus Inc.'s CEO, Rashid Khan, thinks Web services **"will take another two to five years to really catch on."** Still, the Cary, N.C., vendor is shipping its new tool now with advanced business process management features and says the software runs on any .Net-capable Windows server. ■ One of the few bright spots in the **dim IT marketplace today** is Wi-Fi. (See Special Report, page 27.) That's why InfoVista Corp. in New York will release on May 15 the VistaDiscovery module for its VistaPortal product. The tool is design to automatically detect wireless devices and access points on your network, so you can manage them through the Vista Operations Center. And a new Wi-Fi VistaViewer tallies authentication attempts to your wireless network, **giving you an inkling that your network may be breached by bad guys.** ■



High-Tech CEOs Confront New Reality

BY LINDA ROSENCRANCE

The high-tech industry is facing a new reality of stiff competition, economic uncertainty and global instability, all of which have CEOs zeroing in on the bottom line, according to a survey being released tomorrow.

The survey, conducted during the first quarter by the Technology, Media & Telecommunications Group of San Jose-based Deloitte & Touche LLP, was directed at CEOs of the 500 fastest-growing technology companies in North America. The survey found that although CEOs are optimistic about the future, they recognize that a fundamental shift in the marketplace has occurred.

But there's an opportunity to take advantage of shortsightedness in the market by paying more attention to undervalued assets, technologies, skills and individuals, and applying them to create truly valuable offerings, said Ryan McDonald, CEO at Impact Blue Inc. in Calgary, Alberta. The trick, he said, is to do it now while the competition is either struggling or waiting for change.

McDonald said his company's primary efforts to deal with this new reality include reducing senior management staff, narrowing research and development efforts, improving cash management and optimizing production.

Russ Hawkins, CEO of Paragon Networks in Brookfield, Conn., said one of the ways his company is handling the downturn is by looking to acquire new products rather than enduring the risk and time to build everything. He said that although some internal development is still being done, the focus is on acquiring proven products.

John Fish, CEO of Chicago-based Hubbard One, said his company doesn't view its bottom line as a target. "In any economic climate, we believe the focus must be on your customers," he said. "We operate carefully, and we focus on our clients. That simple strategy has worked wonders for us." ■

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CA Joins Push to Support On-Demand Computing

Unicenter tools the latest to enter fray

BY MATT HAMBLEN
LAS VEGAS

COMPUTER Associates International Inc. last week grouped together six Unicenter management software tools in a bid to give users on-demand computing capabilities without requiring them to make expensive upgrades to IT infrastructures.

At the Networld+Interop conference here, CA announced two new products and four upgraded ones that it said can support on-demand, or autonomic, computing applications. Companies can buy the tools separately and use them to designate servers and network devices to run critical applications and reallocate computing resources as business needs change, CA said.

CA is the latest in a string of vendors to offer on-demand technology. But CEO Sanjay Kumar said the Unicenter tools will work with systems from a variety of other vendors, so users won't have to tear out existing hardware to add on-demand capabilities.

CSX Technology Inc. wants to eliminate some of the hundreds of servers it has installed at facilities throughout the U.S., partly because the systems are hard to provision, said Cynthia Luman, vice president of operations at the Jacksonville, Fla.-based IT division of CSX Corp.

In addition, many of the servers are used at only 15% of their processing capacity, Luman said. But some systems running Oracle financial applications are commonly overburdened, resulting in "agonizing delays, like two hours to order a pad of paper," she added. CSX officials hope the Unicenter tools will let them allocate resources more evenly across different servers and lower the number of systems needed, Luman said.

Increasing Efficiency

AXA Group, a Paris-based financial services conglomerate, is looking at using CA's tools to manage a complex IT environment that supports various operating companies, Charlie Carroll, a senior vice president at the company's AXA Tech division, said the software should let AXA bill individual business units for their system usage instead of just averaging IT costs across all operations. "It would be pay-by-the-drink," he said.

Another new function is designed to provide more efficient desktop PC upgrades, a capability that the Walter Reed Army Medical Center in Washington is evaluating. In some cases, Walter Reed needs to upgrade 1,200 PCs in three days. Management tools that can track the software configurations on systems and centrally distribute new ones would simplify the upgrades, said Jeffrey Goldberg, a senior management specialist at Washington-based Management Solutions & Systems Inc., which does contract work for Walter Reed.

The market for on-demand computing software is heating up, said Rick Sturm, an analyst at Enterprise Management Associates Inc. in Boulder, Colo. Other vendors with autonomic computing initiatives include IBM, Hewlett-Packard Co., Microsoft Corp. and Sun Microsystems Inc. But CA should have an advantage because its tools deal with a wider range of issues and are hardware-neutral, Sturm said. ▶

PRODUCT NEWS

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Fast switches: Two vendors announced 10 Gigabit Ethernet switches at N+I
QuickLink 38174
www.computerworld.com

Gupta Says 'Optimal Utilization' Of Resources Goal of New Tools

Yogesh Gupta, CA's chief technology officer, spoke with *Computerworld*'s Matt Hamblen at N+I about the vendor's on-demand computing strategy.

What is new about these Unicenter tools, and how does CA define on-demand computing? Really, one of the big issues that comes up is that customers have large numbers of servers that are underutilized. That means there's tremendous opportunity if work can be done to use those servers better. What the six products work together to do is identify and keep track of resources at any given point in time.

Why not market them as a unified suite? They're sold as separate products so customers can license one or more. We decided to sell separate products within Unicenter two years ago, and it has worked well. But all these pieces work well together.

Is the software really self-healing? When a server fails, we try to bring it [back] online, and if we can't, the software will automatically allocate a different server to do the work. But it's more than self-healing. It's optimal utilization of networks and systems.

Are you late with on-demand computing compared with IBM and other vendors? If you want to talk about the rhetoric, we're definitely late with the rhetoric – but first with real products. We made a conscious decision we would not talk about autonomic computing until the day we had products.

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Borland to Launch Tools for Microsoft's .Net Framework

BY CAROL SLIWA

Developers will gain new options for building applications designed to run on Microsoft Corp.'s .Net Framework and connecting those applications to systems in Java environments when Borland Software Corp. ships new products starting next month.

The Scotts Valley, Calif.-based software maker tomorrow plans to announce its C# Builder integrated development environment, which is intended to let developers make use of the .Net Framework's class libraries.

The Borland tool, due this summer, will feature design-driven development capabilities and native support for databases from Microsoft, Oracle Corp. and IBM, as well as Borland's own InterBase.

Also tomorrow, Borland will announce a new product called Janeva that's designed enable client- and server-based applications written for Microsoft's .Net Framework to integrate with back-office systems through the Internet Inter-ORB Protocol (IIOP). Due in June, Janeva is based on J2EE and Common Object Request Broker Architecture (CORBA) technologies.

Boz Elloy, vice president and general manager of Borland's enterprise business unit, said the difference between using Janeva and using Web services or bridge technology is that Janeva requires no additional investment.

"We want to make sure we're not requiring .Net developers to use any new technology," he said. "We also don't want to require any modifications to back-end logic."

Thomas Murphy, an analyst at Stamford, Conn.-based Meta Group Inc., added that the IIOP option may be better when performance is an issue. He also said Janeva will be important for users with existing CORBA investments.

Janeva will support all languages that run on Microsoft's .Net Framework, including C#, J#, Visual Basic .Net and Delphi, according to Borland.

Simon Thornhill, vice president and general manager of Borland's .Net business unit, said the development aspects of Janeva will be incorporated into C# Builder. The product will provide some support for Visual Basic .Net, and Borland plans to add other languages in the future, said Thornhill.

Borland will also announce tomorrow Enterprise Server, Team Edition, a J2EE deployment platform for small and midsize businesses and departments in large companies, said Elloy. Due in early June, it's priced at $1,995 per CPU. ▶

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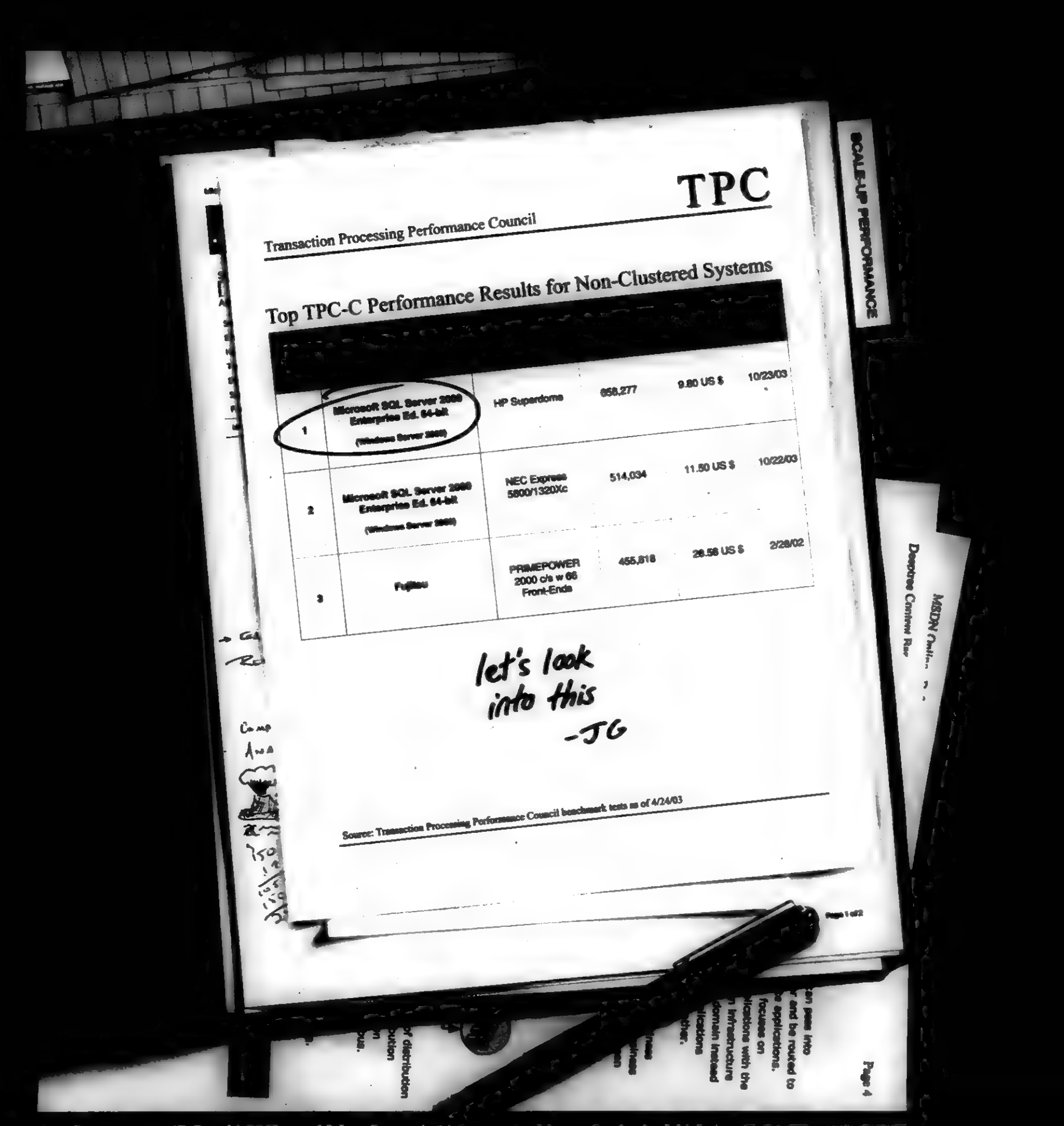

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IBM Readies Storage Virtualization Tools

SAN appliance due in July, Storage Tank file server technology in December

BY LUCAS MEARIAN

IBM last week said it plans to ship this summer its first storage-area network (SAN) virtualization device for block-level data and to add by year's end another product, based on its Storage Tank technology, that will provide a common file system for multivendor disk array installations.

The TotalStorage SAN File System device, due in December, will combine the Storage Tank virtualization software with specialized Linux-based versions of the company's xSeries servers. IBM said it will also release a development specification that will make it possible for other vendors to link storage subsystems on application servers to the SAN File System.

IBM detailed a three-phase plan for delivering storage virtualization technology, starting with an appliance that will initially support only its own disk arrays (see box). But the Storage Tank-based device is the centerpiece of the virtualization strategy.

A Long Wait

Brian Swick, supervisor of storage administration at The Regence Group Inc., a health maintenance organization in Portland, Ore., said he has been waiting for Storage Tank for about three years. Swick said he hopes the technology can help him better utilize disk space and reduce overall costs on his 125TB SAN, which is split equally between IBM and EMC Corp. arrays.

Currently, Swick uses half of the capacity on his EMC Clariion arrays for primary storage and the other half to back up Regence Group's Sybase Inc. databases. With Storage Tank's shared file system, Swick said, he could use IBM's Tivoli Storage Manager software to directly archive data on tapes, eliminating the need for the disk-based backups.

On the other hand, Jack Malinsky, director of operational technology for the city of Boston, said he has little use for virtualization technology because he likes to assign specific disk arrays to specific applications. That makes for a "much cleaner" storage architecture, said Malinsky, who uses a mix of IBM Shark and EMC Symmetrix arrays.

IBM has been talking up Storage Tank for the past four years, saying the SAN-based file system is designed to enable multiple application servers to access and share files in a single name space across multiple disk arrays.

More Work Needed

But Jamie Gruener, an analyst at The Yankee Group in Boston, said IBM needs to take several more steps before it can claim to offer a well-rounded set of SAN virtualization products. For example, the company must get its block-level virtualization software to work on rival arrays and make the technology available on SAN switches, Gruener said.

Brian Truskowski, general manager of IBM's Storage Systems Group, said that by year's end, the new TotalStorage SAN Volume Controller appliance will be able to work across all disk arrays made by major vendors. The company eventually hopes to port the block-level virtualization code to switches made by Brocade Communication Systems Inc. or Cisco Systems Inc. for greater SAN flexibility, added Truskowski.

Swick said the switch support could help save money for Regence Group by enabling him to buy low-cost disk drives and use them to support multiple applications, no matter what kind of arrays the systems initially used.

"The challenge we're running into right now is that a particular [application] server can only be on IBM or EMC," Swick said. ▶

IBM's Virtualization Rollout Plan

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EMC Plans Windows-based Storage

BY LUCAS MEARIAN

EMC Corp. last week announced licensing agreements with Microsoft Corp. that will enable the storage vendor's first foray into the market for low-end network-attached storage (NAS) devices.

EMC said it plans to run Microsoft's Windows Powered NAS software on its Clariion CX midrange disk arrays. An initial product, the NetWin 200, will be based on the entry-level Clariion CX200 hardware and is due in October. It will be priced from $50,000 to $130,000 and store between 1.1TB and 4.4TB of data.

In comparison, Hopkinton, Mass.-based EMC charges a starting price of $167,000 for a 1TB model of its higher-end Celerra NS600 storage device, which uses NAS software the company developed internally.

EMC also said it will use the storage application programming interfaces (API) built into Microsoft's Windows Server 2003 operating system to enable centralized management of both the NetWin 200 and Celerra from a single console. In addition, EMC plans to integrate its ControlCenter storage management software with Windows-based systems via the Microsoft APIs.

Bill North, an analyst at IDC in Framingham, Mass., said the deal with Microsoft will let EMC users store NAS data on mainstream disk array hardware. They will also be able to manage both types of storage "without having to launch another set of tools," he added.

Jeff Cohen, CIO at discount airline JetBlue Airways Corp. in Forest Hills, N.Y., said he's primarily interested in the API aspects of the agreement between EMC and Microsoft. That could give IT workers at JetBlue a more unified view of the company's server and storage environment, he said.

Easier to Run

"Anytime you can consolidate management consoles into one view, it makes things easier to run," Cohen noted. JetBlue is expanding its 15TB storage-area network to include a third model of EMC's high-end Symmetrix array, he said. Meanwhile, the airline is running Windows Server 2003 on about 250 of Hewlett-Packard Co.'s ProLiant servers, plus Unisys Corp.'s high-end ES7000 systems.

Since Microsoft released Windows Powered NAS two years ago, IBM, HP and Dell Computer Corp. have all pushed to sell low-end appliances based on the software. But until now, EMC had relied on its own NAS technology.

A spokesman for Dell, which resells EMC's Clariion arrays, said the computer maker doesn't plan to market the NetWin 200. But he added that the new EMC device shouldn't conflict with Dell's own PowerVault NAS product line, which starts at under $25,000 and is primarily aimed at lower-end uses than the NetWin 200 is.

Windows Server 2003, which was officially released April 24, includes a number of new storage features, such as a Virtual Disk Service technology that provides storage vendors with a set of APIs for interoperating with servers running the operating system.

Microsoft also announced its Volume Shadow Copy Service, which lets users create "snapshots" of information for data recovery purposes. In addition, it plans to support the iSCSI protocol, which lets users transmit data over IP networks. Zane Adam, product management and marketing director for Microsoft's storage unit, said a free download of the iSCSI software is due next month. ▶

OTHER DEVELOPMENTS

[redacted] has signed a letter of intent to resell Cisco's MDS 9000 SAN directors and switches and to develop software that will run on the devices.

[redacted] is upgrading its PowerPath I/O channel management software by adding new features such as support for disk arrays made by other vendors.

DATA RECOVERY

Storage Technology Corp. is announcing a device for use in restoring corrupted data:

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EMC said it plans to run Microsoft's Windows Powered NAS software on its Clariion CX midrange disk arrays. An initial product, the NetWin 200, will be based on the entry-level Clariion CX200 hardware and is due in October. It will be priced from $50,000 to $130,000 and store between 1.1TB and 4.4TB of data.

In comparison, Hopkinton, Mass.-based EMC charges a starting price of $167,000 for a 1TB model of its higher-end Celerra NS600 storage device, which uses NAS software the company developed internally.

EMC also said it will use the storage application programming interfaces (API) built into Microsoft's Windows Server 2003 operating system to enable centralized management of both the NetWin 200 and Celerra from a single console. In addition, EMC plans to integrate its ControlCenter storage management software with Windows-based systems via the Microsoft APIs.

Bill North, an analyst at IDC in Framingham, Mass., said the deal with Microsoft will let EMC users store NAS data on mainstream disk array hardware. They will also be able to manage both types of storage "without having to launch another set of tools," he added.

Jeff Cohen, CIO at discount airline JetBlue Airways Corp. in Forest Hills, N.Y., said he's primarily interested in the API aspects of the agreement between EMC and Microsoft. That could give IT workers at JetBlue a more unified view of the company's server and storage environment, he said.

Easier to Run

"Anytime you can consolidate management consoles into one view, it makes things easier to run," Cohen noted. JetBlue is expanding its 15TB storage-area network to include a third model of EMC's high-end Symmetrix array, he said. Meanwhile, the airline is running Windows Server 2003 on about 250 of Hewlett-Packard Co.'s ProLiant servers, plus Unisys Corp.'s high-end ES7000 systems.

Since Microsoft released Windows Powered NAS two years ago, IBM, HP and Dell Computer Corp. have all pushed to sell low-end appliances based on the software. But until now, EMC had relied on its own NAS technology.

A spokesman for Dell, which resells EMC's Clariion arrays, said the computer maker doesn't plan to market the NetWin 200. But he added that the new EMC device shouldn't conflict with Dell's own PowerVault NAS product line, which starts at under $25,000 and is primarily aimed at lower-end uses than the NetWin 200 is.

Windows Server 2003, which was officially released April 24, includes a number of new storage features, such as a Virtual Disk Service technology that provides storage vendors with a set of APIs for interoperating with servers running the operating system.

Microsoft also announced its Volume Shadow Copy Service, which lets users create "snapshots" of information for data recovery purposes. In addition, it plans to support the iSCSI protocol, which lets users transmit data over IP networks. Zane Adam, product management and marketing director for Microsoft's storage unit, said a free download of the iSCSI software is due next month.

DATA RECOVERY

Storage Technology Corp. is announcing a device for use in restoring corrupted data.

QuickLink 38222
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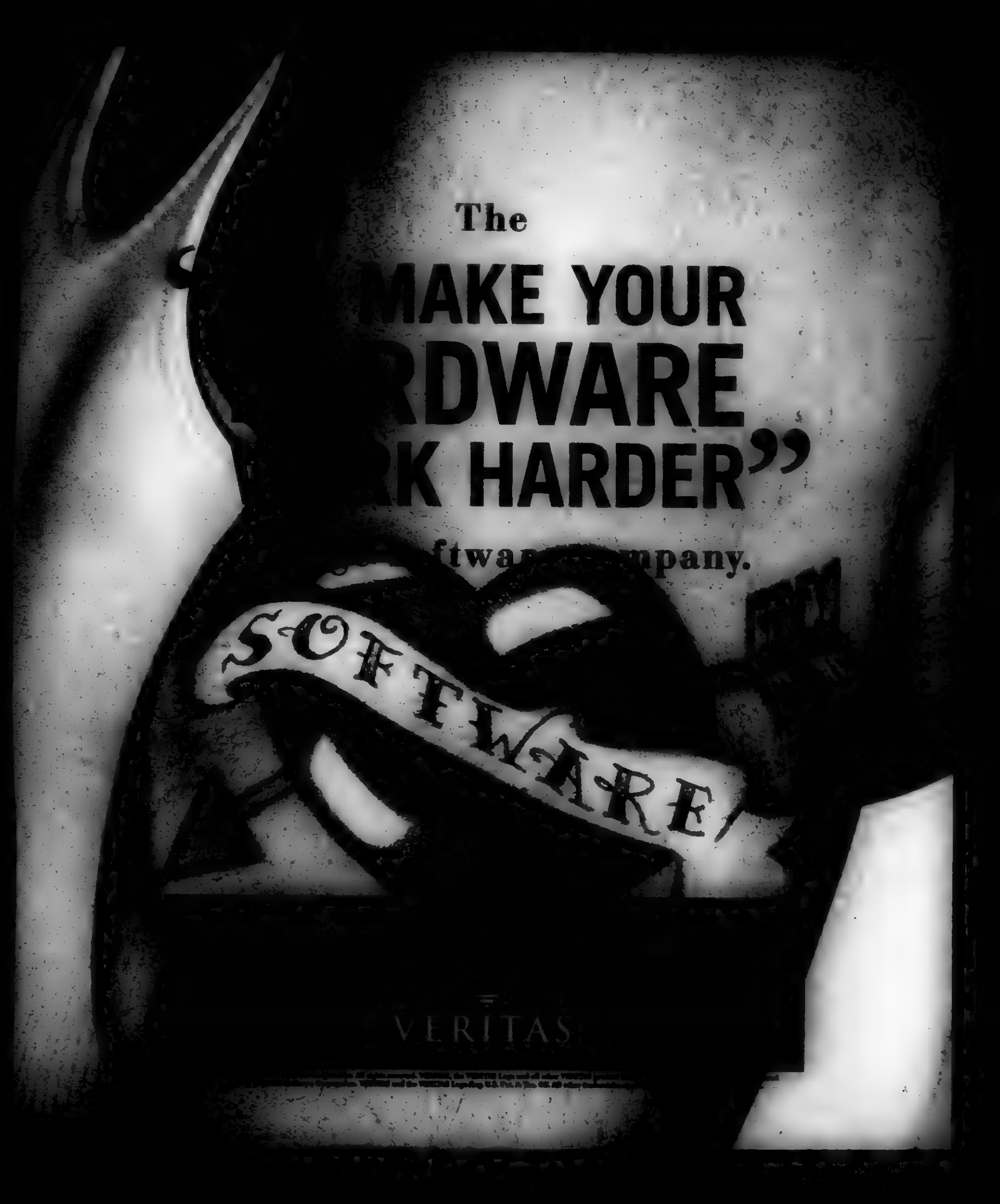
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BRIEFS

IBM, HP Release Itanium 2 Systems

IBM released its first server based on Intel Corp.'s 64-bit Itanium 2 processor. The eServer x450 is designed for use in data analysis and technical computing applications. It supports up to four CPUs and can run Windows Server 2003 or Linux. Prices start at $25,999. Meanwhile, Hewlett-Packard Co. announced two Itanium 2-based workstations that run the 64-bit version of Windows XP.

Nortel, Redback Settle Lawsuits

Nortel Networks Ltd. and San Jose-based Redback Networks Inc. have agreed to settle dueling lawsuits that were filed in late 2001 regarding five U.S. patents held by Nortel. The settlement includes a patent cross-licensing agreement under which Redback will pay Nortel an undisclosed fee, the two companies said.

Ericsson to Slash Nearly 14,000 Jobs

After posting a $504 million first-quarter loss, LM Ericsson Telephone Co. announced plans to cut nearly 14,000 jobs by September 2004. The Stockholm-based company said its workforce will shrink from 61,000 people to 52,000 by the end of this year and then drop to 47,000 by the start of next year's fourth quarter.

Short Takes

VITRIA TECHNOLOGY INC., a Sunnyvale, Calif.-based vendor of business-process integration tools, reported a $20.7 million first-quarter loss on revenue of $22.6 million. Vitria also said its stock faces possible delisting by Nasdaq. . . . San Diego-based PEREGRINE SYSTEMS INC. said it filed a new version of its proposed financial restructuring plan with the U.S. Bankruptcy Court in Wilmington, Del.

Disparate Views of IT Governance Spark Debate

Panelists weigh IT centralization vs. decentralization

BY THOMAS HOFFMAN
CAMBRIDGE, MASS

CIOs and consultants who took part in a panel discussion last week about the best way to develop and foster IT governance models were deeply divided over which path companies should take.

IT governance — a methodology for keeping technology spending and labor costs under control — has become a hot topic among CIOs and IT managers in recent months. Interest has largely been driven by the increased emphasis on overall corporate governance in the wake of the Enron scandal and the emergence of more stringent accounting requirements, as well as the continuing cost pressures IT leaders are facing.

But there is no cookie-cutter approach to IT governance, said Rob Austin, a fellow at Cutter Consortium in Arlington, Mass., and a professor at Harvard Business School. Austin was one of four panelists who debated IT governance issues at Cutter's Summit 2003 conference here.

Lynne Ellyn, CIO at DTE Energy Co. in Detroit, backed up his point. "There are many companies that have effective IT governance models that I have no interest in," Ellyn said.

Two years ago, DTE created an IT steering committee that includes Ellyn and various business executives. Business unit leaders at the diversified energy company decide which IT projects need to be launched, "and IT decides how they get done," she said.

It took a full year for DTE's IT steering committee "to work effectively together," Ellyn noted. But since the committee was formed, DTE's IT department has reduced its budget by 40% while increasing productivity and end-user satisfaction rates, she said.

Facing Financial Pressure

In the 18 months since Craig Fowler joined Corning Cable Systems as CIO, the Corning Inc. unit's annual revenue has dropped by nearly 60% as a result of the telecommunications industry bust. To reduce spending, Fowler has focused on centralizing IT functions at the Hickory, N.C.-based maker of fiber-optic and copper communications systems.

"We think we can get more costs out this way," Fowler said. Previously, each business unit had a dedicated IT organization "and did their own deals on PCs," he said. "By centralizing, we're trying to increase our IT buying leverage while helping us determine what [systems] we have in place." Thus far, Corning Cable has reduced both its IT staff and IT budget by more than half, Fowler added.

Christine Davis, president of Crishele Consulting in Manhattan Beach, Calif., and a fellow on Cutter's Business Technology Council, said she supports a decentralized approach to managing IT. But she also championed the use of IT governance best practices taken from other companies. That position drew sharp rebukes.

"Benchmarking, at best, will show you how well your competitors were performing the last time a benchmarking test was done," Ellyn said. "You have to have the courage to do something beyond best practices." ▶

IT Governance Recommendations

- Include a **steering committee of senior IT and business executives** to decide on companywide IT priorities and investments.
- Set up self-directed work teams **made up of IT staffers and business-unit liaisons** to manage individual projects.
- Establish boundaries that **specify what kind of decisions** the work teams can and can't make.
- Form an architectural council that **sets corporate IT standards,** plus more targeted groups such as an IT security council.

SOURCE: CHRISTINE DAVIS, PRESIDENT, CRISHELE CONSULTING, MANHATTAN BEACH, CALIF.

GET INVOLVED

Conference attendees discuss ways to give IT a more proactive role inside companies.

QuickLink 30135
www.computerworld.com

Senior Execs Looking for Business-savvy IT Managers

Stress need for familiarity with business plans

BY LUCAS MEARIAN
BOSTON

Business executives from a group of financial services firms last week shared a basic idea about how CIOs can deliver returns on IT projects: For starters, they said, IT managers have to be able to read an income statement.

"Do you know where the revenue comes from? Do you know where expenses are generated? And do you understand you have to have more of the first and less of the second?" asked George Fisher, executive vice president and chief administrative officer at New York-based Prudential Securities Inc.

Fisher and three other executives participated in a panel discussion about what they want to get from their IT departments, as part of the National Investment Company Service Association's annual technology conference here.

Most of the panelists said IT managers are expected to be an integral part of their business operations and, as such, should be as well versed in business plans as they are in technology.

"When you have your major technology folks . . . able to discuss in great detail and very accurately describe, define and discuss what the business challenges are to doing something, then you know you're beginning to blend your organization," said William Bridy, a senior director at New York-based Merrill Lynch Financial Data Services Inc.

> **"We want to have [IT] functionality delivered as needed."**
>
> **WILLIAM BRIDY,** SENIOR DIRECTOR, MERRILL LYNCH FINANCIAL DATA SERVICES INC.

Bridy and other participants also said they have bid farewell to the practice of funding long-term IT projects. Now they expect quarterly progress reports on projects and want to see tangible returns on investment in a maximum of 18 months.

"We want to have functionality delivered as needed," Bridy said. "If it's a longer-term initiative, let's break it down into manageable, controllable and discrete chunks."

Fisher said he advocates that most IT projects should pay for themselves within a year. "A lot of people put out multiyear projects, and then a couple of years later, nobody knocks on their door and asks them, 'Did it work?' " he noted.

On the other hand, Bridy said he has found that most IT problems or project failures can be traced back to business users not clearly defining their goals. But neither he nor the other panelists discussed that issue further. ▶

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Group Touts Vermont as Outsourcing Alternative

Wages higher than India's, but lower than in U.S. cities

BY PATRICK THIBODEAU

INFORMATION technology consultant Seamus Walsh was working in lower Manhattan on Sept. 11, 2001. What happened on that day prompted him to move his family to the relative tranquility of Vermont.

Now based in South Burlington, Walsh is organizing a consortium of independent IT firms and consultants to try to convince the big-city firms he left behind that bucolic Vermont is a viable alternative to countries overseas for software development.

Vermont's IT labor rates, at $35 to $50 per hour, are two to two and half times the hourly rates in India. But they're lower than the rates in U.S. urban areas, where IT labor costs $80 or more per hour Walsh said.

The idea of attracting IT work to rural areas makes sense if labor rates are significantly lower than those in metropolitan areas and if there are enough workers with the right skills, said Rita Terdiman, an outsourcing analyst at Gartner Inc. in Stamford, Conn. Terdiman said she believes that initiatives like the one in Vermont will spring up in other parts of the country. "I think you are going to absolutely see a trend toward that," she said.

The biggest problem facing Vermont may be just across the border: Canada's favorable currency exchange rate.

Richard Nolle, vice president of systems at Reinsurance Group of America Inc., said the idea of lower-cost areas in the U.S. developing into alternative development centers sounds "remotely possible." But he said it will be difficult for U.S. competitors to overcome the Canadian exchange rate.

Nolle's Chesterfield, Mo.-based company outsources application development work in Canada and intends to expand its use of workers in that country. The exchange rate saves the U.S. company approximately 30%, Nolle said.

CenterBeam Inc., a Santa Clara, Calif.-based company that manages computing resources for small and midsize companies, intends to open a major center in Saint John, New Brunswick, later this year. CEO Kevin Francis said he can hire three Microsoft certified engineers in Canada for roughly the cost of one in the U.S.

But one Vermont outfit is drawing development work from urban customers. A not-for-profit affiliated with a Burlington-based college, eSolutions@ChamplainCollege has eight employees who offer high quality at rates that are roughly 25% lower than in urban areas, said David Binch, the company's director.

Burlington is also trying to overcome telecommunications infrastructure disadvantages faced by many locations outside of large metropolitan areas. The city has installed more than 18 miles of fiber that can support 100Mbit/sec. connections to link about 40 sites, including schools and municipal buildings. "There is no question that first-class telecom is a significant factor in location decisions," said Timothy Nulty, head of Burlington's telecommunications project.

Continued from page 1

Offshore Coders

Corp. Chief Security Officer Mary Ann Davidson, one audience member said that it's "ironic that the countries the software industry trusts the least with binary code are the places where source-code development is being sent."

Davidson acknowledged that Oracle, which sells its software to all of the major U.S. intelligence agencies, does outsource some of its development work to companies in India and China. However, "we give read access, not write privileges, to developers in India," she said. "And for the work done in China, it's quality control, and they do not need source-code access to do that."

Although Davidson acknowledged that there is "a national security issue" involved in moving development work overseas, she said there is also no guarantee that a worker who is a U.S. citizen won't intentionally harm source code.

The economic situation today is such that "you can't build these products without non-U.S. citizens," said Davidson. "Whether you like it or not, our national secrets are already being preserved by people who built these parts of the core infrastructure, and they're not U.S. citizens."

> **"Like it or not, our national secrets are already being preserved by people who [aren't] U.S. citizens."**
>
> MARY ANN DAVIDSON, CSO, ORACLE CORP.

Assessing Risks

Tim McKnight, chief information assurance officer at Los Angeles-based Northrup Grumman Corp. and a former security officer at Cisco Systems Inc., said companies must put in place a verification and auditing process. And he said that effort will be costly.

"At Cisco, we had teams that would go overseas and verify the people that were there, monitor their access to file servers and source-code servers and do risk assessments," said McKnight. "It is very difficult to truly know who these people are. It can be done, [but] you really need buy-in from the top of the corporation."

A show of hands during the closing session of the conference indicated that the majority of attendees doubted the ability or willingness of software companies to conduct proper background investigations of foreign software coders working overseas.

That's not surprising, given that few companies in the U.S. conduct background investigations on IT personnel, said Joyce Brocaglia, CEO of Alta Associates Inc., a Flemington, N.J.-based executive search firm. "I'm surprised at how few of my clients actually do background checks on their information security professionals," she said. "At most, they require me to do a reference check."

SARS Affects Travel but Not Outsourcing

An IT outsourcing conference scheduled to be held in Shanghai in June has been postponed, with its organizers hoping to reschedule in October. It's a direct consequence of the SARS virus that has disrupted some Asian economies but otherwise seems to be having little impact on offshore development.

The outbreak of SARS, or severe acute respiratory syndrome, as well as the war in Iraq may have hurt earnings posted recently by some large outsourcing providers based in India, Gartner Inc. said last week. But Gartner said earnings may have also been affected by rupee appreciation, increasing salaries and competition.

U.S.-based outsourcers said the impact of SARS is limited. It is affecting travel, with business travelers favoring routes to India that take them through Europe, bypassing Asian hubs.

But China, the country most seriously affected by SARS, isn't yet a major outsourcing market.

Kumar Mahadeva, CEO of Teaneck, N.J.-based Cognizant Technology Solutions Corp., said China has significant issues to address. For example, before companies outsource to China, they would want to make sure that the country provides intellectual property protection and that the workforce supplies the right skills. Project managers, in particular, "are not available locally," he said. But once those issues and others, such as the need for telecommunications improvements, are addressed, China could emerge as a major offshore outsourcing center.

Marc Hebert, a vice president at Sierra Atlantic Inc., a Fremont, Calif., company that does outsourcing in India, said that while SARS remains a wild card, he isn't expecting the virus to have much impact on work in India, even if people curtail travel. "The work will continue to flow to India," he said.

–Patrick Thibodeau

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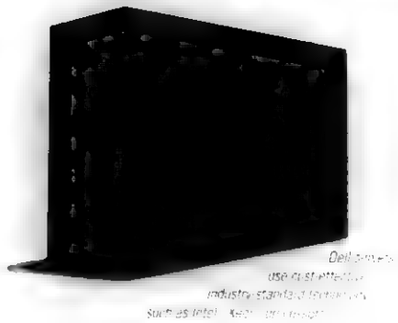

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Tests by Dell in January 2003 on baseball database. Dell configurations: Dell PowerEdge 6650 server with four 2.0 GHz Xeon MP processors, Red Hat Linux Advanced Server 2.1, 3 Year Gold Support. Price: $32,701 (www.dell.com, 1/20/03) and Dell PowerEdge 2650 server with two 2.8 GHz Xeon DP processors, 4GB memory, Windows 2000 Server, 3 Year Gold Support. Price: $9,324 (www.dell.com, 2/10/03). Sun configuration: Sun Fire V480 server with four 900 MHz UltraSPARC III processors, Solaris 9 (12/02 version). Price: $53,796 (www.sun.com, 3/17/03), 3 Year Gold Support. For details and results, see www.dell.com/migration.

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HIPAA Could Hamper Medical Research

BY SHARON MACHLIS

New federal privacy guidelines are making it tougher for medical researchers to access large amounts of patient data — and some researchers fear that could jeopardize studies of drug safety, medical devices and how to better predict and prevent disease.

"I think some projects are going to be much harder to do," said Dr. David Korn, a senior vice president at the Association of American Medical Colleges in Washington. Others simply won't be possible, he predicted.

The reason is HIPAA, the Health Insurance Portability and Accountability Act. Designed to give individuals more control over their personal medical information, HIPAA explicitly outlines how medical records can be given to third parties and carries stiff penalties for violations. The law's privacy provisions went into effect April 14.

"Most of what HIPAA expects is good common-sense management . . . [but] it does introduce additional levels of complexity," said Stephanie Reel, CIO and vice provost for IT at Johns Hopkins University in Baltimore. "I don't think the HIPAA legislation intended to do harm to academic medicine, but it's complicated."

The stakes are high. Research projects that mine medical data have uncovered links between smoking, diet and lack of exercise and some diseases, as well as effective prevention strategies.

Major teaching hospitals like Johns Hopkins have systems in place to manage the process of making medical data available for research under HIPAA. In addition, some ongoing large-scale research efforts, such as the Framingham Heart Study in Massachusetts, rely on volunteer participants. Although such projects must comply with HIPAA, they are unlikely to be affected by a lack of access to data about additional patients.

But researchers said they're concerned about the fate of new studies that seek to examine large population samples. Such studies typically rely on data not only from teaching hospitals, but from community hospitals, medical clinics and other facilities as well.

HIPAA does provide ways for smaller hospitals to share data with medical researchers. However, information that could be matched to individual patients must be stripped out unless permissions or waivers are granted. A third option allows more limited information-stripping under special data-use agreements.

Researchers worry that the HIPAA guidelines are so cumbersome, and the penalties for violations so steep, that many community hospitals and clinics may decide it's safer and easier to say no.

HIPAA has "increased the perceived risks" for smaller institutions to cooperate with researchers, said Dr. David Savitz, chairman of the epidemiology department at the University of North Carolina at Chapel Hill's School of Public Health.

Korn said widespread use of a standard HIPAA-compliant computerized record-keeping system could solve the problem, allowing records to be quickly "de-identified" and transmitted. But in fact, many medical records aren't computerized at all. "When you're talking about paper charts, it just is a fearsome hurdle to try to make it de-identifiable," Korn said.

Preparing records for researchers will be "very burdensome" for hospitals, according to Lawrence Hughes, regulatory counsel and director of member relations at the American Hospital Association in Chicago. However, Hughes said he has yet to hear of hospitals that are now reluctant to give up information to researchers. But Korn said he has heard anecdotal reports of hospitals either refusing to turn over records or charging fees for the data.

The Association of American Medical Colleges hopes to compile a database so it can document the effect of HIPAA on research activities. "I think it's going to be a problem," he said. "I hope it won't."

Privacy Rules Pose Hurdles for Fund-Raising

HIPAA may have an impact on medical research beyond potentially causing difficulties in accessing data. The law also affects research fund-raising procedures.

Previously, fund-raisers at Johns Hopkins could contact patients treated at, say, its Wilmer Eye Institute and ask them to contribute money to help fund research into vision problems, said Stephanie Reel, CIO and vice provost for IT at the university. "We can't do that anymore," she said.

Under HIPAA, medical institutions can no longer do targeted fund-raising without first requesting permission from patients to contact them about specific departments or treatment centers. Otherwise, fund-raising solicitations must be mailed to all patients – a more expensive and less efficient way to manage a campaign. "That makes an enormous difference to a place like Johns Hopkins," Reel said.

–Sharon Machlis

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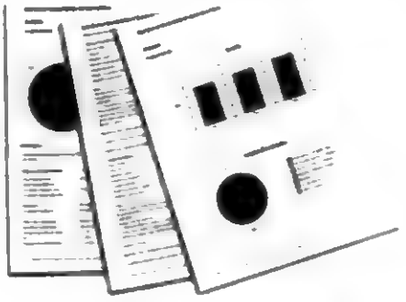

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MARYFRAN JOHNSON

Worthy of Wireless

BY THE TIME I FINISHED reading the page proofs for our "Wireless at Work" special report (stories begin on page 27), I was ready to turn in my new Palm Tungsten W and confess the embarrassing truth: I'm only impersonating a real user.

Half the capabilities of this gorgeous gadget are wasted on me. I don't use it as a cell phone (got one already), and I don't even have the wireless connection enabled (too much e-mail would follow me around). Naturally, I use the calendar, address book, memo pad and calculator. But I am clearly not worthy of this much cutting-edge technology.

Fortunately for the wireless industry, overprovisioned editors are nobody's target market. In fact, reporter Bob Brewin found that for many companies, wireless is taking significant hold as a blue-collar technology "far removed from the world of executive BlackBerry pagers or airport lounge wireless LAN 'hot spots' " (page 38).

Once you look beyond the decaf-mocha-latte-sipping Starbucks crowd, the true impact of wireless shows up in successful working-class applications serving repair-truck drivers from Sears and bulldozer operators at a Wyoming coal mine. At Todd Shipyards in Seattle, 66 supervisors are making far better use of wireless on their Palm devices than I ever will. They're managing the time records of 1,200 union workers, enabling them to see who's working on which job. The $300,000 system had to work around the physical and geographic barriers presented by 44 acres full of metal structures, which required the installation of 33 access points, some with high-powered antennas.

For our 15-page special report, we conducted an online survey a month ago, gathering feedback from 323 users. On average, they came from companies with more than 5,000 employees and IT departments of fewer than 50. The majority (64%) consider wireless technology important to their business goals. And no wonder. The leading five business uses for wireless, our survey found, are mobile access to the enterprise, sales force communication, data entry from the field, logistics support and factory-floor data entry.

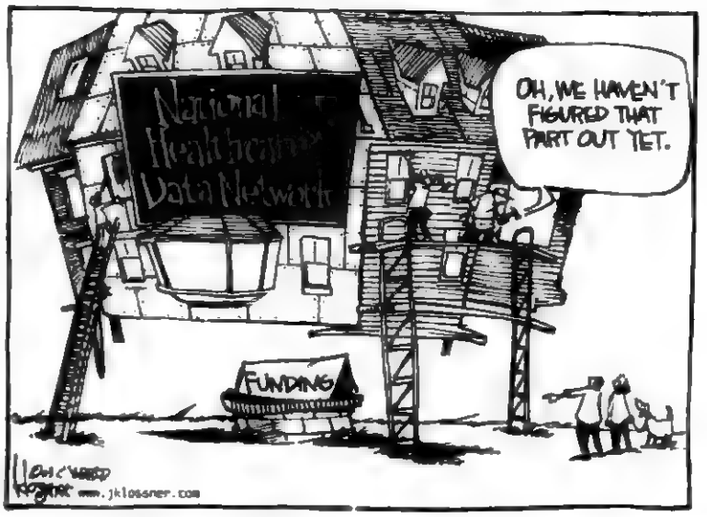
Somewhat heartening, though, is that 38% of the respondents said the economic downturn has had no impact on their wireless rollouts. That kind of determined backing of any IT project is rare these days. It underscores how quickly the payback must be happening for many companies.

The stumbling blocks of inadequate bandwidth and network availability don't appear to be stemming the steadily rising tide of companies moving forward with wireless projects. Even concerns about security aren't putting on the brakes. By the end of last year, seven in 10 companies had adopted wireless technology, according to an IDC survey of more than 1,200 North American companies across 18 industries. About $2.2 billion was spent in 2002 on wireless hardware, and that's expected to rise to $3.9 billion by 2006, says research firm In-Stat/MDR.

Also intriguing is how the small-business frontier is becoming crowded with wireless users these days (page 44). These second-generation adopters watched, learned and rolled their own, often in highly customized implementations.

"To make wireless cost-effective, the vendors have got to know an awful lot about their clients' business processes," says Gartner analyst Phillip Redman. "That's why you see so many adopters skipping a Microsoft or an IBM and going instead to specialist [vendors] in areas like transportation and warehousing."

Across so many industries, wireless is getting down to business, doing real work and proving itself worthy. Watching it all happen makes me wish I was worthy, too. ◗



PIMM FOX

Monitoring Mom With QA Tools

CAN YOU PUT A PRICE on motherhood? Probably not. But if you're in the floral and gift business and count on Mother's Day for a sizable piece of your revenue, you can easily put a price on the uptime of the online systems that will be getting pounded by well-intentioned last-minute shoppers.

That's part of the motivation behind 1-800-Flowers.com's reliance on pre- and postproduction monitoring software.

There's an emerging trend to create quality assurance (QA) testing and monitoring scripts during the design and construction phase of an IT project and then reuse them throughout the project's life cycle. While developers are writing code, QA team members can build the load- and stress-test scripts to determine if the project is meeting requirements set by business liaison groups.

In the case of Westbury, N.Y.-based 1-800-Flowers.com, which does more than 50% of its business online, this means gearing up for worst-case scenarios on Valentine's Day and Mother's Day. As code is assembled, the QA team's scripts measure the interoperability of components as they're completed. Then they test the code in real time.

At 1-800-Flowers.com, software from Sunnyvale, Calif.-based Mercury Interactive Corp. can push the system to simulate 150,000 simultaneous orders. Obviously, you'll need to create your own metrics to test for, but they should include the capture of live results, and you should also measure third-party performance if your site depends on outside services. It's no good having a service-level agreement with an Internet service provider if there's no way to verify how it's doing.

And while it's a no-brainer that 1-800-Flowers.com needs to keep the

retail front door open for customers around the clock, the supplier connection is vital to *all* businesses — retail and wholesale.

Can your business managers monitor the call center experience? Do they have a good idea of what service reps go through?

Being able to monitor back-end and internal systems is equally vital, because it lets you know whether you're getting the most out of your hardware resources or if you're suffering from the ripple effects when applications are modified.

As testing and monitoring software becomes more sophisticated — and, unfortunately, more expensive — it very likely will be billed as a tool for business optimization. That remains to be seen, but reusing scripts and developing a more prominent role for QA could help you better understand whether you're even close to a return on your IT investment.

Without it, Mom might not get her flowers and continue to think of you as her priceless child.

DAVID MOSCHELLA

Blogs Bring Content Alternative

BLOGS ARE HOT NEWS. In February, Google caused a stir by acquiring Pyra, creator of Blogger.com. In the past few months, many businesses have been experimenting with blogs as a way to make their Web sites and intranets seem more current and friendly. In the wider world, politically oriented weblogs such as AndrewSullivan.com have emerged as important voices in the ongoing debate over Iraq. More poignantly, the Baghdad blogging of Salam Pax was a rare source of pre-liberation Iraqi candor.

Blogs deserve our attention because they're an important technological advancement. They make it possible for anyone with an Internet connection to quickly post text and images, and eventually audio and video, to the Web without any real technical knowledge. Blogs resemble e-mail in that they enable us to actively contribute to the Internet, as opposed to simply consuming it.

Over the past five years, hundreds of thousands of blogs have been developed. That the great majority of them are little more than vanity pages seen only by the creators' friends and family shouldn't turn us against the technology. Self-publishing will eventually prove to be an important Internet industry factor.

But exactly how remains unclear. While there is considerable interest in corporate usage, the current enthusiasm seems a bit exaggerated. Large businesses already have the ability to regularly post content to the Web, and although blogs can make this even easier, their appeal would seem to be at least partially offset by real concerns regarding control and quality. The net increase in business empowerment is significant but relatively modest.

The biggest benefits will continue to accrue for individuals and small businesses, who are increasingly being freed from the requirements of HTML and the expensive Web professionals who understand it. Someday, all of us will post information to the Web as easily as we make PowerPoint presentations today. That's real progress. But again, the question is, Toward what end?

Many enthusiasts see individual blogs as an alternative to commercial Web content, but this still appears unlikely. Maintaining a high-quality blog takes considerable time and therefore requires sustained motivation. Self-expression and self-promotion have clearly motivated many, but they have obvious limitations. AndrewSullivan.com has had some success soliciting voluntary financial contributions, but this is a rare example.

To me, the key question is whether individual blogging can be harnessed to create something larger than any one person could develop. Consider the analogy with open-source software. No individual could compete with powerful commercial software interests. Similarly, no individual blog is going to challenge Yahoo or *The New York Times*. But the idea of bringing together the focused, organized and peer-reviewed work of knowledgeable individuals can be applied to many fields, not just software. Perhaps this is what Google has in mind.

In this sense, blogs should be viewed as an important addition to the content marketplace. If commercial sources provide most of what people need for free, the potential for blogs will remain limited. However, should commercial content be withdrawn or made available only for a fee, the demand for alternatives will surely increase. In this sense, the blogosphere is likely to prove an effective long-term check on the power of commercial content interests, to the great benefit of us all.

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READERS' LETTERS

Managing Projects Is a Unique Challenge

BASED ON MY EXPERIENCE, the pressures to rapidly advance a project to a certain stage (read as "coding") are enormous. To use Michael H. Hugos' analogy of constructing a building ["Working Hard: Making the Same Mistakes Over and Over," QuickLink 37307], no one would dream of asking an architect to show up one day and just start building. Even the simplest construction projects include extensive design and planning stages that ensure success.

These same steps are often bypassed in IT projects. But being given the proper amount of time to plan and design a system correctly would dramatically improve success rates. Too often, project sponsors and IT managers pressure engineers and programmers to move on to subsequent stages in an effort to report progress toward the goal. Attempting to compensate for previous failures during the coding stage will result in cost overruns, delays and, ultimately, failure.

Matthew Dill
Technical consultant, Mandolfo Associates, Omaha, dill_matthew@hotmail.com

WHILE MICHAEL H. HUGOS offered some excellent proposals for intelligent project management in his article, I take issue with his implication that IT can become a profession. It is a trade, a set of ever-changing skills, and establishing practical, all-embracing standards would be impossible.

Perhaps you could establish working standards in the narrower field of project management, but the term *profession* just doesn't fit management. Doctors, lawyers and psychologists all report to self-governing bodies, with behavior and ethical conduct parameters controlled by those bodies. Managers don't. Programmers don't. Project managers don't either.

Alex Rounds
Systems administrator, Shafer Electronics, Shafer, Minn.

Missing the Point

IT SEEMS THAT Bruce Claflin still misses the point ["3Com CEO Explains Renewed Bid for Corporate Business," QuickLink 37540]. The education sector was one of 3Com's biggest buyers, and our needs are real. Our shop has networks and equipment that outshine many industries in the area, and we value the cutting edge. Claflin discounts our 3Com business as only 4% of the market, and he is apparently more than willing to give that up. I was one who invested in ATM technology with a Cellplex 7000 core switch, an excellent choice when Token Ring was still rampant. I was cut off with no upward migration path and am looking to invest in a Catalyst 6500 soon. Customer loyalty is apparently still scarce at 3Com.

Michael A. Hall
Network administrator, Beaufort County Community College, Washington, N.C.

Outsourcing's Price

I WORK WITH overseas programmers frequently ["Outsourcing Growth Predicted, but Impact on Workers May Be Uneven," QuickLink 37459]. Their knowledge, skill and work ethic are comparable to what you find in the U.S., but there are several barriers to working with them effectively – primarily, language differences, time zones and business/work process knowledge. The language barrier erodes over time. The time-zone problem can be addressed by altering work hours. But the business/work process knowledge gap isn't easily tackled. In the meantime, we must insulate our business professionals from the pain of these barriers.

I agree that the outsourcing trend will continue and that IT salaries will shrink. But when salaries approach those of assistant managers at Burger King, we won't see many grads with computer science degrees. As a result, the U.S. will become totally dependent on foreign sources.

Gene Burke
IS planning specialist, Lake Jackson, Texas, ugunburke@yahoo.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

More letters on these and other topics are on our Web site:
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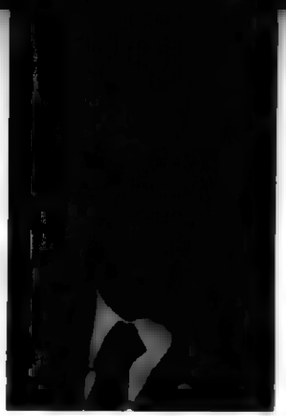
With Jim Demetriades



SeeBeyond CEO Explains Why Everything You Knew About EAI Has Just Changed

You're now saying 'Everything you know about enterprise integration has just changed.' How exactly has EAI evolved over the last several years?

EAI began as a way to integrate one application with another, enabling data integration and synchronization. It then evolved to include business-to-business integration and business process integration, allowing companies to design and manage multi-step business processes. This was certainly an advance over the "spaghetti" approach of point-to-point interfaces, and has delivered a lot of business value by automating manual processes and machine-to-machine interactions.

However, this broader definition of EAI still falls short. Achieving the vision of the real-time enterprise is not simply a matter of automating business processes between systems, but also seamlessly inserting human interaction into the processes to handle exceptions. The true complexity of business processes, and the highest value, comes from handling exceptions well, and to end-users should be undistinguishable from other enterprise applications. What businesses need is a way to quickly assemble and deliver new enterprise-scale, end-user applications built by assembling existing business systems and functionality in new ways. This is where our latest offering, the SeeBeyond Integrated Composite Application Network (ICAN) Suite 5.0, comes into play.

Considering that integration costs are a significant part of software installations, do you see application development and integration coming together? If so, how?

Absolutely. Today, the IT infrastructure of most organizations has grown into a morass of disjointed systems. Traditionally, application development and integration have been completely disparate functions. The advent of the integrated composite application network changes all that. It builds upon the foundations of both application development and integration, adding the benefit of human brainpower in building composite applications. Automation is extended to encompass human touch, allowing people and systems to interact synergistically and give business users a deep new look into their organization and its ecosystem.

This new network is really a framework for creating new, enterprise applications from existing ones. This framework is now possible thanks to the convergence of several technology and business trends, including:

- the sufficient maturation of EAI;
- the commoditization of application servers;
- the adoption and maturation of open standards, including those for Web services;
- the widespread acceptance of portal functionality;
- and the demand from customers that vendors solve business problems cost-effectively, preferably by leveraging existing IT assets.

What is SeeBeyond's technology strategy for addressing this problem?

Our ICAN Suite 5.0 provides the architecture and tools that, for the first time, enable organizations to create new end-user applications assembled using existing business logic, functionality, and human intelligence from anywhere in an organization's ecosystem. The prospective business benefits are profound: The features and capabilities of ICAN 5.0 hold the promise of significantly reducing product cycle times and the cost of ongoing maintenance, while greatly improving productivity through unprecedented ease-of-use and support for open standards.

We believe that the ICAN Suite 5.0 fulfills the long-awaited promise of middleware. It also is the latest milestone of SeeBeyond's 14-year vision of helping customers manage the flow of information across all systems, applications and enterprises on a global basis.

What is SeeBeyond's competitive advantage in this space?

First and foremost, we have the most open and comprehensive set of integration tools available in our new ICAN Suite 5.0. We have an installed base of more than 1,800 customers including leading Global 2000 companies; a 14-year history of success; and a product suite written by a team whose senior members have been together for more than a decade. SeeBeyond knows what eBusiness and application integration can do today, and what it must do in the future.

As a company, we have been an innovation leader since the birth of the application integration industry. We introduced the first commercially available integration broker in 1991; the first fully-distributed integration architecture in 1999; and now, with the ICAN 5.0, the first business integration platform built on an open framework, including a J2EE-compliant integration server with the first composite application generator based on an open, services-oriented architecture.

"SeeBeyond knows what eBusiness and application integration can do today, and what it must do in the future."

In business terms, the goal is to give managers a clear idea of what's happening across their organizations, and the flexibility to improve whatever needs to be improved.

Any final words of wisdom for CIOs when it comes to making an integration project succeed?

Today, enterprise software equals business strategy. That means CIOs should be looking for solutions that possess the same attributes as good business strategy—namely flexibility, responsiveness, and cost-effectiveness. In the integration market, CIOs should seek vendors who understand that and who offer solutions that allow IT organizations to reach across the traditional barriers of application development and integration. Ideally, this will enable CIOs to create their future on the success of their past, without investing in a lot of new, expensive and hard-to-use technology.

SEEBEYOND®

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REAL-TIME BUSINESS ISN'T JUST ABOUT GETTING INFORMATION FASTER.

IT'S ABOUT MAKING SURE YOUR BUSINESS CAN TAKE ADVANTAGE OF IT.

In a true real-time business, everything moves faster. Your data is always where and when it's needed. You coordinate activities and automate processes end to end. You enjoy greater visibility and understanding. And you have the ability to drive your business with new immediacy.

TIBCO Software's proven integration solutions enable real-time business. By unifying and optimizing your existing assets—people, processes and legacy systems—you can do more with what you already have. And do it better. It's what we call The Power of Now.™ Our unbiased, independent approach and easily-deployed integration solutions can help you grow your business even in today's difficult environment.

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The Power of Now™

REAL-TIME IN ACTION: DELTA AIRLINES

Delta Air Lines partnered with TIBCO to create the Delta Nervous System, which connects Delta's 13 business units and 30 databases, and handles more than 5 million daily business events.

"The ability to share information with our employees and customers in real-time, and to automate how we share it, has allowed us to transform our business, improve customer service, and reduce costs."

—Curtis Robb, Delta Air Lines CIO, Delta Technology CEO

MOBILE&WIRELESS

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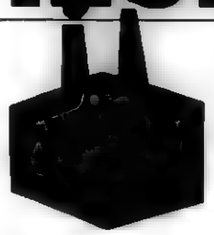


Wireless Gets Down to Business
In the hands of pioneers, wireless technology is breaking new ground in key economic sectors, with applications that range from the everyday to the extraordinary. Page 30

The Wireless LAN FAQ
Thinking of deploying a wireless LAN? Read these frequently asked questions to get tips for success. Page 42

Working-Class Wireless
Wireless now supports a wide range of blue-collar applications, like the one that allows repair technicians to transmit data from customer sites to Sears' back-end systems, says Dave Sankey (right). Page 38

EDITOR'S NOTE

Mention wireless technology, and most folks think of BlackBerries retrieving e-mail or stock quotes, or those hyped wireless access points at Starbucks and airport lounges. But these days, wireless technology is expanding its job description to include some grittier applications.

Lately, wireless has rolled up its sleeves and joined the working class.

Service technicians now use it in their trucks to call up repair information while at a customer's house. Bulldozer operators use it to get information on where to build the next road. Police officers use it to catch crooks by monitoring mug shots, maps and graphical data sent out from headquarters.

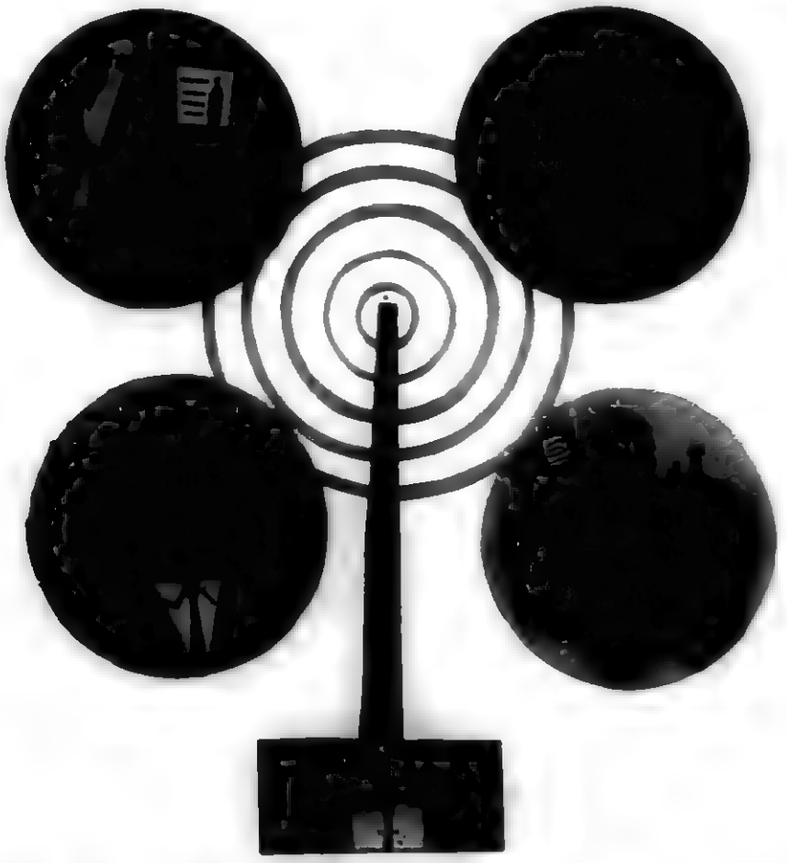
Wireless technology has even made its way into some everyday places, as pioneering industries take core wireless capabilities to new levels. Bring a garment into an RFID-enabled dressing room, and the color options and fabric information are displayed on a plasma screen. Or visit a wireless-enabled emergency room, where your doctor can call up your medical history on a PDA from the hospital's data repository.

These new applications bring with them exciting new possibilities that many of you are eager to explore. Our reader poll (see page 40) showed that 64% of respondents consider wireless technology important to their business goals.

In the pages that follow, we take a look at cutting-edge wireless uses and hear from industry observers about which wireless vendors are making the grade for corporate IT. You'll find answers to frequently asked questions about wireless LAN setups and read about new advances that the top wireless vendors expect to introduce this year. We hope that, armed with this information, you can put wireless to work in your own company.

Ellen Fanning is special projects editor at Computerworld. *Contact her at ellen_fanning@computerworld.com.*

RICH LILLEAN



WIRELESS AT WORK

LEARN HOW WIRELESS APPLICATIONS ARE EXPANDING BEYOND CAFES AND STOCK QUOTES

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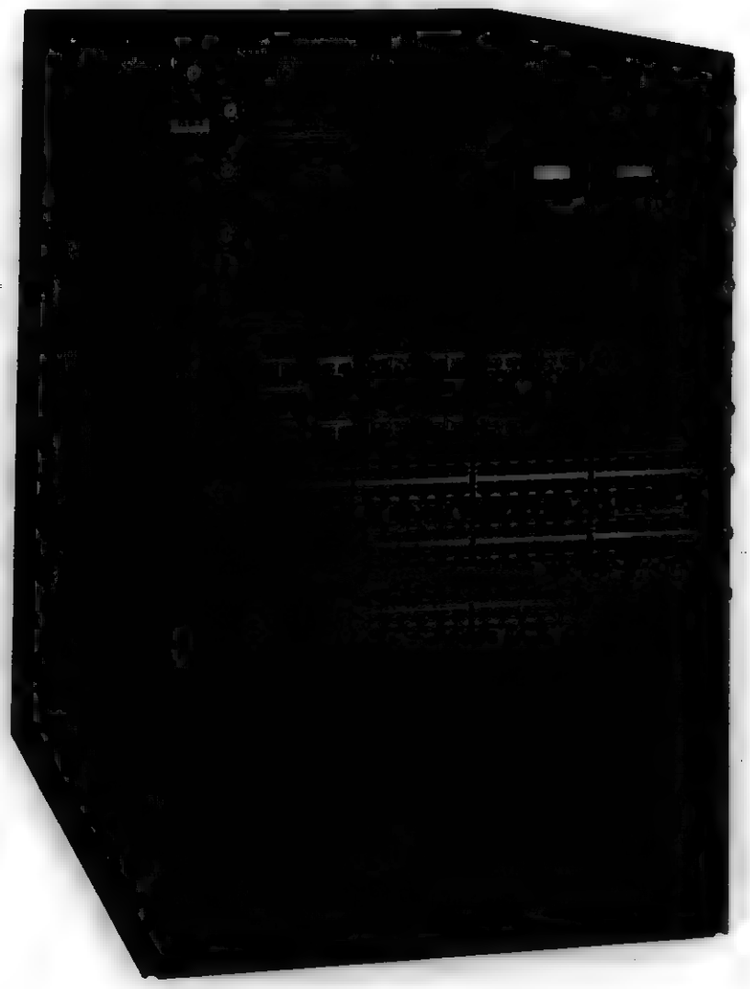
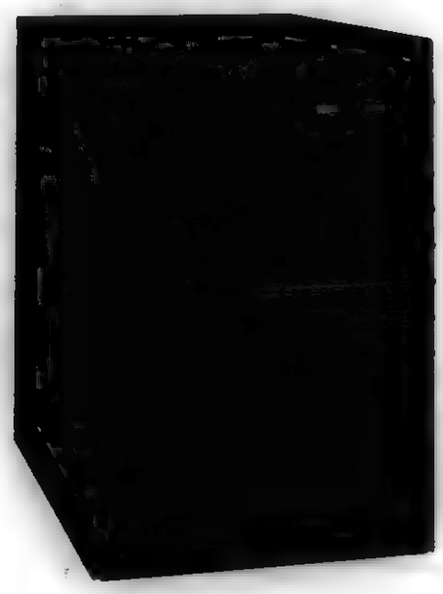


I AM A SNARLING PACK OF DOBERMANS.

I AM INTEGRATED SECURITY. I HAVE THE POWER TO PROTECT YOUR NETWORK FROM THE INSIDE, THE OUTSIDE AND FROM EVERYWHERE IN BETWEEN. I ALWAYS KNOW WHO IS ON THE GUEST LIST AND HAVE THE POWER TO DENY THOSE WHO AREN'T ON IT. I SNIFF OUT THREATS SO YOU CAN STAY PRODUCTIVE. I AM MORE THAN A CISCO CATALYST 6500.



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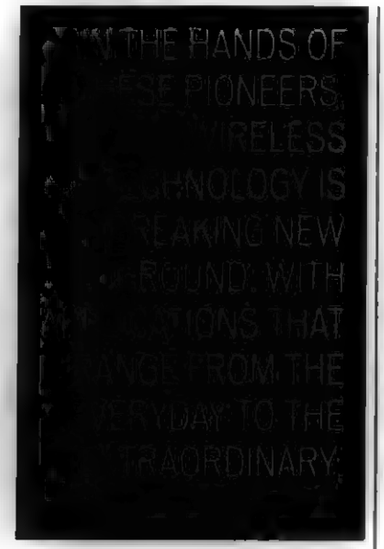


WIRELESS GETS DOWN TO BUSINESS

FROM RETAIL STOREFRONTS to the military's front lines, wireless technology now permeates nearly every sector of the U.S. economy.

The technology has come a long way from simple bar-code reading with wireless PDAs. Today, tags affixed to retail garments taken into a dressing room can wirelessly signal a wall-mounted screen to display color choices and fabric information. College students can do research in the cafeteria instead of the library, and forklift operators can save themselves hundreds of miles of travel in factories by receiving product requests from computers mounted on their vehicles.

By the end of 2002, seven out of 10 companies had adopted wireless technology, according to a survey of 1,251 U.S. and Canadian companies in 18 industries by IDC in Framingham, Mass.

"Economics and technology are making wireless available to a lot more people," says Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. "We're seeing it increase in its capabilities. People know what it can do, and they're working on projects that make sense — updating them more into back-end systems."

Purchases of wireless hardware reached $2.2 billion in 2002 and are expected to top $3.9 billion by 2006, according to research firm In-Stat/MDR. Units sold will skyrocket from 18 million to 75 million in 2006, which suggests that the cost of deploying wireless will continue to fall.

To learn how wireless is being adapted to meet changing needs, we took a look at the most innovative uses of it in 10 sectors of the economy.

EDUCATION

The Challenges of Being First

Three years ago, Carnegie Mellon University was voted "Most Wired Campus" by the online publication *Yahoo Internet Life* for its pioneering use of wireless access in more than 30 buildings.

Today, five years after the university installed its first wireless LAN, administrators are looking to upgrade the system with new standards and faster speeds, which will require 1,200 new access points for the 7,000 registered wireless devices on campus.

It's a problem facing many institutions. Some 87% of schools and institutions surveyed by IDC now use wireless technology, and 90% say bandwidth and network availability issues top their list of technology challenges.

Rough estimates of the cost of Carnegie Mellon's upgrade are about $3 million, three times what the university has spent so far on wireless. What's more, funding isn't as plentiful as it was five years ago, says Chuck Bartel, director of network services.

But one simple truth has bumped the project up the priority list: "If you don't deploy it yourself, it will probably get deployed by someone else, and in a manner you don't want," most likely by tech-savvy students, Bartel says.

Bartel is concerned that if students don't have the wireless access they need, they'll find cheap hardware at a local electronics store and bring it onto campus. "If we haven't put the proper security in the mix, anybody can access university data," Bartel says.

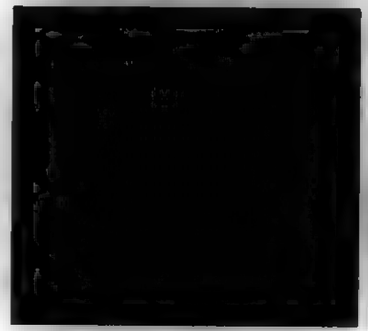
The combination of wireless access and tech-savvy students uncovers another truth — a network that's always available sometimes shouldn't be.

"At times," says Bartel, "faculty doesn't want access to the Internet or instant messaging between students" — during tests, for example. But now that wireless is being embedded into laptops and handheld devices, "it's a little more problematic," he notes.

But don't expect this technology institution to step back from the bleeding edge anytime soon. Carnegie Mellon is developing new uses for its wireless network in handhelds, laptops, robots and wearable computers.

Students in one graduate-level development course are working on intelligent agents embedded in handheld devices that will offer weather reports, restaurant options and even the location of friends, based on the user's location. The university's robotics institute is experimenting with collecting information by attaching wireless components to robots. "Once you have the infrastructure in place," Bartel says, "the juices start flowing in terms of

CHRIS HARTLOVE



how somebody can use it."

"They're using wireless LANs in classrooms because of the need to move around and just to give students the freedom to move anytime, anywhere," says Gartner's Dulaney. "They do it for convenience. Plus, they love to play with that stuff."

FINANCE

When Time Is Money

Soon after launching its first wireless offering in 1998, Fidelity Investments realized that wireless subscribers were very attractive customers. "They have more assets, they're more financially active and more tech-savvy," says Joe Ferra, chief wireless officer.

That appealing combination keeps the Boston-based firm listening to its customers' demands for new wireless features and monitoring their use of every new function.

Today the company's wireless offering, Fidelity Anywhere, lets 170,000 customers get real-time stock quotes, make after-hours trades, short-sell and, with phone-integrated BlackBerry handhelds, call a Fidelity rep with the touch of a button. The firm also now lets customers manage their retirement accounts, charitable donations and insurance needs wirelessly.

While wireless capabilities expand, security issues remain an obstacle. "The level of security just isn't high enough yet" for many financial services functions to be deployed wirelessly, says Wai Sing Lee, an analyst at Frost & Sullivan in Toronto. Until Wireless Application Protocol 2.0 or 802.11 standards come out, real innovation will be put on hold, he says.

Some two-thirds of the financial services industry uses wireless technology today, with about 20% of those users in the initial stages of a rollout, according to IDC. What's more, 29% of financial services companies surveyed have or plan to provide online trading capabilities to their clients.

Ferra says security remains a paramount concern, and Fidelity continues to "look at what's out there" in terms of security standards. But right now it relies on encryption and authentication developed using the Handheld Device Markup Language.

The firm even chooses which functions will be offered on each type of device based on security concerns, browser capabilities and latency. "It would be very difficult for me to convince people at Fidelity to offer real-time quotes over a given device if we know the latency is 30 to 40 seconds. It's got to be a lot quicker than that," Ferra says, adding that those discrepancies are becoming less of an issue.

"I'm convinced this will become a predominant way that people conduct their business with us. These devices are convenient, more reasonably priced and easier to use than ever before."

ENERGY & CHEMICALS

Wireless Powers Sales Force, Productivity of Maintenance Crew

Like most executives in the energy and chemicals industry, the upper echelons of Celanese Chemicals Ltd. are fairly conservative, says Bill Schmitt, the director of e-business at Celanese. "Anything that looks or smells like bleeding-edge technology makes us pretty nervous," he says.

But the $3 billion chemicals company was comfortable enough with handheld devices and wireless LANs by 2002 to adopt the technology primarily as a productivity tool for sales staff. Now the Dallas-based company is looking at wireless technology to speed maintenance at its chemical plants.

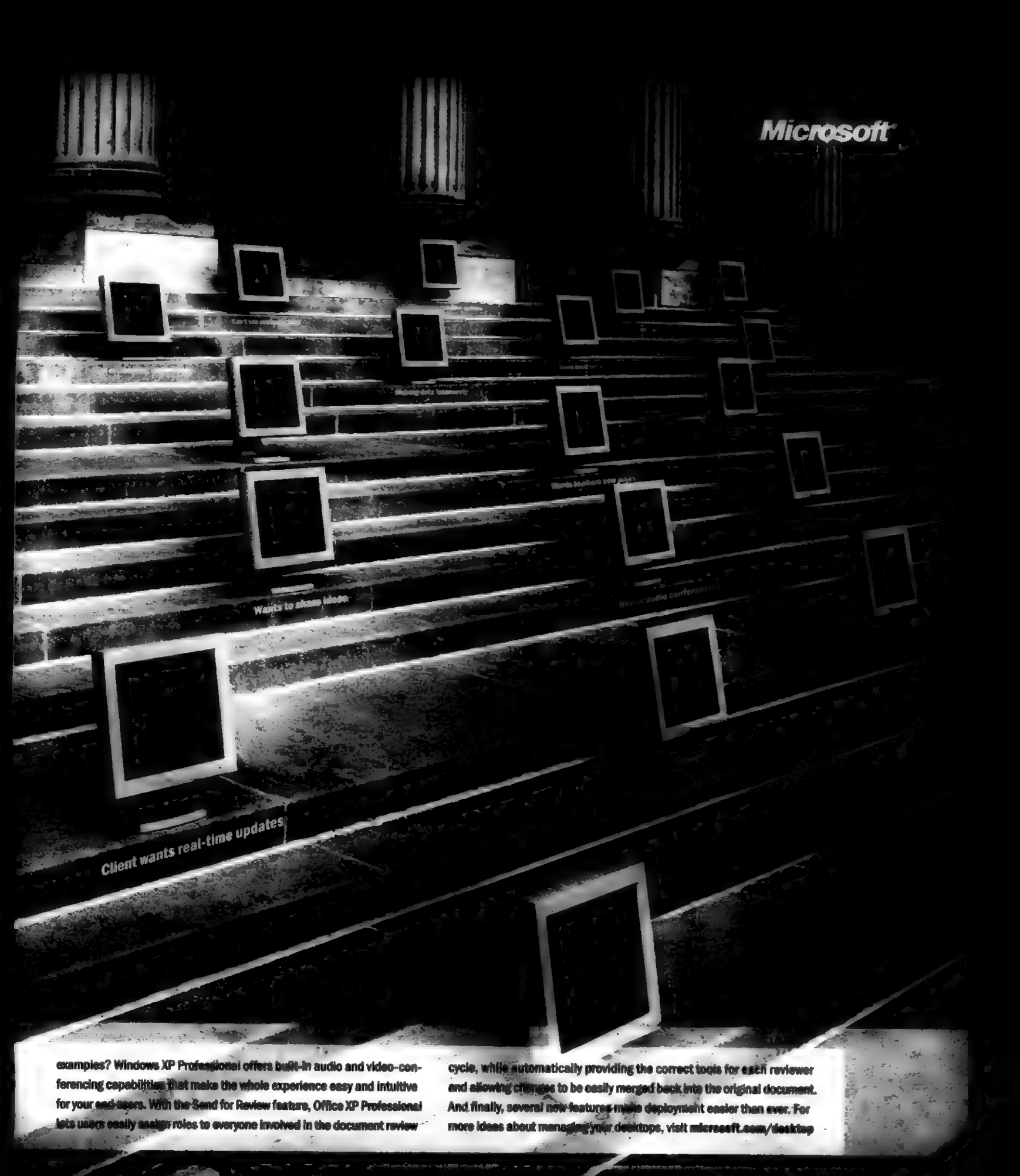
"When you run continuous production units, time is money," Schmitt says. When a pump goes down, for example, maintenance workers travel through football-field-size plants by foot or bicycle to inspect the problem and then travel back to the control room and storage room to arrange for repairs —

Continued on page 34

Managing collaboration?

That's

Recognize any of those issues? Or, perhaps, all of them? We thought so. Many of these issues can be related to your legacy desktop software; fortunately, many of them can be addressed by features in Microsoft® Windows® XP Professional and Office XP Professional. Want specific



examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your end users. With the Send for Review feature, Office XP Professional lets users easily assign roles to everyone involved in the document review cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back into the original document. And finally, several new features make deployment easier than ever. For more ideas about managing your desktops, visit **microsoft.com/desktop**

WIRELESS GETS DOWN TO BUSINESS

Continued from page 31

which could take up to an hour, he says.

In the future, employees will use Hewlett-Packard Co. Pocket PCs to report problems and arrange for repair equipment to be brought to the site. A pilot test is planned for later in the year.

Schmitt also wants to extend wireless capabilities globally to customers in China and Asia. But he acknowledges that the technology "isn't there yet."

Europe and Asia were quick to adopt mobile phones and Short Messaging Service messaging, he says, but "in wireless data, the U.S. is still ahead."

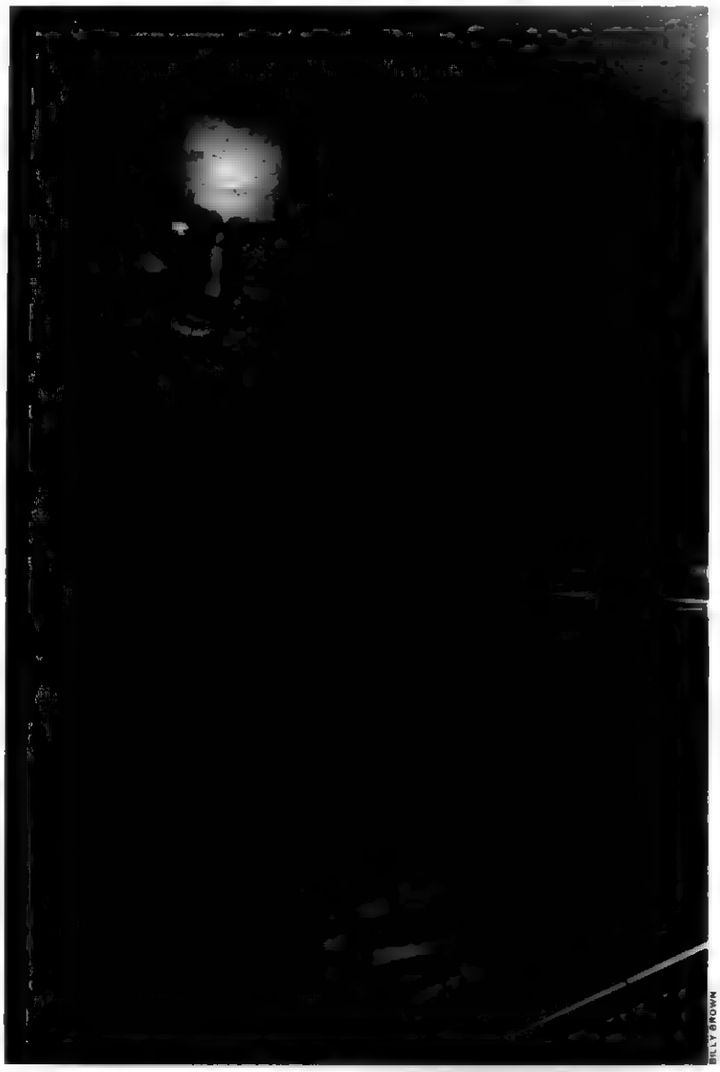
HEALTH CARE

Hands-off Technology in a Hands-on Business

As nurses whisk a critically injured patient into the emergency room at St. Vincent's Hospital in Birmingham, Ala., a physician grabs his PDA and with a few stylus strokes accesses the patient's medical history from the hospital's vast clinical data repository.

An admitting clerk scans the patient's insurance card and driver's license using a handheld device at the patient's bedside. After tests and surgery, caregivers will be able to access lab results, medication orders and surgery notes through wireless notebook computers or Pocket PCs that are synchronized with hospital systems for up-to-the-minute accuracy.

These everyday uses of wireless represent just the beginning of St. Vincent's plans for the six-building hospital campus, part of Ascension Health Inc., an $8.9 billion health care provider based in St. Louis. The St. Vincent's wireless network is the largest such network in health care in the Southeast.



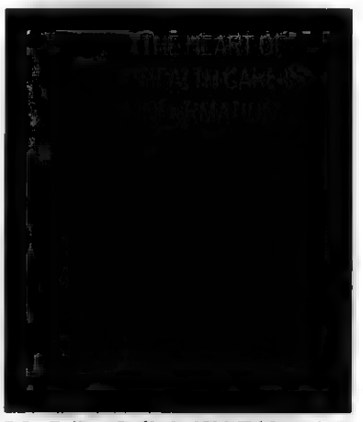
BILLY BROWN

"The heart of health care is information," says CIO Jim Stettheimer. "When you can make information available anytime, anywhere, you're laying the groundwork for huge strides in quality and patient outcomes."

At least eight out of 10 hospitals regularly use wireless technology today, according to IDC.

Health care workers "are in highly mobile environments where there's a requirement to gain access to information," says Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn.

The first phase of St. Vincent's project, which cost $1.6 million, included installing 167 Cisco Aironet 350 Series access points around the campus and a Cisco WLAN. The wireless network went live in July 2002 with 35 users, including physicians and admitting clerks who used Compaq iPaq Pocket



PCs, Fujitsu Stylistic 3500 Tablet PCs and some Dell and Compaq notebook computers using Cisco Aironet 350 network interface cards. By March 2003 the number of users had doubled.

As part of a "total leap" into wireless, Stettheimer's team is piloting wireless voice technology from Vocera Communications that allows clinicians to speak into badges worn on their lapels to contact co-workers.

Ultimately, 600 hospital workers, including doctors, nurses, physical therapists, transporters, social workers and pastoral staff, will send and receive information wirelessly using role-based security, which restricts the kinds of information these workers can access.

Return on investment is measured in terms of time saved and patient satisfaction. In the future, administrators will measure the time it takes to get a medical order through the system.

Stettheimer says the technology will succeed because physicians have been closely involved in designing and implementing the system. "That puts them in a position of ownership and investment in making sure that it works well," he says.

MANUFACTURING

The Shortest Distance Between Two Points Is Wireless

Automotive and aerospace plants lead the manufacturing pack in wireless device use, with about two-thirds of all companies actively using the technology.

General Motors Corp.'s Cadillac and Buick assembly plants mounted wireless computers from Symbol Technologies Inc. in Holtsville, N.Y., on forklifts so drivers can wirelessly collect and transmit data from the factory or warehouse floor. The forklift operators can also receive work instructions and and updates without leaving their vehicles.

The wireless network is expected to save $1 million at one GM assembly plant, according to a company statement. Forklift traffic has declined by 400 miles each day. After nine months of wireless use, forklift operators now average 60 to 70 deliveries a day, double the number of deliveries they were making before the system went live.

In a few years, manufacturers may be able to catch product defects by sensing out-of-range vibrations in industrial equipment using "smart dust."

Carnegie Mellon University's MEMS Laboratory is developing the devices, which are tiny wireless microelectromechanical sensors (MEMS) that can detect everything from light to vibrations. Thanks to recent breakthroughs in silicon and fabrication techniques, these "motes" could eventually be the size of a grain of sand, though each would contain sensors, computing circuits, bidirectional wireless communications and a power supply. Motes would gather scads of data, run computations and communicate that data using two-way band radio between motes at distances up to 1,000 ft.

Manufacturers are already experimenting with triangulation, which uses wireless access points strategically placed throughout a plant. The precise location of multimillion-dollar equipment that moves around the plant can be tracked using radio frequency identification (RFID) tags mounted on the equipment. "This allows asset tracking," says Meta's Kozup. "That's a bit of a future application, but some are experimenting."

RETAIL

This Season's Must-Have: An RFID Tag

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"A good 25% of all major retailers have dabbled in RFID," says Bill Allen, eMarketing manager at Texas Instruments Inc.'s RFID Systems. But most are holding off on full-blown implementations because of the poor economy, equipment costs or complicated supply chains.

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the tag and displays information on the designer and choices of fabric and color; it even offers accessory ideas.

While retailers such as Wal-Mart Stores Inc. and Target Corp. have piloted RFID tags on boxes and pallets, retailers that manufacture their own clothing lines are experimenting with individual garment tags. "We felt that retailers who have a vertically integrated supply chain like Benetton or J. Crew or The Limited, who are manufacturing their own goods, would be the first to take advantage of item-level RFID," says Jim Crawford, an analyst at Forrester Research Inc. in Cambridge, Mass. If retailers have control over the manufacturing facility, tags can be applied at the time of manufacture at no extra cost, he adds.

But at 25 to 50 cents apiece, the cost of individual tags is keeping item-level RFID at bay for many retailers.

"I foresee the use of RFID at the item level in five to seven years," Allen predicts. "I foresee more applications used for RFID for the carton and pallet level. We are not anywhere near being able to provide retailers with a 5-cent or penny tag. The technology is just not there yet."

TRANSPORTATION

Cost Is Still a Roadblock For Some Carriers

About one-third of the companies in the transportation industry used wireless technology at the beginning of 2002, according to IDC. The other two-thirds indicated that they planned to evaluate or implement the technology by the end of the year. Many are installing wireless fleet-tracking devices.

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"It makes it easier to get the information necessary to dispatch and assign loads," said Mike Brown, vice president of sales and marketing for the transportation and logistics division at Owings Mills, Md.-based Aether.

Pittston, Pa.-based TRL said the new system will help improve the productivity of its fleet and bolster customer service. But when it comes to wireless adoption, some industry executives say cost is one of the biggest roadblocks.

"Customers are demanding that wireless providers take us to a much lower cost," but instead the industry is moving to expand offerings, says Dave Berry, vice president of Phoenix-based Swift Transportation Co. "We don't want to watch TV from our trucks; we want lower costs."

LOGISTICS

Getting It There Faster

The logistics industry has embraced wireless technology wholeheartedly for the past three years. Wireless LANs are used to manage large segments of the logistics chain, from container ports that handle bulk shipments of consumer goods to package delivery giants that track and manage worldwide shipments. Competitors in these areas now use wireless innovations to gain business advantage.

Memphis-based FedEx Corp. ratcheted up the competition with Atlanta-based United Parcel Service Inc. in February when it began deploying new handheld devices for its 40,000 FedEx Express couriers as part of a $150 million technology investment. The company selected Motorola Inc. to develop the PowerPad handhelds, which use Microsoft Corp.'s Pocket PC operating system and automated courier dispatch, pickup and delivery operations.

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WIRELESS GETS DOWN TO BUSINESS

Continued from page 31

which could take up to an hour, he says.

In the future, employees will use Hewlett-Packard Co. Pocket PCs to report problems and arrange for repair equipment to be brought to the site. A pilot test is planned for later in the year.

Schmitt also wants to extend wireless capabilities globally to customers in China and Asia. But he acknowledges that the technology "isn't there yet."

Europe and Asia were quick to adopt mobile phones and Short Messaging Service messaging, he says, but "in wireless data, the U.S. is still ahead."

HEALTH CARE

Hands-off Technology in a Hands-on Business

As nurses whisk a critically injured patient into the emergency room at St. Vincent's Hospital in Birmingham, Ala., a physician grabs his PDA and with a few stylus strokes accesses the patient's medical history from the hospital's vast clinical data repository.

An admitting clerk scans the patient's insurance card and driver's license using a handheld device at the patient's bedside. After tests and surgery, caregivers will be able to access lab results, medication orders and surgery notes through wireless notebook computers or Pocket PCs that are synchronized with hospital systems for up-to-the-minute accuracy.

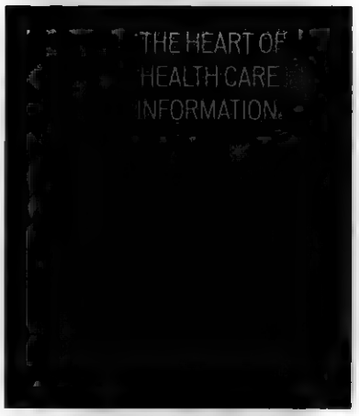
These everyday uses of wireless represent just the beginning of St. Vincent's plans for the six-building hospital campus, part of Ascension Health Inc., an $8.9 billion health care provider based in St. Louis. The St. Vincent's wireless network is the largest such network in health care in the Southeast.

"The heart of health care is information," says CIO Jim Stettheimer. "When you can make information available anytime, anywhere, you're laying the groundwork for huge strides in quality and patient outcomes."

At least eight out of 10 hospitals regularly use wireless technology today, according to IDC.

Health care workers "are in highly mobile environments where there's a requirement to gain access to information," says Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn.

The first phase of St. Vincent's project, which cost $1.6 million, included installing 167 Cisco Aironet 350 Series access points around the campus and a Cisco WLAN. The wireless network went live in July 2002 with 35 users, including physicians and admitting clerks who used Compaq iPaq Pocket



PCs, Fujitsu Stylistic 3500 Tablet PCs and some Dell and Compaq notebook computers using Cisco Aironet 350 network interface cards. By March 2003 the number of users had doubled.

As part of a "total leap" into wireless, Stettheimer's team is piloting wireless voice technology from Vocera Communications that allows clinicians to speak into badges worn on their lapels to contact co-workers.

Ultimately, 600 hospital workers, including doctors, nurses, physical therapists, transporters, social workers and pastoral staff, will send and receive information wirelessly using role-based security, which restricts the kinds of information these workers can access.

Return on investment is measured in terms of time saved and patient satisfaction. In the future, administrators will measure the time it takes to get a medical order through the system.

Stettheimer says the technology will succeed because physicians have been closely involved in designing and implementing the system. "That puts them in a position of ownership and investment in making sure that it works well," he says.

MANUFACTURING

The Shortest Distance Between Two Points Is Wireless

Automotive and aerospace plants lead the manufacturing pack in wireless device use, with about two-thirds of all companies actively using the technology.

General Motors Corp.'s Cadillac and Buick assembly plants mounted wireless computers from Symbol Technologies Inc. in Holtsville, N.Y., on forklifts so drivers can wirelessly collect and transmit data from the factory or warehouse floor. The forklift operators can also receive work instructions and and updates without leaving their vehicles.

The wireless network is expected to save $1 million at one GM assembly plant, according to a company statement. Forklift traffic has declined by 400 miles each day. After nine months of wireless use, forklift operators now average 60 to 70 deliveries a day, double the number of deliveries they were making before the system went live.

In a few years, manufacturers may be able to catch product defects by sensing out-of-range vibrations in industrial equipment using "smart dust."

Carnegie Mellon University's MEMS Laboratory is developing the devices, which are tiny wireless microelectromechanical sensors (MEMS) that can detect everything from light to vibrations. Thanks to recent breakthroughs in silicon and fabrication techniques, these "motes" could eventually be the size of a gram of sand, though each would contain sensors, computing circuits, bidirectional wireless communications and a power supply. Motes would gather seads of data, run computations and communicate that data using two-way band radio between motes at distances up to 1,000 ft.

Manufacturers are already experimenting with triangulation, which uses wireless access points strategically placed throughout a plant. The precise location of multimillion-dollar equipment that moves around the plant can be tracked using radio frequency identification (RFID) tags mounted on the equipment. "This allows asset tracking," says Meta's Kozup. "That's a bit of a future application, but some are experimenting."

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Continued from page 35

Unlike its current SuperTracker handhelds, also developed by Motorola, the new PowerPads can exchange data with FedEx's back-end systems, including its Web-based package-tracking applications, over AT&T Wireless Services Inc.'s nationwide mobile data network.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., called the rollout a psychological victory over UPS, which is planning a similar rollout for early this year, as well as other undisclosed wireless innovations.

GOVERNMENT

Fighting Terrorism With Wireless

Federal, state and local governments — notorious for staying safely behind the technology curve — are uncharacteristically bullish on wireless technology. For many, the moves are a reaction to terrorism threats and new homeland security requirements.

The Los Angeles Police Department (LAPD) plans to install high-bandwidth WLANs at its 27 police stations by July to send mug shots, maps and graphical data to police officers on the street. The LAPD will deploy 1,500 Pocket PC handheld computers made by Symbol Technologies, which will include 802.11b WLAN cards.

Police departments in Baltimore and Glendale, Calif., have also developed interfaces between the WLAN radios built into the Symbol handhelds and the WAN-based radios used in police cars. Officers can use handhelds as remote units connected to the WAN while outside their vehicles.

The U.S. Department of Health and Human Services in March announced plans to test a wireless network operated by San Mateo, Calif.-based ePocrates Inc. to transmit bioterrorist health alerts to Palm OS-based handheld computers used by doctors across the country. Already, 250,000 doctors nationwide use ePocrates handhelds to determine the correct prescription and dosage for sick patients.

"Government is moving with the [wireless technology] curve," says Gartner's Dulaney. "The entire Congress has RIM BlackBerries for e-mail. They rely on it." On the state level, wireless use is fragmented because officials disagree on which departments have critical communications needs that would require it, he says.

Security and business concerns in New York have officials there considering putting wireless access points in subway tunnels so people can talk when they're underground. "New York believes being connected is extremely important for the health of its business, especially since 9/11," Dulaney says.

DEFENSE & MILITARY

Wireless on the Front Lines

On the battlefields of Iraq, Afghanistan and Southwest Asia, Army troops have replaced the sneakernet used to requisition supplies and maintenance during the 1991 Persian Gulf War with wireless technology that can save time, money and maybe even lives.

Now, instead of loading a floppy disk with logistics information, supply chain reorder forms, mechanical parts orders and requisitions for vehicle maintenance and then carrying it to base camp for processing, troops are using CAISI (pronounced "Casey"), the Army's Combat Service Support Automated Information Systems Interface. The technology went into the field in October 2002 and is now used by four of the Army's 10 divisions.

"It used to take a week or so to get these supplies commissioned and back to the troops," explains Maj. Salvatore Fiorella, assistant product manager. "CAISI increases the capability to order supplies by getting the wheels turning immediately, as soon as the transmission is made."

In one instance, CAISI saved a unit in Southwest Asia $40,000 in hardware costs, the two weeks it would have taken to run wire, and hours of negotiations with the host country to get approval for laying down extra wire.

The system can transmit data about three to four miles, which has limited its use once troops venture deeper into enemy territory. But "with satellites linked to CAISI, that just brings it to the battlefield," Fiorella adds.

The wireless system consists entirely of off-the-shelf hardware and software. Laptop computers in the field are physically connected to wireless modules, which are triple-encrypted using software from Fortress Technologies Inc. in Oldsmar, Fla., even though CAISI's use is restricted to "sensitive but unclassified" information.

CAISI is just one of the Army's efforts to have 802.11b wireless devices deployed in the field between 2008 and 2010, once all security issues have been addressed. "We have to worry about encryption, we have to worry about firewalls, we have to worry about nonworking communication lines," says George Knizewski, lead engineer and contractor at the U.S. Army Program Executive Office, Enterprise Information Systems (PEO, EIS), at Fort Belvoir, Va. "We don't want to be on the bleeding edge of technology."

Today, government agencies require wireless technology to meet the Federal Information Processing Standards (FIPS). "Unless it's up to that level of security, government agencies can't deploy them," says Frost & Sullivan's Lee. CAISI is one of the first Army systems to be FIPS-compliant, which opens the door to many future uses.

"I see wireless bringing better assistance to the [troops] that are deployed, providing rapid information so they can see what's available on the battlefield, which will help leaders to determine what combat units are equipped to go forward," Fiorella says.

Collett is a freelance writer in Sterling, Va. Contact her at stcollett@aol.com. Bob Brewin and Tom Hoffman also contributed to this report.

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8:00am to 8:45am	**Registration and Networking Breakfast**
8:45am to 9:00am	**Welcome and Opening Keynote** **Outsourcing Watch 2003: The Best of Both Shores** Maryfran Johnson, Editor in Chief, Computerworld
9:00am to 9:45am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners
9:45am to 10:15am	**Business Case Study** James Beattie, EVP and CTO, CCC Information Services
10:15am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Joe Drouin, VP and CIO, TRW Automotive ■ Tasos Tsolakis, VP of Global Technology Operations, Global Exchange Services ■ James Beattie, EVP and CTO, CCC Information Services
11:30am to Noon	Open Forum

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Bart Perkins

James Beattie

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FAR FROM TRADITIONAL OFFICE ENVIRONMENTS, WIRELESS NOW SUPPORTS A WIDE RANGE OF BLUE-COLLAR APPLICATIONS, LIKE A 10,000-TRUCK SERVICE FLEET AND 'SMART' BULLDOZERS IN A COAL MINE.

IN A WIDE RANGE of companies, wireless often wears a blue collar, supporting gritty but essential applications far removed from the world of executive BlackBerry pagers or airport lounge wireless LAN "hot spots."

These emerging blue-collar wireless uses make possible fundamental business processes that often can't be hooked into wired networks due to geographic or environmental conditions, says Craig Mathias, an analyst at Farpoint Group in Ashland, Mass.

In the Trucks

It was geography that dictated the design of Sears, Roebuck and Co.'s new wireless system for its products repair division. The cab-mounted Mobile Base Station installed last month on all 10,000 repair trucks had to provide 100% nationwide coverage so technicians could wirelessly transmit data from customer sites anywhere in the U.S. to back-end systems, says Dave Sankey, director of process and technology development at Sears.

According to Sankey, the Mobile Base Station, developed by Wireless Matrix Corp. in Calgary, Alberta, houses a WLAN, terrestrial packet data and satellite system in a package that's 11 in. wide by 6.7 in. high.

The retailer has also equipped its service technicians with Smart Toolbox, a rugged, Pentium-powered touch-screen laptop from Itronix Corp. in Spokane, Wash. Each laptop comes packed with a library of product repair information that includes more than 90,000 illustrations and schematics of every product the company sells and services, from washers to lawn tractors. The product library also contains a list of 44.5 million parts that might be needed to make repairs, as well as an inventory of the 2,500 parts carried on every truck, Sankey says.

The laptops also have built-in 802.11b WLAN modems, which communicate with the Mobile Base Station. Service technicians no longer need to leave a customer site to order a part not found in the database. They can place the order with a supplier, with the WLAN serving as the link to the Mobile Base Station, Sankey says.

Al Milligan, executive vice president for business operations at Wireless Matrix, says the WLAN access point in Mobile Base Station connects with two wide-area wireless systems: a terrestrial network that operates over Atlanta-based Cingular Wireless' Mobitex packet data network, and the mobile satellite system operated by Mobile Satellite Ventures LP in Reston, Va.

Controller software built into Mobile Base Station includes "best route" algorithms that select the terrestrial or satellite circuit with the strongest signal that's closest to Mobile Base Station, Milligan says.

Although satellite data service is viewed as expensive, Milligan says his company buys large blocks of satellite time from Mobile Satellite Ventures, minimizing the cost differential between satellite and terrestrial service. The data rates for both the Mobitex network and the mobile satellite system are relatively slow (8Kbit/sec. and 6.75Kbit/sec., respectively), but Sankey says that's good enough for the "bursty" and low-bandwidth traffic sent to and from Smart Toolbox applications.

Russ Molitor, a Sears service technician in Bloomingdale, Ill., has been a Smart Toolbox and Mobile Base Station beta tester for the past 18 months. He says he saves invaluable time locating parts because he can communicate directly from the job site, rather than having to walk back to his truck.

It also eliminates the time he used to spend on the phone — often waiting on hold — trying to find a part from Sears' myriad suppliers. Molitor says being able to order online saves him from the routine mistake of ordering the right part but in the wrong color.

Sankey declines to specify total costs or investment payback for Smart Toolbox and Mobile Base Station, ex-

ANDY GOODWIN

DAVE SANKEY, an IT executive at Sears, holds a Smart Toolbox, a rugged laptop that holds a library of product information.

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cept to say that the hardware bill alone totaled $60 million. He says that money has already been recouped by time savings from the product and parts library system.

In the Mines

Geography was the reason for the installation of a WLAN system that spans 20 square miles at the Thunder Basin coal mine in Wright, Wyo., operated by St. Louis-based Arch Coal Inc. Jim Long, a Global Positioning System (GPS) project engineer at the mine, says the WLAN consists of a 2.4-GHz cross-mine link with six access points feeding another three access points in the 900-MHz band. The WLAN serves as the backbone for the MineStar integrated mining information system developed by Caterpillar Inc. in Peoria, Ill.

The WLAN distributes finely tuned location data from on-site GPS kinematic receivers. Those receivers grab the GPS signals from space and refine the location data so it's accurate to within 1 centimeter instead of 25 meters. This location data is distributed to WLAN terminals and GPS receivers hooked up to rugged computers with color displays in the 35 coal-hauling trucks and six bulldozers that operate in the mine, Long says.

When a new road needs to be built, Long says, he designs it on an office-based computer-aided design (CAD) system and sends it over the network to a bulldozer operator. "[The bulldozer operator] can see what he needs to cut and fill to build that road," says Long. The WLAN in the bulldozer also automatically feeds real-time information of the work it's doing back to the office CAD system, allowing supervisors to monitor progress, Long adds.

Coal mines might fall at the end of most people's lists of businesses that are likely to be Internet-enabled, but Michael Murphy, Caterpillar's MineStar manager, says mining equipment has become so automated that the average mine truck or bulldozer has five IP addresses.

The automation pays off in an industry driven by wildly fluctuating commodity prices, Long says. When coal prices increase, the wireless network helps Thunder Basin quickly ramp up production. In tight times, it brings efficiency to an operation that has to watch its costs, he says.

On the Docks

Mike Taylor, CIO at Todd Shipyards Corp. in Seattle, installed a system that uses an 802.11b WLAN and rugged Palm OS-based handheld devices from Symbol Technologies Inc. in Holtsville, N.Y., to help manage one of his company's biggest costs: timekeeping and management of its 1,200 union workers. The old timecard system was prone to error, subject to rounding by workers and took 24 hours to transmit information to managers.

The Electronic Labor and Time Collection system, online since October, provides Todd Shipyards with highly accurate time records and a better way for managers to allocate personnel from job to job — and keep track of billing for various projects happening within the 44-acre shipyard. All workers have a magnetic-striped badge, which they swipe at a wired PC terminal when they check in.

Once workers have checked in and been assigned a task, that information is sent to one of 66 "leadmen" supervisors equipped with Palm wireless PDAs. The Palms let supervisors see at a glance the number of workers on each job within the yard, by craft and department. This allows Todd Shipyards to create a payroll and cost record for each job automatically and instantly at the end of the day when each worker clocks out.

The project cost about $300,000, Taylor says, and it has already paid for itself by eliminating inaccurate time records for workers paid by the hour.

Taylor emphasizes that installing a WLAN system in a shipyard of that size is daunting. Not only does the area far exceed the 300-foot range of a single WLAN access point, but the metal structures within the yard also interfere with signal propagation. Taylor says he needed to install 33 access points, some with high-powered antennas, to cover the area.

Although much of the hype about the potential of wireless focuses on office or consumer applications, the technology really pays off at work on the remote front lines of many businesses, where wireless is the only communications alternative, says Farpoint's Mathias.

WLAN AIDS POLICE FORCE

A new Wi-Fi-based network provides 11Mbit/sec. data rates to police cruisers in a 60-square-mile area.

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SNAPSHOTS

38% of respondents said the economic downturn has had no impact on their organizations' wireless projects.

29% said the recession has caused funding to be delayed but planning is still moving ahead.

12% said projects were put on hold this year.

5% said their wireless projects have been delayed indefinitely.

1% said their projects had received more funding, and less than 1% said their project schedule had been accelerated.

Wireless Priorities

How important is wireless technology to your organization's business goals and strategy?

The Top 10 Wireless Devices in Use

1. Laptops
2. Cell phones
3. Handheld devices
4. Pagers
5. Tablet PCs
6. Bar code readers
7. BlackBerry devices
8. Smart phones
9. Mobile data appliances
10. Rugged handheld terminals

SOURCE: COMPUTERWORLD.COM, MARCH 28–APRIL 4
BASE: 383 SURVEY RESPONDENTS

ANALYST REPORT CARD

INDUSTRY WATCHERS FROM TOP ANALYST FIRMS WEIGH IN ON WHICH WIRELESS SEGMENTS AND VENDORS ARE MAKING THE GRADE FOR CORPORATE IT

Which wireless vendors are poised for growth? And which are best answering the needs of corporate IT? Computerworld posed those questions to a group of industry watchers. Here's what they had to say:

Wireless LAN Hardware and Software

OVERALL GRADE: A

Vendors that sell gear and software for wireless LANs are a bright spot in the wireless industry, analysts say. What's important to corporate IT is the trend toward a distributed WLAN infrastructure, which means putting WLAN intelligence on a controller device or switch in a wiring closet to control multiple, light access points, says Craig Mathias, an analyst at Ashland, Mass.-based Farpoint Group.

Symbol Technologies Inc., Proxim Inc. and start-ups such as Aruba Wireless Networks, Trapeze Networks Inc. and Airespace Inc. are developing such designs, says Gemma Paulo, an analyst at In-Stat/MDR in Scottsdale, Ariz.

Business users will see a growing number of WLAN embedded clients in laptops from IBM, Hewlett-Packard Co., Dell Computer Corp., Toshiba Corp., Fujitsu Ltd. and Sony Corp., Paulo says, and other vendors will provide embedded Wi-Fi access for PDAs. Motorola Inc., Proxim and Avaya Inc. have struck a deal to develop a combination cellular/Wi-Fi handset.

PROGRESS REPORT: Analysts say vendors in this market are all making the grade. It may surprise some to know that when it comes to wireless access devices, Cisco Systems Inc. is the No. 1 vendor to the enterprise market, says Paulo.

The top performers in WLAN security are companies that rely on standards, including Fortress Technologies Inc. in Oldsmar, Fla., and Funk Software Inc. in Cambridge, Mass., says Wai Sing Lee, an analyst at Frost & Sullivan in Toronto.

Mobile Carriers

OVERALL GRADE: D

"The overall mobile operator community is doing a pretty miserable job of supporting the enterprise," says Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. "They want to [reach out] to corporate customers, but their people are poorly trained."

Dulaney says his corporate IT clients continually complain about a lack of IT knowledge among carriers that are now reselling cell phones and smart phones (as well as PDAs with wireless capability) and offering to integrate the devices with corporate networks and databases.

"The problem is that most carriers have sold network pipes at [a certain price per bit] and haven't trained their sales and support teams for needs of IT," he says. "If an IT exec tells a carrier he wants to link a smart phone over wireless back to DB2, the carrier's rep is likely to say, 'What is DB2, a character in *Star Wars*?' "

Wireless operators are the No. 1 reason for the slow rollout of wireless data applications, Dulaney says. "Operators control the choke point but don't have the talent to guide deployments forward," he says.

Mathias agrees that cellular carriers are in a sorry state. "All the carriers don't have enough cells, but there's no excuse for that anymore, and it's becoming unacceptable," he says.

The carriers also face a preponderance of problems with billing, including overly complex plans for corporate customers, Mathias says. He urges IT managers to watch for hidden charges.

PROGRESS REPORT: Dulaney says traditional IT vendors such as IBM and HP get an A for sales, integration and support, but most wireless carriers get a failing grade. Exceptions include Nextel Communications Inc. in Reston, Va., and Sprint PCS Group, Dulaney says, but the others are "off the deep end."

Mathias rates New York-based Verizon Wireless as the best carrier because it has more complete cellular territory coverage.

Handheld Devices

OVERALL GRADE: B

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VENDOR VIEWS

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By the end of 2004, however, 802.11a will have its day, vendors say. "802.11a will start ramping in the second half of next year, and enterprise clients will start to do validations in the second half of the year," predicts Johnson. And 802.11g will make some gains, but not as much as 802.11a, because with the latter, you get more network capacity and channel density. "If you're trying to deploy media-rich, high-bandwidth wireless, 802.11a is clearly the right choice," says Roese.

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In addition, says Lucas, the new architecture will help with security management, policy-based management and bandwidth management.

Exactly how this will be accomplished varies depending on what the vendors actually sell. Roese says Enterasys will ship technology this year that will help shift intelligence into the switch. Lucas says Proxim's Meistro management infrastructure will be available later this year, and Martino says Symbol also has improved management capabilities in the works.

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SNAPSHOTS

Wireless Insecurity

How concerned are you about wireless security?

Top 10 Problems

1. Security
2. Interoperability
3. Lack of nationwide coverage
4. Conflicting standards
5. Lack of local coverage
6. Lack of funding
7. Third-party service limitations (for cell phones, dead spots)
8. Slow adoption rates
9. Data rates/gaming systems are confusing or have hidden costs
10. Poor ROI

Top Five Business Uses for Wireless

Mobile access to enterprise

Sales force communication

Data entry from the field

Logistics support

Manufacturing-floor data entry

Note: Multiple responses were allowed.

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38% of respondents said the economic downturn has had no impact on their organizations' wireless projects

29% said the recession has caused funding to be delayed but planning is still moving ahead

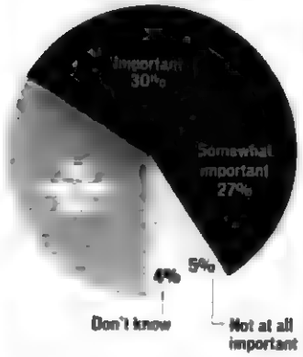
12% said projects were put on hold this year

5% said their wireless projects have been delayed indefinitely.

1% said their projects had received more funding, and less than 1% said their project schedule had been accelerated.

Wireless Priorities

How important is wireless technology to your organization's business goals and strategy?



The Top 10 Wireless Devices in Use

1. Laptops
2. Cell phones
3. Handheld devices
4. Pagers
5. Tablet PCs
6. Bar code readers
7. BlackBerry devices
8. Smart phones
9. Mobile data phones
10. Rugged handheld terminals

ANALYST REPORT CARD

INDUSTRY WATCHERS FROM TOP ANALYST FIRMS WEIGH IN ON WHICH WIRELESS SEGMENTS AND VENDORS ARE MAKING THE GRADE FOR CORPORATE IT.

Which wireless vendors are poised for growth? And which are best answering the needs of corporate IT? Computerworld *posed those questions to a group of industry watchers. Here's what they had to say:*

Wireless LAN Hardware and Software

OVERALL GRADE: A

Vendors that sell gear and software for wireless LANs are a bright spot in the wireless industry, analysts say. What's important to corporate IT is the trend toward a distributed WLAN infrastructure, which means putting WLAN intelligence on a controller device or switch in a wiring closet to control multiple, light access points, says Craig Mathias, an analyst at Ashland, Mass.-based Farpoint Group.

Symbol Technologies Inc., Proxim Inc. and start-ups such as Aruba Wireless Networks, Trapeze Networks Inc. and Airespace Inc. are developing such designs, says Gemma Paulo, an analyst at In-Stat/MDR in Scottsdale, Ariz.

Business users will see a growing number of WLAN embedded clients in laptops from IBM, Hewlett-Packard Co., Dell Computer Corp., Toshiba Corp., Fujitsu Ltd. and Sony Corp., Paulo says, and other vendors will provide embedded Wi-Fi access for PDAs. Motorola Inc., Proxim and Avaya Inc. have struck a deal to develop a combination cellular/Wi-Fi handset.

PROGRESS REPORT: Analysts say vendors in this market are all making the grade. It may surprise some to know that when it comes to wireless access devices, Cisco Systems Inc. is the No. 1 vendor to the enterprise market, says Paulo.

The top performers in WLAN security are companies that rely on standards, including Fortress Technologies Inc. in Oldsmar, Fla., and Funk Software Inc. in Cambridge, Mass., says Wai Sing Lee, an analyst at Frost & Sullivan in Toronto.

Mobile Carriers

OVERALL GRADE: D

"The overall mobile operator community is doing a pretty miserable job of supporting the enterprise," says Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn. "They want to [reach out] to corporate customers, but their people are poorly trained."

Dulaney says his corporate IT clients continually complain about a lack of IT knowledge among carriers that are now reselling cell phones and smart phones (as well as PDAs with wireless capability) and offering to integrate the devices with corporate networks and databases.

"The problem is that most carriers have sold network pipes at [a certain price per bit] and haven't trained their sales and support teams for needs of IT," he says. "If an IT exec tells a carrier he wants to link a smart phone over wireless back to DB2, the carrier's rep is likely to say, 'What is DB2, a character in *Star Wars*?' "

Wireless operators are the No. 1 reason for the slow rollout of wireless data applications, Dulaney says. "Operators control the choke point but don't have the talent to guide deployments forward," he says.

Mathias agrees that cellular carriers are in a sorry state. "All the carriers don't have enough cells, but there's no excuse for that anymore, and it's becoming unacceptable," he says.

The carriers also face a preponderance of problems with billing, including overly complex plans for corporate customers, Mathias says. He urges IT managers to watch for hidden charges.

PROGRESS REPORT: Dulaney says traditional IT vendors such as IBM and HP get an A for sales, integration and support, but most wireless carriers get a failing grade. Exceptions include Nextel Communications Inc. in Reston, Va., and Sprint PCS Group, Dulaney says, but the others are "off the deep end."

Mathias rates New York-based Verizon Wireless as the best carrier because it has more complete cellular territory coverage.

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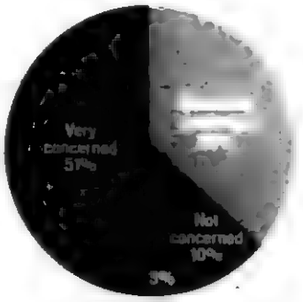

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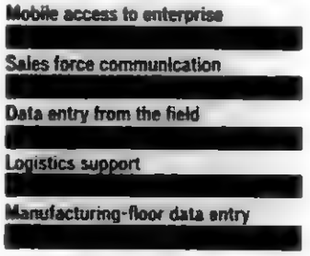

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THINKING OF DEPLOYING A WIRELESS LAN? ANSWERS TO THESE SIX FREQUENTLY ASKED QUESTIONS OFFER TIPS FOR SUCCESS.

THE WIRELESS LAN FAQ

WIRELESS LANs are finally venturing out of their vertical market niches and into mainstream business environments. But they pose some special deployment challenges when compared with their wired counterparts.

Here are six frequently asked questions IT managers should consider before installing a WLAN.

1 How do I plan capacity for a mobile network? Wireless experts suggest that you first identify which applications the network will support and how much bandwidth they will consume. Then calculate how many users need mobility and in what places within your organization they will require it.

Next, apply this information in designing a network of wireless access points (AP). APs are the infrastructure radios, usually ceiling-mounted, which connect to the wired network on one side and to users' wireless network adapters over the airwaves on the other. Wireless veterans stress the importance of site surveys and performance testing to optimize AP placement.

"This is because variations in firmware, antennas and physical layout can alter the performance and range of the very same [wireless] chip set," says Craig Mathias, an analyst at Farpoint Group in Ashland, Mass.

Because it's difficult to anticipate where walls and objects will interfere with wireless communication, a network staff member armed with a wireless laptop typically walks around, installs APs and tests coverage — often trying out multiple antenna options for maximum signal strength.

This exercise will reveal how many APs you need to meet capacity requirements and how to position adjacent APs to prevent coverage holes. There are some rules of thumb about how many users a single AP can support. Gartner Inc., for example, recommends about 20 knowledge workers per 802.11b (11Mbit/sec.) radio.

But these ratios vary. Warehouses often need lots of APs to ensure floorwide coverage. But warehouse applications don't consume much bandwidth, and utilization of these APs is often only 2%, says Rob Greenfield, chief scientist at SCLogic Inc., a reseller of WLANs in Beltsville, Md.

On the other hand, a crowded office space will require many more APs — not to achieve range, but to support more users and heftier applications.

"Shoot for under 40% to 50% AP utilization in office environments," Greenfield suggests. That will compensate for not knowing how many users will be in range at any given time.

2 How can I avoid interference? Having multiple devices that use the same frequency can result in interference with performance. United Parcel Service Inc. learned this when it combined short-range Bluetooth (1Mbit/sec.) wireless technology with 802.11b LANs in a warehouse pilot, explains Joan MacEachern, lead telecommunications analyst at the Atlanta-based worldwide package-delivery company. Both Bluetooth and 802.11b run in the 2.4-GHz frequency band.

To solve the problem, UPS and its technology vendor, Symbol Technologies Inc. in Holtsville, N.Y., synchronized the Bluetooth network with Symbol's 802.11b APs. "Time Division Multiple Access technology in Symbol APs has scheduled the two networks to transmit at different intervals to avoid overlaps," explains MacEachern.

And don't forget to alternate use of 802.11b channels in neighboring APs to further minimize interference, advises John Lawson, vice president of IT and CIO at Tulane University in New Orleans. The university has installed 1,200 APs from Andover, Mass.-based Enterasys Networks Inc. across multiple campuses.

To segregate traffic in neighboring devices, 802.11b offers three different channels. "I've tried installing APs without channel planning," says Lawson. "The result was unacceptable interference."

3 Is my WLAN really secure? This is a complicated question. Security advances collectively called Wi-Fi Protected Access (WPA), based on emerging IEEE standards, will ship in new products later this year. WPA overcomes the notorious static-encryption-key weaknesses in 802.11b's Wired Equivalent Privacy standard. In addition, comprehensive vendor-proprietary products and services have long been available to reinforce wireless privacy.

However, to optimize security in WLANs immediately, the best approach is to employ IPsec virtual private networks, which use Layer 3 encryption, even on a local enterprise campus, says Dave Passmore, an analyst at Burton Group in Sterling, Va.

"This requires IPsec client software on user laptops and a device that terminates IPsec tunnels inside the enterprise network firewall," he explains.

Passmore notes, however, that forthcoming WPA-compliant products should resolve the need for local IPsec use in many organizations.

4 Which technology should I choose from the alphabet soup of WLAN standards? Ken Dulaney, an analyst at Gartner in San Jose, has a simple answer: "802.11b is the only mature, worldwide standard that can be deployed today," he says. "For most enterprises, 802.11b bandwidth should suffice for most office tasks for at least the next four years."

UPS, for example, is "building to current requirements, which is 802.11b," both in its warehouses and at its IT headquarters, says Fred Hoit, UPS's radio frequency infrastructure manager. "We anticipate a five-year life cycle," Hoit says.

Opinions are mixed about 802.11a, the successor to 802.11b that runs in the 5-GHz frequency band with much faster speeds (54Mbit/sec.) but a shorter coverage range. On the plus side, you avoid interference when running 11a and 11b in parallel, because the two LANs use separate frequencies. But Greenfield says it's worth waiting a year for 802.11g-compliant products to gain cross-compatibility with 802.11b.

The shorter transmission range of 8021la "means you'll need many more APs for the same coverage, which will be more expensive," he says. Like 802.11a, 802.11g supports aggregate 54Mbit/sec. speeds but runs in the 2.4-GHz band and was designed for backward compatibility with 802.11b.

Finally, emerging dual- and multimode products "will eventually make upgradability a nonissue," says Mathias. Several enterprise-class vendors offer APs that support 802.11a and a slot for either an 802.11b or 802.11g radio.

Meanwhile, trimode 802.11 b/a/g chip sets recently began shipping, so client adapters and APs that support all WLANs could be available within a year.

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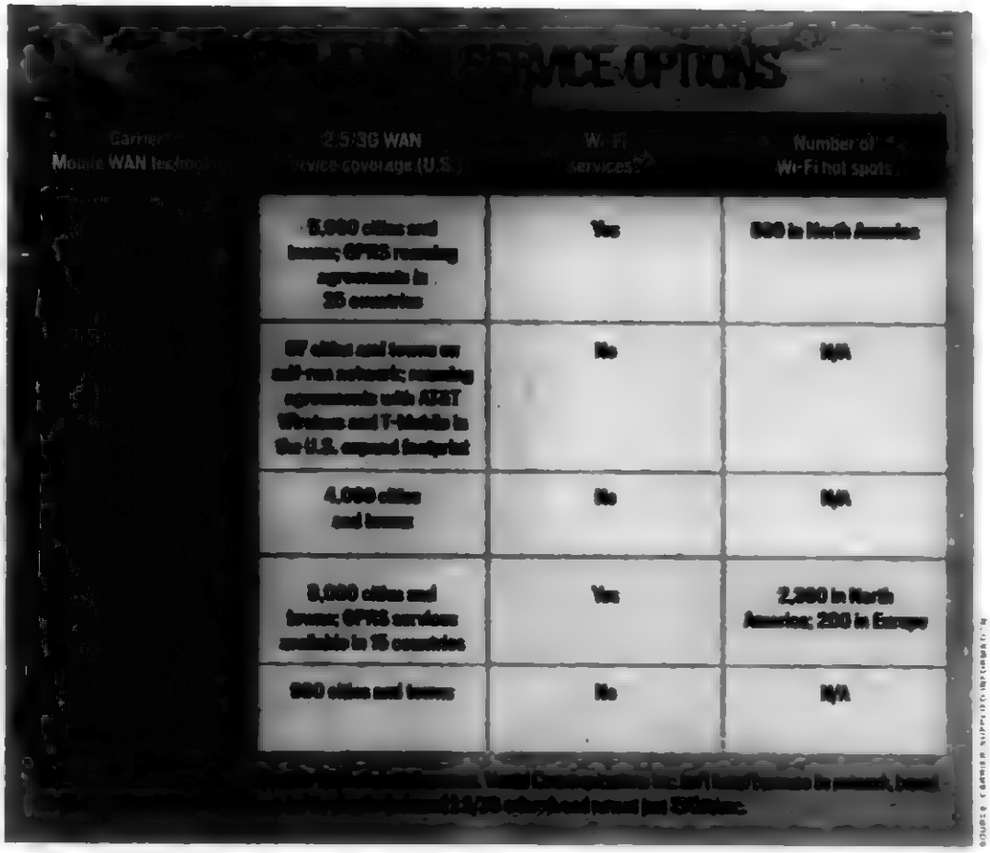

5 What's the best way to manage my radio infrastructure? A wave of new WLAN "switch" architectures from established companies such as Symbol and Proxim Inc., as well as from a bevy of start-ups, aim to ease AP configuration and management in large installations. The idea is to centralize control of a dumb AP infrastructure in a "smart" collapsed-backbone device.

This approach purports to lower the cost of each AP — which adds up in large shops that might require hundreds or thousands of them — and to enable greater scalability and lower operations costs.

But that doesn't mean that if you want a smart AP, you can't get centralized management, too — unless this option blows your budget. For example, Cisco Systems Inc. offers its Wireless LAN Solutions Engine, a data center appliance and CiscoWorks management module that centrally configures and manages up to 500 APs. But Cisco Aironet 1100 and 1200 APs are far from dumb; they run the full complement of Cisco Internetworking Operating System routing software — enabling, for example, wireless virtual LAN (VLAN) support.

Symbol also supports wireless VLANs, but it builds them into its Mobius Axon wireless switch, not into the AP. VLAN profile information is enforced before incoming traffic hits the wired network or outbound traffic is distributed to wireless users.

6 Can I integrate WLANs with other networks? Network nirvana is when users can roam among disparate wired and wireless networks without having to reconfigure settings or reauthenticate. Multimode products are emerging that combine several versions of 802.11, as well as connectivity to 2.5- and 3-generation (2.5/3G) mobile WANs from the licensed carriers. For example, Texas Instruments Inc. in March announced chip sets for PDAs that combine 802.11b, GSM/GPRS and Bluetooth capabilities. NetMotion Wireless Inc. in Seattle has client software for roaming among any type of packet-based wired or wireless LAN or WAN. The software simply detects the most robust network connection available and transparently connects the user to it, keeping VPN sessions intact.

Such internetwork roaming will grow increasingly handy as WLAN-based public services, called Wi-Fi hot spots, continue to sprout up in airports, hotels, malls and other public locations. The licensed 2.5/3G carriers have begun offering 802.11b-based hot-spot services to complement their ubiquitous, but slower, 2.5/3G packet data services (see chart above).

Today's 2.5/3G services provide 20K to 60Kbit/sec. throughput per user, depending on the technology used. So multimegabit-speed Wi-Fi networks, where available, offer a better-performing option.

Wexler is a freelance writer in Campbell, Calif. Contact her at joanie@jwexler.com.

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MOBILE DATA SERVICE OPTIONS

Carrier*/ Mobile WAN technology	2.5/3G WAN service coverage (U.S.)	Wi-Fi services?	Number of Wi-Fi hot spots
	5,000 cities and towns; GPRS roaming agreements in 25 countries	Yes	600 in North America
	57 cities and towns on self-run network; roaming agreements with AT&T Wireless and T-Mobile in the U.S. expand footprint	No	N/A
	4,000 cities and towns	No	N/A
	8,000 cities and towns; GPRS services available in 15 countries	Yes	2,300 in North America; 200 in Europe
	900 cities and towns	No	N/A

* Includes North America's largest mobile WAN wireless licensees. Nextel Communications Inc. isn't listed because its network, based on Motorola Inc.'s iDEN technology, isn't a standards-based 2.5/3G network and runs at just 15Kbit/sec.

5 What's the best way to manage my radio infrastructure? A wave of new WLAN "switch" architectures from established companies such as Symbol and Proxim Inc., as well as from a bevy of start-ups, aim to ease AP configuration and management in large installations. The idea is to centralize control of a dumb AP infrastructure in a "smart" collapsed-backbone device.

This approach purports to lower the cost of each AP — which adds up in large shops that might require hundreds or thousands of them — and to enable greater scalability and lower operations costs.

But that doesn't mean that if you want a smart AP, you can't get centralized management, too — unless this option blows your budget. For example, Cisco Systems Inc. offers its Wireless LAN Solutions Engine, a data center appliance and CiscoWorks management module that centrally configures and manages up to 500 APs. But Cisco Aironet 1100 and 1200 APs are far from dumb; they run the full complement of Cisco Internetworking Operating System routing software — enabling, for example, wireless virtual LAN (VLAN) support.

Symbol also supports wireless VLANs, but it builds them into its Mobius Axon wireless switch, not into the AP. VLAN profile information is enforced before incoming traffic hits the wired network or outbound traffic is distributed to wireless users.

6 Can I integrate WLANs with other networks? Network nirvana is when users can roam among disparate wired and wireless networks without having to reconfigure settings or reauthenticate. Multimode products are emerging that combine several versions of 802.11, as well as connectivity to 2.5- and 3-generation (2.5/3G) mobile WANs from the licensed carriers. For example, Texas Instruments Inc. in March announced chip sets for PDAs that combine 802.11b, GSM/GPRS and Bluetooth capabilities. NetMotion Wireless Inc. in Seattle has client software for roaming among any type of packet-based wired or wireless LAN or WAN. The software simply detects the most robust network connection available and transparently connects the user to it, keeping VPN sessions intact.

Such internetwork roaming will grow increasingly handy as WLAN-based public services, called Wi-Fi hot spots, continue to sprout up in airports, hotels, malls and other public locations. The licensed 2.5/3G carriers have begun offering 802.11b-based hot-spot services to complement their ubiquitous, but slower, 2.5/3G packet data services (see chart above).

Today's 2.5/3G services provide 20K to 60Kbit/sec. throughput per user, depending on the technology used. So multimegabit-speed Wi-Fi networks, where available, offer a better-performing option.

Wexler is a freelance writer in Campbell, Calif. Contact her at joanie@jwexler.com.

THESE MOM AND POP COMPANIES HAVE WATCHED AND LEARNED FROM EARLY WIRELESS ADOPTERS. NOW THEY'RE THE ONES OUT IN FRONT MAKING WIRELESS TECHNOLOGY CONFORM TO THEIR OWN UNIQUE BUSINESS GOALS.

RICH LILLARD

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IT SEEMS LIKE ONLY yesterday that wireless applications were a big deal. Early adopters like Frito-Lay and FedEx were studied and revered; the risks and rewards of their pioneering wireless networks were pondered and analyzed. But you know what they say about pioneers — they're the ones with arrows sticking out of their backs.

Efforts by the FedExes and Frito-Lays of the world deserve to be praised, for they blazed the trail for today's wireless adopters — the smaller companies whose shirts bear no arrow holes. Here we take a look at some of those second-generation adopters to see what prompted them to go wireless, what tools they used and how the projects are working out.

NAPPI DISTRIBUTORS, PORTLAND, MAINE

INDUSTRY: Beverage distribution

REVENUE: $42 million

APPLICATION: Order entry tool from Vermont Information Processing Inc., Colchester, Vt.

BENEFITS: Lets sales force make more customer visits, cuts steps from order process, allows customers to better predict costs and is cheaper than the old telephone system

DRAWBACKS: Doesn't work well near radar

NAPPI'S SALESPEOPLE used to work in a fashion familiar to all 20th century road warriors: They would visit a customer, such as a liquor store in Kittery, Maine, write down order information, then call the orders in from a mobile phone or pay phone.

Back at headquarters in Portland, a representative would take the orders, enter them into Nappi's back-office systems (which run on an IBM AS/400) and print them out. Warehouse pickers used the printouts to fill orders for the next day's shipments.

As familiar as the process was, there was much that could go wrong. For starters, it wasn't unusual for Nappi's sales reps to overwhelm headquarters with calls. This resulted in lots of waiting around, which meant salespeople either cooled their heels at pay phones rather than hitting the road and visiting other customers or sat on hold on cell phones to the tune of 6.5 cents per minute. And those minutes added up for a relatively small business.

One day, a frustrated sales rep came into the office of Peter Paglio, Nappi's IT director, and said he had heard that another distributor in the area was using wireless computers to enter orders. "He was kind of a big talker, so I wasn't sure he was telling me the truth at first," Paglio says. "But he had a number for [Vermont Information Processing], so I checked it out."

Like many of the companies favored by second-generation wireless adopters, Vermont Information Processing is highly specialized: Its products and services are for beverage wholesalers. This niche approach makes sense, according to Gartner Inc. analyst Phillip Redman.

"To make wireless cost-effective, the vendors have got to know an awful lot about their clients' business processes," Redman says. "That's why you see so many adopters skipping a Microsoft or an IBM and going instead to specialist [vendor] companies in areas like transportation and warehousing."

Paglio says his first move was to make sure Nappi's sales territory was served by a carrier using the Cellular Digital Packet Data specification, which allows IP traffic to run on top of analog phone service. Nappi was in luck: AT&T Corp. offered the specification in "99.9% of our territory," Paglio says.

The distributor uses Symbol Technologies Inc. 1733 handheld devices with bar code scanners running the Palm OS operating system. The handhelds communicate with headquarters over the AT&T phone network at 9.6Kbit/sec.; Vermont Information Processing is tweaking its software to nearly triple that speed.

Sales reps now key in orders on the fly and send them straight to Nappi's IBM AS/400, where the next day's loads and schedules are determined automatically and sent to the warehouse for picking. Sales reps no longer call from pay phones, and office workers don't spend time keying in orders.

Paglio says the wireless system costs Nappi $800 per month to support all 32 of its sales reps; previously, the company paid $600 per month for 15 cell phones, plus toll calls from pay phones for the salespeople who didn't have phones of their own.

According to Paglio, the system has just a few drawbacks. "It goes wacky around radar" like that in use in airports and a local Naval base, he says. And some sales reps aren't crazy about a recent upgrade that offers more features but is harder to learn.

OLD DOMINION FREIGHT LINE INC., THOMASVILLE, N.C.

INDUSTRY: Transportation

REVENUE: $566.5 million

APPLICATION: Homegrown route-planning system for drivers

BENEFITS: Better service at loading docks, increased efficiency

DRAWBACKS: Drivers may have "Big Brother syndrome"

IS GETTING A STATUS BOOST over competitors sufficient reason to deploy a $3 million wireless application?

Actually, that's an exaggeration. Old Dominion has garnered numerous benefits from its 1,000 Symbol Technologies handhelds, including increased customer satisfaction, improved driver efficiency and a decrease in loading errors, says senior application development manager Barry Craver. He describes Old Dominion as a "super-regional" carrier, meaning that although the bulk of the company's freight is hauled in the Southeast, it has outposts nationwide.

But according to Craver, simply being equipped with real-time communication tools has increased the status of Old Dominion's drivers when they arrive at their stops. And that alone boosts efficiency.

"The service centers and shippers know which [trucking] lines have computers," Craver says. "That makes a difference — we've been bumped up in some places." That bump means less waiting in line, which translates into more stops per day.

The reason: When a trucker without a computer complains to his dispatcher that he's being forced to wait for service or a delivery, it's his word against the shipper's.

On the other hand, drivers with handhelds can prove where they are and how long, to the second, they've been idle. The end result for Old Dominion is less waiting around and more stops per driver per day.

The company used Microsoft Embedded Visual Basic to develop its own applications for the Symbol devices, which run Windows CE 3.0.

When it came to navigating the crazy quilt of U.S. wireless networks, Old Dominion turned to Aether Systems Inc. The Owings Mills, Md.-based vendor offers middleware and services

ON THE HEELS OF THE PIONEERS

that let companies outsource all or part of their wireless needs.

For example, while Old Dominion's application sends and receives transmissions between trucks and headquarters, Aether manages connections to the various wireless providers and is the entity billed by those providers.

In addition, Aether manages the overnight synchronization of drivers' handhelds. This saves money; Old Dominion uses the proprietary Ardis network from Reston, Va.-based Motient Corp., which charges by the character. The idea is to use real-time communication only where it adds value, as in proof-of-delivery messages.

Old Dominion is deploying another 1,000 handhelds, but don't expect all of its drivers to applaud.

In an unexpected benefit, the company has noticed a reduction in miles between stops among wireless-equipped truckers.

"We think maybe they got more efficient because there's a little more accountability there," Craver says.

Craver acknowledges that some drivers may resent the system's vigilant tracking of their whereabouts. However, office workers have grown accustomed to having their Internet use monitored by their employer, Craver says, and in the same way, he believes all Old Dominion truckers will accept the system over time.

THE F.A. BARTLETT TREE EXPERT CO., STAMFORD, CONN.

INDUSTRY: Landscaping

REVENUE: $120 million

APPLICATION: Mobile CRM tool for arborists, developed by in-house staff and SharpHat Inc. in Englewood Cliffs, N.J.

BENEFITS: Faster quotes for customers, competitive edge over smaller competitors

DRAWBACKS: No real-time communication yet, tough culture change for veteran employees

SOME COMPANIES DEPLOY mobile and wireless applications in an effort to emulate larger competitors. F.A. Bartlett did the reverse, using its relatively large size and budget to create an application few competitors could hope to match.

With nearly 100 offices throughout the U.S. and the U.K., F.A. Bartlett is a relative giant in an industry composed almost entirely of mom and pop operations. But in early 2001, the landscaping company determined that it wasn't capitalizing on its size.

Standard processes were few and far between. In particular, the price quotes prepared by sales staffers (called arborists) were "all over the place," according to David Andry, the company's vice president of IT.

Most arborists took notes by hand when visiting clients and prospective clients, then handed off those notes — eventually — to an assistant. As much as two weeks might pass between the time of a visit and the time a quote was mailed out. That translated to lost revenue as prospects cooled off and met with competitors.

Moreover, the language used by arborists in their quotes varied widely. This meant F.A. Bartlett ran the risk of not meeting widely accepted industry guidelines — in the landscaping industry, terms used to communicate with customers are mandated by the Manchester, N.H.-based Tree Care Industry Association (TCIA). The loosey-goosey way F.A. Bartlett prepared quotes made it impossible for headquarters to be certain that employees were following the rules.

F.A. Bartlett decided to standardize its arborists' work by equipping them with Fujitsu Stylistic LT C500 mobile pen tablet computers. Then it had to develop a software application for customer visits.

"I would have preferred an off-the-shelf application," Andry says, but there was nothing on the market that met company needs.

According to Isaac Ro, an analyst at Boston-based Aberdeen Group Inc., it's just a matter of time before a vendor fills that void.

"The wireless [vendor] companies that are most successful serve an incredibly tight niche," due to the need to understand business processes before building applications, Ro explains.

He points to Oilspace Inc., a New York-based company focused on petroleum trading, and Telispark Inc., an Arlington, Va.-based supply chain specialist, as examples.

F.A. Bartlett pulled together a 10-member committee with representatives from several regions. They drew up a list of desired features and functions, then turned the project over to a team composed of in-house developers and SharpHat representatives.

The application was developed and refined over a one-year period. In late 2001, it was rolled out to F.A. Bartlett's 200 arborists.

Today, arborists turn around quotes not in weeks, but in about three minutes, and their vehicles are equipped with mobile printers. Andry says the ability to present a quote immediately after a consultation has "significantly" increased business.

Moreover, arborists have a number of new tools to help them close sales. A glance at their Fujitsu devices shows them maps of clients' properties and offers a history of services performed, down to individual trees (customer information dating back seven years was loaded into the system).

Arborists can see if customers are current on their accounts. They can offer white papers written by experts at F.A. Bartlett's laboratory in Charlotte, N.C. They're even reminded of the names of clients' kids and pets.

All quotes are presented in TCIA-approved language, ensuring that the company meets industry language standards.

F.A. Bartlett says it spent approximately $1 million on the application, which it predicts will pay for itself in about four years through reduced paperwork costs and increased revenue.

The application isn't perfect, Andry acknowledges. For starters, there is no real-time communication between the mobile devices and headquarters — it was simply too expensive. But Andry says F.A. Bartlett is "absolutely revisiting that," and the company expects to have a pilot in place before the end of this year.

Today, arborists place their handhelds in cradles overnight. Through a Microsoft .Net Web services application, the day's data is replicated to a server at F.A. Bartlett's headquarters. The company uses Windows 2000 and Oracle Corp. database and CRM applications.

The other lesson learned, Andry says, is that persuading longtime arborists to use a modern mobile tool isn't always easy.

"There are so many personalities in this business," he says. "The company as a whole thinks it's great, but it's been a real culture shock for some people."

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

Advertising Supplement

IT Careers: Utility Industry Focuses on Cost-Cutting, Security

Command and control centers. Large-scale integration. Cyber attacks. It's not just the stuff of national defense and homeland security. These three areas, along with intense cost pressures, are the primary focus of information technology efforts across the utility industry. Better than 60% of utility companies experienced cyber attacks in the second half of 2002. The cost pressures are extensive, relying on technology to produce greater efficiency. And the grid generating and transmitting energy is aging. It's a mix that is ripe for technology solutions.

According to Becky Blalock, senior vice president and chief information officer for The Southern Co., these issues are coupled with what lies ahead. She adds to the list wireless networking, the ability to add 60-90,000 customers per year with technology instead of people, and power line carrier technology that will provide high speed Internet to rural areas.

Blalock and Southern have weathered the past two turbulent years continuing to invest in new technology, despite budget cuts, through aggressive negotiations. The $10.55 billion utility based in Atlanta is currently implementing enterprise application integration. The new system, which will be fully operational in 2006, provides real-time energy trading capability while also providing command and control over the supply chain to include everything from warehousing to freight management. As part of the project, a new accounting materials and procurement system will drive down changes to the work-order applications.

"What has been bad for the IT industry (as a whole) has allowed us to continue investing," Blalock says of Southern's strategic application of IT to business issues. "Our per bill cost is among the lowest in the industry. We've brought on systems that help our generation business do a better job of predictive maintenance, to assure we stay up and running. We're looking at systems to help grow our business. For instance, we acquired a gas company that was outsourcing a lot of IT and not very effectively. We're working to improve that."

Critical IT talent has been core to this technology strategy. Blalock is clear that she's looking for people who not only have a good education record, but also people who have proven they are creative and innovative leaders with high ethics. "I tell new hires, congratulations on getting an education, but *keeping* one is the issue," she says. "Every day ha to be a study of the business."

That's why Blalock's staff not only develops technology bu also spends time with field crews on the transmission and distribution side of the business and in power plants learning the generation side of the business. She believes this systemic approach allows Southern's IT group to serve as a breeding ground of business talent.

IT Careers

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Davis Graham & Stubbs LLP
1550 17th Street
Denver, Colorado 80202
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Atlanta, GA 30338

Senior Software Engineer (Charlotte, North Carolina) - Part of core development team responsible for research, design, development, testing, documentation, and maintenance of web-based, object-oriented, banking business applications and distributed object based systems. Will perform data modeling, and database analysis. Will utilize J2EE platform, STRUTS MVC framework, C++, UML modeling, implementation of RUP methodology, Java, SOAP/XML and related design patterns. Will analyze software requirements to determine feasibility of design within time and cost constraints and specifications. Must have Bach. deg., or equiv., with major field of study in Comp. Sc., Eng., Info Sys. or related field AND 5 yrs exp. in job offered, or 5 yrs exp. in a position involving business applications soft. dev. Exp. mentioned may have been obtained concurrently and must include: (i) **5 yrs exp. in distributed object based systems**; (ii) 1 **yr exp. in CORBA**; (iii) 2 yrs exp. **each** in data modeling and data warehousing; (iv) 2 yrs exp. **each** in Java and J2EE, **including one yr exp. deploying EJB ("Enterprise Java Beans") applications on BEA Weblogic platform**; (v) 1 yr exp. in C++; (vi) 1 yr exp. using SOAP/XML; (vii) 1 yr **each** of UML modeling and implementation of RUP methodology; and (viii) 1 yr of exp. in banking applications soft. dev. Must have legal authority to work in U.S. Please send resume to T. Papa (REF: SSE), S1 Corporation, 2815 Coliseum Centre Drive, Charlotte, NC 28217.

GLOBAL DIRECTOR OF INFORMATION TECHNOLOGY - Responsible for directing and coordinating research and development of information technology applications for medical laboratory services provider. Mail resume to Esoterix Inc., Attn: Human Resources, 4509 Freidrich Lane, Bldg 1, Suite 100, Austin, TX 78744.

Engineering Programmer sought to convert engineering specifications and statement of problems to detailed logical flow charts for coding into computer language for developing geo-science programs, and related duties. B.S. in Science or Eng., and related experience required. Send resume to Infologic, Inc., 8701 New Trails Drive, Suite A, The Woodlands, TX 77381.

Multiple positions for IT Co in Plymouth, MN. Prog Analysts/ S'ware Engn with the following skills: Weblogic Server, Oracle Application Server, Oracle 8i, Rational Rose, Java IDE - Visual Cafe, JavaScript and XML (Job Code: REA). Requires Bachelor's/equiv. in Sci/Comp Sci/ Engg or equiv. +1-2 years of Exp. in Job offd. Must refer to Job Code when applying. Ref to Object Solutions (HR) @3025 Harbor Lane, #312, Plymouth, MN 55447-5119. Fax (763) 559-0563. Email: hr@oosolutions.com

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ITCAREERS where the best get better

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst: Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Java, C++ and CORBA also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Seeking individuals to work at various locations throughout the U.S. in following positions: Software Engineers, Programmer Analysts, SAS Data Warehouse Analyst, Tech Project Manager, Quality Assurance Engineers, DBA's and Systems Administrators. We are seeking individuals with any of the following skills: Sybase, Oracle, C++, VC++, Pro*C, FoxPro, SAS, business objects. Apply to: Sagarsoft Inc, 78 Eastern Boulevard, Glastonbury, CT 06033.

Programmers to analyze, design appls using Java, VB, Oracle, SQL Server, ASP, ActiveX, HTML, JavaScript, Lotus 123, etc under Windows OS; write triggers, stored procedures to account for business processes, perform requirement analysis; develop user interface and prepare reports. Require: Bachelor's degree of foreign equiv in CS/Engg.(any branch) & 6 months of exp. in IT. In lieu of BS,2 yrs of academic studies towards a Bachelors plus 2 extra yrs of work exp in IT will be accepted. Travel involved. High salary. Respond to: HR, Radiant Technologies, Inc., 335 Majestic Cove, Alpharetta, GA 30004

Business Systems Analyst: test engg on RGS Suite DMS (CRM), including manual test, test planning, change tracking utilizing StarTeam, authoring & automating test cases w/Rational Rose, & evaluating automation potentials using std tools (WinRunner, Empirix). Requires BS engg, 3 yrs as business analyst or software engineer, including creating test plans. Resumes to: K. Cramer, Reynolds and Reynolds Holding, Inc., P.O. Box 2808, Dayton, OH 45401

Technological Analyst- Analyze office technology infrastructure. Determine user needs versus systems capacity. Research, test, evaluate, & recommend hardware & software. Oversee installation of communications hardware. Provide user support regarding data communication issues. Must have a Bach. Deg. in Comp Science, Math, or a quantitative science,2 yrs. exp in the job offered or in a network admin. occup. & knowledge of DHCP, WINS, & TCP/IP. Send resume to: Rachel Kirsch, Oliver, Wyman & Co., 99 Park Ave., New York, NY 10016. No phone calls/emails.

DBAs to install, administer, upgrade, perform performance tuning & backup /recovery on Oracle/SQL Server databases, Lawson ERP & EDI; manage, administer HP-UX in multi server envir.; design, develop/implement appls using Dev 2000, PL/SQL with Oracle in a client/server envir., write backend stored procedures, packages, triggers and screens using PL/SQL, Forms, Reports. Require: BS or foreign equiv in Buss. Admin/CS/Engg.(any branch) & 2 yrs of exp. in IT. F/T. Travel involved. High salary. Resumes to: HR, Unilinx, Inc., 4625 Alexander Dr., Ste 110, Alpharetta, GA 30022.

Infobahn Technologies delivers innovative IT Solutions to business clients nationwide. We have immediate full time opportunities for Programmer Analysts. All applicants must have a minimum BS in Comp.Sci. Engg. or related field plus 2 years of experience. Send resume to: Infobahn Technologies, (HR) 288 Walnut St. #410, Newton MA 02460.

IT SPECIALIST to provide technical support for computer system users; provide assistance in printing, software installation, word processing, electronic mail, operating systems and database storage, develop and maintain company's web site using JavaScript, ASP, CSS, and DHTML. Require: Bachelor's in Computer Science/Information Systems. Competitive salary and benefits. Mail resume to: Manager, Law Offices of Yong Man, P.C., 3510 Shallowford Rd., Suite 209, Atlanta, GA 30341.

Programmer Analyst for comp. consulting co in Rochelle Park, NJ. Must possess Bach degree in any field & 2 yrs exp in job offered or reltd position. Send resume to: Matrix Information Consulting, 365 W. Passaic St, Rochelle Park, NJ 07662.

Put your message in ITcareers and ITcareers.com and reach the world's best IT talent.

Sr. Software Engineer wanted w/MS in Comp Sci or related fields w/2 yrs exp. Dsgn & dvlp architecture for multi-tier & multi-platform MIS for authentication & authorization backend server using object-oriented technology & various s/ware dvlpmt tools. Candidate should also have exp in dvlpg & debugging high performance distrib apps using various data communication protocols, stds & eqpmt. Send resume to: employment@emeta.com, or mail to: Employment, Emeta Corp. 81 Franklin St., Ste 500, NY, NY 10013

Sr. Database Administrator

Oversees client/server applications, build using Visual Basic & Oracle. Installs, maintains, supports & enhances applications. Req Bach in any field & 2 yrs exp in the job/2 yrs exp as Programmer Analyst. Jobsite: West Greenwich, Rhode Island. Send ad & resume: Yan C. Chong, Amgen Inc., One Amgen Center Dr., Thousand Oaks, CA 91320-1799. Include Ad# 02-449FV.

The Innovative Computing Laboratory (ICL) at the University of Tennessee is seeking a qualified individual for the position of Research Associate II. ICL is an internationally recognized research organization in several areas of high performance computing for the research community.

The successful candidate will conduct research and software development in the areas of efficient mathematical subroutine libraries and performance analysis tools for high performance computing architectures. The job will focus on optimizations for the memory hierarchy and pipelined functional units of superscalar processors and on development of a low-level infrastructure for hardware performance monitoring of parallel programs. The position requires a background in numerical mathematics including linear algebra, as well as in computer architecture, systems-level programming, and parallel programming, and a master's degree in Computer Science or a closely related field. Programming skills should include C, C++, Java, Perl, and Fortran 90, as well as multi-threaded programming and MPI. Knowledge of computer and network security is also required. 40 hrs/wk.

Send cover letter and CV to Dr. Shirley Moore, University of Tennessee, Computer Science Department, 203 Claxton Complex, Knoxville, TN 37996-3450. Ref Code: TN-YH4. Please visit our web site at http://icl.cs.utk.edu/announcements/ra.html for more information. UTK is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

Senior Windows Software Engineer-Play a leading role in designing 32 bit Windows application software using Visual C, Visual Basic, Active X, Open GL, ODBC and Access Database management tools. Research, design and develop computer software systems. Analyze software requirements to determine feasibility of advanced software designs. Consult with engineering and technical staff to evaluate interface between hardware and software. Use GPIB and RS 232 ports. Requirements include a Master's Degree or equivalent in Electrical Engineering or related Engineering field and three years of work experience in the job offered or related field of Windows software design engineering, or in the alternative, a Bachelor's or equivalent in Electrical Engineering or related Engineering field and five years of progressively responsible work experience in the job offered or related field of Windows software design engineering. Applicants must have unrestricted authorization to work in the United States. Salary $67,830/year. 40 hours/wk. Respond with two copies of resume to Case #200201418, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

RHODE ISLAND SUPREME COURT
JUDICIAL TECHNOLOGY CENTER

Senior Oracle DBA

Job Description

- Minimum of FIVE years employment experience as an ORACLE data Base Administrator (DBA)
- Demonstrable competence in Oracle SQL, PL/SQL, Oracle DEVELOPER 2000, Unix Operating System, Windows NT 4.0 Server Operating System
- Requirement of at least a BS in Information Systems, Computer Science or Electrical Engineering and at least 7 years relevant experience as a software engineer, programmer or programmer analyst.
- Experience with the management of database management professionals in a team environment.
- Experience with the development of policy and procedures as they relate to database maintenance, security and archiving.
- Experience with ACS/SCT Banner Courts desirable
- Salary Range: $67,080-77,867

Contact: Tracy E. Williams, Executive Director, RI-JTC
401-222-8360; Fax: 401-222-2870

See www.recruits.com for a full job description.

Lead Developers/Software Engineers needed. Seeking candidates possessing MS/BS or equivalent and relevant work experience. Part of the req. rel. work exp. must include 1 year using Java and Unix. Duties include: Design, develop, implement software systems; analyze software requirements; direct testing procedures. Work with RUP, Rational Rose, J2EE, Together J, Java and Unix. Mail res., ref. and salary req. to: Global Software Development Services, 10 South Fifth Street, #800, Minneapolis, MN 55402.

Sr Database Admin. Design, analyze, test, maintain & improve logical & physical databases. Responsible for backup, recovery & tuning of databases. Calculate optimum values for database parameters & system analysis. Use Oracle, SQL server, &/or related skills. Req 4 yrs exp in job/4 yrs exp as Systems Analyst & Consultant or Asst. Syst. Anal. Or Sr. Programmer & Programmer Jobsite: West Greenwich, Rhode Island. Send ad & resume: Yan C. Chong, Amgen Inc., One Amgen Center Dr., Thousand Oaks, CA 91320-1799. Include Ad# 02-412FV.

Software Engineer II: resp for using MS Visual C++ & cross-platform compatibility tools to design, code, test & doc't new & existing s/ware for Windows NT/XP & Solaris op syst. Work as member of tech eng'g team; engage in prod planning, design & testing activities; prepare detailed designs w/object-oriented s/ware devel techs, measure & analyze syst performance capabilities; participate defining s/ware design specs & syst parameters; code & debug s/ware modules from design & syst eng'g specs; & recommend eng'g solutions to complex hardware/s/ware issues involving interface design, syst eng'g & overall syst arch. Make tech presentations. Min req'ts: B.S. in Comp Eng'g, Elec Eng'g or rel eng'g discipline plus 2 yrs exp in job offered or in related s/ware devel pos or related occupation resp for s/ware testing, design & coding. Knowledge of C++, UNIX & NT op systems & object-oriented s/ware devel tools & techniques req'd. Must have unrestricted authorization to work in U.S. M-F, 8:30-5:30, 40+ hrs/wk. Salary: $67,000-$80,000. An EOE. Send 2 copies of resume to Case # 200201387, Labor Exchange Office, 19 Stanford St., 1st Fl. Boston, MA 02114.

Software Engineer (multiple openings). Job site: Industry, CA. Send resume to Attn: Charles Holms, Recruiting Specialist, Mitutoyo America, 965 Corporate Bl., Aurora, IL 60504. No phone calls please.

Programmer Analyst/Software Engineers needed. Seeking candidates possessing BS or equivalent and relevant work experience. Part of the req. rel. work exp. must include 3 yrs. using COOL GEN/IEF, DB2 and COBOL. Duties include: Design, develop software applications, analyze application support, plan, test and maintain systems. Work with DB2, REXX, IMSYNC, COBOL and COOL GEN/IEF. Mail res., ref. and salary req. to: Global Software Development Services, 10 South Fifth Street, #800, Minneapolis, MN 55402.

Bing Group is looking for quality/system analyst, programmers. We require at least Bachelor degree. Responsible for system analysis and system / IT project quality assurance, using JavaScript, ColdFusion, Dream Weaver. Please send resumes to: larson@binggroup.com. EOE.

Programmer/Systems Analysts, Software Engineers and IT professionals wanted by Software Associates. Candidates must have BS. Exp. of Oracle, VB, SQL, Java, C/C++ is a plus. We are small but growing. Please email your resume to: info@softwareassociate.com. EOE.

Prog. Analyst: Assist in planning, developing, testing & Doc. S/W progs in SAP R/3 ABAP/4 for Interfaces, Conversions & Enhancements & using C++ & Oracle. Reqd: Bachelors in Comp. Sci., Comp. Engg. or Elect. Engg. 40hr-wk. Job/Intv Site: Oakbrook, IL. Send resumes to: Futuretech Consultants LLC, 1415 W 22nd St., Towerfloor, Oakbrook, IL 60523.

Software Specialist II. Analyze & validates system requirements for proprietary software applications developed for intranet presentations using web-based technologies such as Websphere Application Developer, JAVA, Hypertext Markup Language, Extensible Markup Language, & JSP Perform architectural design activities including installation & maintenance of servers & reviewing of application design processes, conduct necessary coding & data conversion activities, create graphical user interfaces, conduct performance testing, & provide technical support to ensure that systems & customer requirements are met. Identify potential problems with application systems performance, file structures, databases & systems integration, & mentor Information Systems personnel & users on use of applicable technologies. BS in Computer Science, Eng., Math, related field, or equivalent as determined by a foreign credentials evaluation service, & 2 yrs exp in job offered or related occupation. Exp. must include use of object-oriented technologies such as JAVA, Websphere, AS/400 & JSP in a web-based environment. Applicant must be bondable & drug screening required. 40 hrs/wk., $62,400/yr. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 215 Watson Powell Jr Way, #100, Des Moines, Iowa 50309-1727. Please refer to Job Order #A1101727. Employer paid advertisement.

Computer Graphics Specialists needed for video game development company in Chicago, IL, to develop computer graphics animation. Use 3D graphics software to design/edit integrated videos, animations, stills, images, textures, plug-ins and special effects with computer graphics applications. Requires Bachelor's degree in Computer Art or Graphics Design with coursework in key frame animation. Mail resume and demo reel to Nicholas Emrich, Studio Gigante, Inc., 1327 West Washington Blvd., Chicago, IL 60607, referencing job code CGS. EOE.

Prog/Analysts to analyze, design/oprmentain B2B appls in client server env using Java, Servlets, Java Beans, JHTML, JScript, VBScript, JDBC, Apache, ATG Dynamo, Oracle, etc under UNIX/Windows OS, design/develop Java applets, run batch process to generate reports, perform code development, quality control testing and performance tuning. Require B.S. or foreign equiv in CS/Engg (any branch) & 2yrs of exp in IT F/T. Travel involved. Comp. Salary. Respond to HR, Opal Soft, Inc. 3150 Almaden Expy, Ste 205, San Jose, CA 95118.

Ventun seeks DB App. Engr. for Kirkland, WA office. DESC: Prov. on site comp. sys. consulting to max. info. sys. capability & efficiency; dsgn, dev, impl, & deploy RDBMS & multi-tiered apps. util. SQL, C/C++/C#, Java, VB, & Win. Construct info. sys. framewrk & architecture to facilitate access to data util. SOAP, XML, XSL/XSLT, & XPath. REQ: BS in Engr, CS, Math, or Physics or equiv. + 5 yrs. exp. dsgn, dev, impl, & deploying RDBMS & appls. util. SQL, C/C++, Java, VB, & Win. Plus 1 yr exp. constructing info. sys. framewrk & architecture to facilitate access to data util. SOAP, XML, XSL/XSLT, & Xpath. Prem. sal. + bonus. Pls. reply to J. King, Job# VT-104, 11255 Kirkland Way, Kirkland, WA 98033.

Software Engineer needed in Bank's J2EE Development Group. Requirements: B.S., expertise in all phases of software development life cycle, and ability demonstrated on the job to design, develop, implement and test the technical components of n-tiered E-commerce applications, using J2EE, Oracle, ODAD, and mainframe connectivity/communication skills. Competitive salary and benefits. Send resume to HR, Webster Bank, 10 Main Street, Bristol, CT 06010 or email Surcinas@websterbank.com. An Equal Opportunity Employer.

Software
Data Conversion Specialist

Data Conversion Specialist, 40-hr wk, 9AM-5PM. Associates or foreign degree equiv in computer science + 2 years in job offered or 2 yrs as Systems Analyst. Provide technical skills to ensure a successful, quick and accurate conversion of data from all systems; provide input to the detailed implementation project plan, provide a channel of communication with implementation and support to representatives; keep specifications current throughout the projects; work with client representatives to determine specifications for data mappings including analyzing source data, writing SQL queries, develop, test and implement automated data conversion routine including programs for extraction, transformation and loading of data to the new database using Visual Basic and SQL or FoxPro. Submit resume to: jobs@campusmgmt.com or Joe Bozzo, HR Director, Campus Management Corp, 777 Yamato Rd. #400, Boca Raton, FL 33431.

Computer Junior Programmer. Collect info to help Sr. Info. Sys. Analyst to install, configure & maintain information systems on WIN server to resolve Net BIOS names in IP address. Asst. technical team for installation, configuration & connectivity w/lease line of 64 KBPS w/ISP to its existing network including Windows NT 4 & Linux Servers. Req: Bachelors in Busn. Admin. w/exp in Info. Sys. 40 hrs/wk. Job/Interview Site: Woodland Hills, CA. Send resume to Technocrat Solutions Inc., 21031 Ventura Blvd., #420, Woodland Hills, CA 91364.

Infogen is seeking IT professionals. Req. BS. Skills in following area are plus. Oracle/9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Travel is required. Send resume to infojobs@infogeninc.com.

Options and Resources is a health care staffing & resources management company, looking for computer programmer analysts, web designers, imaging specialists. Candidates must have BS plus experience. Attractive wage / full benefits. Apply at: cmadson@optionsandresources.com

PROGRAMMER ANALYST

Pharmacy on-line services. Prepare & maint applications for on-line operations. Develop & maint software/hardware systems. Mail-Order Rx and Med. supplies database. Perform preventive maint. Generate reports, invoices & follow-up claims inquiries. Prepare bids & documents for off-site mgmt contracts. Pays competitive salary w/benefits. Req. B.S. in Computer Science & MCSE+2 Yrs exp. Knowledge of FSI & QS/1 systems. Pharmacy Tech Llc pref. Apply w/CV to:

Parkview Med Plz Pharmacy
3975 Jackson St #109
Riverside, CA-92503
email: rameslee@aol.com

Sys/Analysts to analyze, design appls using Java, VB, JScript, VBScript, HTML, Oracle, DB2, ASP under Windows/UNIX OS, responsible for project planning, time & cost schedules, quality of deliverables; study/evaluate new tech/methodologies, provide tech/business guidance for complex user problems, provide methodologies to follow, interact with clients. Require Master's or foreign equiv in CS/Engg(any branch)/Business Admin. High Salary. F/T. Travel involved. Resume to: HR, Salem Associates, Inc., 405, 6th Ave., Ste 102, Des Moines, IA 50309.

Software Design Engineer wanted. Develop software programs including operating systems, applications and/or network products for external use. Develop project plans, functional specifications and schedules for wireless air-interfaces (GPRS, GSM). DSP and multimedia applications. Designs and performs analysis on programs and systems. Bachelor's degree in Science or Engineering and two year related experience required. Send resume to HR, Microcast Corporation, 14205 SE 36th Street, Suite 100, Bellevue, WA 98006.

Deluxe Laboratories, Inc is seeking a Vice President, Information Technology for Hollywood, CA. Candidate will develop and direct IT department which will design and implement security for copyright protection of 35mm commercial feature films to local distributors. Will use knowledge of 35mm commercial feature film distribution platforms and film posting models to direct IT department which will set production schedules to meet distribution scheduling and pricing demands. Will develop, implement and direct IT department of chemical batch manufacturing company which requires real time bar code tracking of raw materials and finished product and SLA production operating ability of 99.9% or greater. Will select all relevant criteria of employees including creating job duties, salary, training and performance criteria and will be responsible for the hiring and firing of employees in IT department. Will direct IT department which will integrate manufacturing computer systems and software to interact with business computer systems and software to ensure that tracking of product, billing, raw material inventory, production schedules and shipping are coordinated in real time. Will develop and implement structure of organization including infrastructure, LAN, networking communications, help desks, applications developments and select appropriate application software in an IDE (Interactive Development Environment) to ensure quality assurance, configuration management and distribution schedules meet required goals. Email resumes to cindy.swavely@deluxelab.com. No phone calls please.

SOFTWARE ENGINEER to design, develop, implement, test and maintain web-based application software using Java, EJB, JSP, Servlets, XML, WebSphere Application Server, ClearCase, Oracle and Visual Age for Java under Windows and UNIX operating systems. Require B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Systems Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, President, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092. Attn: Job SA

Programmer Analysts - Design, Develop and Maintain Enterprise, Web, and Portal applications in Java and/or VB Min Edu-BS in Comp.Sc./Engg or equ, Min Exp - 2 yrs. Job may involve working at various locations throughout the US. Please send resumes to Attn: RR, 1022 East Divide Ave Suite D, City of Bismarck, ND 58501.

SYSTEMS ANALYST to analyze, design, develop, test, implement, maintain and support business critical credit card application software using JCL, COBOL, DB2 File-Aid, VSAM, Xpediter, Intertest, Changeman, ProDB, Platinum Product and Connect Direct on MVS/ESA and OS/390 platforms. Require B.S. degree (or equivalent work experience) in Computer Science/Engineering, or a closely related field with two years of experience in the job offered. Competitive salary offered. Send resume to Sandra A. Ricks, Citibank, Universal Card Services, 8787 Baypine Road, Jacksonville, FL 32256. Attn: Job VJ.

COMPUTERS

V Group, inc. seeks computer professionals local and nationwide. All positions require B.S. or equiv in Comp Sc/Engg/Math/Info Sci with at least 4 yrs exp or M.S. or equiv with at least 2 yrs exp in above field(s) unless specified otherwise.

Software Engineers/Programmer Analysts (Multiple Positions) Research/ design/ develop/ test comp. software systems using C / C++ / Java / Visual Basic / J2EE / EJB / JSP / Servlet / XML / Apache / Tomcat / ASP / .Net / Oracle PL/SQL /EDI / Gentran / Mercator Informatica / Cognos / Business-Objects / Datawarehousing, Web-Logic / WebSphere. AS 400

Database Administrators (Multiple Positions) Create, Maintain, Monitor, Migrate Databases. Backup & Recovery tuning. Experience in DB2 / Sybase / Oracle / PeopleSoft / Oracle Apps / SAP base apps.

ERP / CRM (Multiple Positions) PeopleSoft, Oracle Financials, Siebel, SAP, Clarify

Network / Unix Administrators (Multiple Positions) Win NT/2000/ XP (Proxy Exchange DNS, DHCP, IIS, WINS, RAS, LDAP) Solaris, AIX, HP-UX. Install configure Cisco / 3Com Router Switch, Hubs, Ethernet, VPN, ISDN, Frame Relay, Firewall, Shell Scripts, Foodgate, iPlanet, NIS+, NFS, ODS, LVM, Veritas

HR Dept
recruiting@vgroup.net
Fax: 877 874 8842
42-C Read's Way
New Castle Corporate Commons
New Castle DE 19720

PROGRAMMER/ANALYST to analyze, design, develop, customize and support application software using Framme, FRS, RFMKT/NUC, RuleBase Builder (FRMKT/RB), Visual Source Safe, Oracle, Crystal Reports, Visual Basic (Active X) and Framme Field View on Windows NT/2000 and UNIX platforms. Require B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092, Attn: Job DB

Software Engineer
Assist in design & development of company's next generation Java-based applications. As part of Workforce Services team, will develop complex Java business projects, which will be deployed as both embedded client software & WEB-server servlets. Position rqrs taking initiative & working w/minimal supervision. Rqrs: BS in CS or a related field or equiv & 1 yr of software product development experience. Also rqrs experience and/or knowledge w/object oriented Java design & implementation utilizing Java Servlets, Java Scripts, & HTML. 8a.-5p. 40 hrs/wk. $76,000/yr. Submit 2 resumes to Case # 200201377, Labor Exchange Office, 19 Stamford St. 1st fl., Boston MA 02114

VALIDATION ANALYST
Validate programs in a FDA regulated environment with the experience of 21 C.F.R. Part 11. Develop test plans, create and execute test scripts and document test results. Develop user acceptance testing, prepare user's manual, validate SOPs. Participate in internal audits. Work with tools: Winrunner, Load Runner, SQA Robot, PL/SQL Triggers. 40 hours/week, 8:00 a.m. to 5:00 p.m., $55,000/year. Bachelor's degree or equivalent in Computer Science. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 300 Iowa Street, Dubuque, IA 52004-0757. Please refer to Job Order 8001101721. Employer paid advertisement.

OH Indus Distrib seeks Database Administrator to coordinate changes to corp databases, create/review SQL scripts & stored procedures, schedule/review jobs & system performance, review backup/recovery strategy, disaster recovery planning, and long range database planning w/Microsoft SQL & Oracle; assist w/database design & modeling, develop models/ designs for data warehouse/data store/data marts, develop incremental and full load processes for data marts; develop data validation processes, plan/implement metadata repositories; perform migration mentor/tutor jr database admin on performance tuning and monitoring of databases. Bachelors in Bus. Admin./Comp. Science (or equiv) and 2 yrs in-job/job related exp req, including exp with Oracle 8.x/7.x, SQL 2000/7.x/6.5, Windows NT and 2000/NT4, IIs 4.0/5.0, Microsoft ASP, MS transaction and cluster server, DHCP/DNS/WINS, T-SQL, Oracle PL/SQL, Erwin, Embercadero, ERStudio. Must be Oracle cert prof (develops 2000 track and 8i DBA track), and Microsoft cert database admin and systems engineer. Resumes (no calls) to HR Dept, One Applied Plaza, Cleveland, OH 44115. EOE

SOFTWARE ENGINEER to design, develop, implement and maintain application software systems and databases using XML, XSL, ASP, JSP, HTML, DHTML, Visual Basic, Oracle Developer, sed, awk and shell scripts under UNIX, SUN Solaris and Windows operating systems. Design and develop stored procedures and triggers. Require M.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, President, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 190, Norcross, GA 30092, Attn: Job BA

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications, analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in WebLogic, WebSphere, ATG Dynamo, XML and JDK. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of WebLogic, WebSphere, ATG Dynamo, XML and JDK. Salary: $73,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5695. Job No. WEB323495

Senior Software Engineer
Senior Software Engineer needed in Birmingham AL., to lead a team of engineers to analyze user's requirement for improving existing systems, design software and/or recommend commercially available software solutions. Position requires 4 years experience working in Java, OO technology on a web based multi-tiered environment, and an MS in computer science or electrical engineering. Prevailing wage and benefits. Send resume to ComFrame Software Corp. at employment@comframe.com or fax to 205/314-3415, or mail to 110 12th Street North, Birmingham, AL 35203

Software Engineer
Develop complex, multi-tiered applications, especially internet applications & to design & troubleshoot at all stages of development. Interact w/customer to understand & deal w/any potential complications or special requirements. In developing application, formulate & develop application design using object oriented analyses & design techniques, develop & deploy design under operating systems UNIX or NT, as well as conduct application engineering & assist customers in writing applications using assorted tools. Some travel may be required. Rqrs: BS in CS, Engineering, or related & 2 yrs exp. in position or related. Also rqrs knowledge in server side Java or C++; knowledge in developing in UNIX or NT, & knowledge in development using object oriented analysis & design techniques. 8:30a.-5:30p, 40 hrs/wk. $80,000/yr. Submit 2 resumes to Case # 200200169, Labor Exchange Office, 19 Stamford St. 1st fl., Boston MA 02114

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Pfizer

ing distributed to the employees, who typically work out of their homes, will also include built-in 802.11b Wi-Fi wireless LAN access points and cards.

Stallard declined to comment about the cost of the broadband installation or the return on investment Pfizer expects. But he said the network should save time for sales reps by speeding up the process of synchronizing CRM data with the company's back-end systems, which chews up an average of two hours per day for workers using dial-up connections, according to Stallard.

In addition, the broadband capabilities will let the remote workers use Web conferencing software on their IBM ThinkPad notebooks to take part in internal meetings that would otherwise require at least two days of travel, Stallard said.

Remote workers reported an average 33% productivity increase as a result of getting broadband connections, according to a recent survey of 865 users that was funded by the AT&T Foundation and released last week by the International Telework Association & Council (ITAC) in Wakefield, Mass.

Tim Kane, president of ITAC and CEO of Kinetic Workplace Inc., a telecommuting consultancy in Pittsburgh, said he doesn't know of any companies that have installed broadband networks on the scale of the one planned by Pfizer.

Pfizer is outsourcing development and management of the broadband network to Norcross, Ga.-based Netifice Communications Inc., which started rolling out technology to Pfizer employees in March. About 600 users are now live, and roughly 1,000 will be added monthly, Netifice said.

Stallard said Pfizer officials decided not to do the work internally because of the complexity of dealing with cable TV and local telephone companies across the U.S.

Because each of those companies has its own variations on modem and router setups, Stallard said, as many as 3,000 different network configuration settings may have to be distributed for installation on the home-office routers. "I could not deal with it," he said.

Greg Davis, vice president of marketing at Netifice, said the company will provide Pfizer workers with VPN client software that supports the triple Data Encryption Standard and is sold by AT&T Corp.'s global network division. Meanwhile, Netifice plans to use routers and remote network management and provisioning software developed by Alameda, Calif.-based Netopia Inc.

AT A GLANCE

Pfizer's Distributed Broadband Network

- **Will provide** cable or DSL lines to almost 80% of the company's 13,000-person sales force.
- **Utilizes** preconfigured routers so self-install time for end users should average 10 minutes.
- **Includes** built-in Wi-Fi access points and cards as part of the network hardware.
- **Is designed** to dramatically reduce the time needed to synchronize CRM data with Pfizer's corporate systems.

Jeff Porter, vice president of marketing at Netopia, said the four- or eight-port routers are being configured to support the type of connection — cable modem or DSL — used by various Pfizer sales reps.

The routers also include an installation wizard that fetches the correct settings for each device from a Netifice-hosted Window NT server running Netopia's Java-based net-Octopus software, Porter said.

Stallard said he doesn't plan to activate the network's Wi-Fi features until Netopia and Netifice develop a way to automatically configure the client cards for individual end users — a task that Porter estimated could be finished this summer.

Some of the 3,000 or so sales employees who initially won't get access to the network are in locations so remote that securing broadband lines for them may be impossible, Stallard said. He added that Pfizer might eventually use satellites to connect the orphaned users to the network.

Continued from page 1

Windows 2003

named Yukon, which will soon go into beta testing.

Exchange Server users have one choice. The only version that can be installed on the new operating system is Exchange 2003, and it's not due until summer.

"I think Microsoft owes it to their customers to ensure backwards compatibility and interoperability for at least five years," said Derek Gee, vice president and director of system architecture and integration at Ameriquest Mortgage Co. in Orange, Calif.

"Another reason Microsoft should support some of their older versions is to maintain customer loyalty," said Steve Sommer, CIO at Hughes, Hubbard & Reed LLP in New York. "There are some big customers that cannot afford to upgrade right now."

Many users are sympathetic to Microsoft's claims that extensive security, Web server and Active Directory improvements affect not only the operating system but also any applications that rely on it. They said they understand why some older applications won't be supported on Windows Server 2003.

"If it's really a major upgrade, then Microsoft can't be expected to make substantial improvements to the product while at the same time bringing along all its old baggage," said Rich Eber, development service director at Hawaiian Electric Co. in Honolulu.

MORE ONLINE

Microsoft officials elaborate on the Windows Server 2003 incompatibility issues.

QuickLink 38231
www.computerworld.com

But if users find that the core Windows server operating system hasn't changed internally as much as Microsoft has portrayed, "there should be a backlash against this lack of support," Eber said.

Neville Teagarden, CIO at Navigant International Inc. in Englewood, Colo., said security has spurred his company to invest time during the past year to get the latest versions of Microsoft software. "My CIO colleagues should be asking themselves whether they can afford the security risks of using older versions of Microsoft products," he said.

Those users who have lagged on upgrades, however, may not be pleased to see that Microsoft won't be supporting older versions of its software on the latest operating system.

"Expecting companies to upgrade everything in their infrastructure to get the features from a single product, in this case Windows 2003, is unrealistic," said Dave Curran, manager of IT at CE Franklin Ltd. in Calgary, Alberta. "This smells of a pure money grab by Microsoft."

Curran said CE Franklin will delay its upgrade to Windows Server 2003 by at least 12 months because of the application compatibility issue. The oil and gas equipment supplier is still running Exchange 5.5 on Windows NT 4.0, and a simultaneous migration would be "too much for us to undertake in a single upgrade," he said.

Alejandro Bombaci, CIO at Empresas Polar, a consumer goods maker and distributor in Caracas, Venezuela, said his company typically migrates the operating system — the "enabler layer" — and then the applications. "Upgrading both at the same time is too risky," he said, although in his case, the upgrades mostly involve non-Microsoft applications.

Most Microsoft server applications will run fine in an environment that has a mix of servers running Windows Server 2003 and Windows Server 2000, said Barry Goffe, group manager of Microsoft's server platform division. Exchange 2000, for instance, can coexist in a Windows Server 2003 environment, as long as it's installed on a server running Windows 2000 with Service Pack 3.

With about 350 code changes in Windows Server affecting Exchange, Microsoft said it decided that customers would be better served if it focused development on Exchange 2003 rather than on updating old versions, so it could take advantage of improvements in Internet Information Server (IIS) 6.0. Exchange 2000 and 2003 rely heavily on IIS for Internet-based protocol services.

But some users are upset by the decision. For example, Rick Weaver, director of technical architecture at Hilton Hotels Corp. in Memphis, said Hilton is running a mix of Exchange 5.5 and 2000 and does slow migrations "because they are extremely painful."

"It would encourage acceptance of the new operating system if the old apps ran on it," Weaver said.

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Business Leads IT

AT A BREAKFAST MEETING at last week's Cutter Consortium Summit 2003 conference, one deep thinker pointed to FedEx's Fred Smith as a CEO who really understands the value of IT. "I remember Fred Smith talking about IT like it was more important than the planes," said Cutter consultant Michael Mah.

Well, yeah. That's because at FedEx, IT *is* more important than the planes. Without its package-tracking systems, FedEx can't charge premium prices for overnight delivery. IT makes the money flow. No wonder Fred Smith understands its value.

And no wonder so many other CEOs don't. Much of the discussion at that breakfast meeting was about how to market IT to other parts of a business (see story, QuickLink 38135). People talked about positioning, about explaining IT's unique situation in the organization, about translating techspeak into boardroomspeak.

Yeah, sure, fine. Think that'll actually convince anyone of IT's value as a core competency at your company?

There's an easy test for what qualifies as a core competency in a business. Are you directly involved in extracting money from customers in exchange for products or services? Then you're core. If not, you're not.

Your CEO knows that. And if IT is core in your business, your CEO knows that too.

But it's probably not. And positioning it and explaining it won't change that situation.

Neither will translating techspeak into boardroomspeak, which has long been a Holy Grail for IT executives. Look, no one in the boardroom *wants* a translation of techspeak — any more than they want translations of salesspeak or logistics-speak or shop-floor-speak.

If you're translating techspeak to boardroomspeak, that means you're going about it wrong. You're bringing technology to the table and trying to explain how it's valuable to the business. That's backward. You should be identifying business needs and then explaining how technology can meet them.

In other words, you should start your thinking with the business, not with the technology.

And to do that, you've got to *know* your business. If you want to start making IT core in your company, you need to know as much about how your company actually builds and moves and sells and collects money for products and services as you know about speeds and feeds and bits and wires.

You need to know your company's business processes inside and out. Not the theory, not the wishful thinking that project specifications get based on, but how it's actually done.

You need to know *why* it's done that way — what was tried and failed, what was never tried because politics or business conditions or lack of the right technology prevented it.

You need to know what can be changed and what's sacrosanct. You need to know where a little change will yield big results. You need to know who will help make that happen.

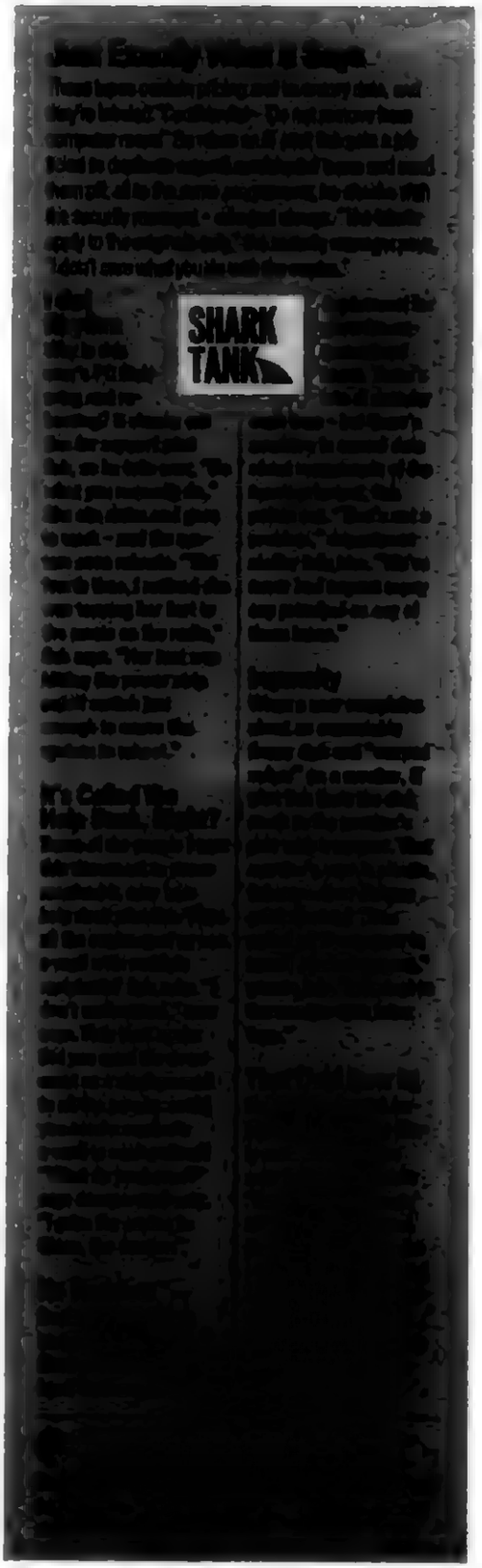
You won't find out any of those things by researching technology. You'll only do it by talking first to business-side executives, then to the managers who work for them. Talk up the opportunity for them to look good, the chance for them to take credit if you can find ways of making their operations more successful.

Then, once they've said yes, stop talking. Observe. Listen. Ask questions. Look for the places where IT really could transform how they do your company's business.

That's how you'll get a shot at proving IT's value as a core competency — through transformation, not marketing.

Sure, you can use marketing techniques to raise IT's profile. You can remind other departments that IT does deliver value. You can make the case for IT's usefulness.

But if you can find a way to make IT as core to your business as it is to FedEx, you can bet your CEO will value IT every bit as much as Fred Smith. ■



Call for Nominations

Is your organization making the most of technology on the cutting edge? We want to hear about it!

Computerworld's Innovative Technology Awards 2003 will honor the industry's top vendors that are helping their customers achieve business value through technology.

Tell us about your successful technology application and nominate your vendor online at **www.computerworld.com/research/innovativetech**

ABOUT THE AWARDS

For the second year, these customer choice awards will spotlight leading vendors and showcase how their customers are using technology to solve business problems in real-world settings. Nominations from IT customers will be collected from now through May 12, 2003. Nominated vendors will be surveyed about their technology applications. A panel of outside experts and Computerworld editors will review the surveys and choose the winners.

Survey results and stories that offer practical advice from IT leaders using these technologies will be published in the September 22, 2003, issue, as well as online at Computerworld.com.

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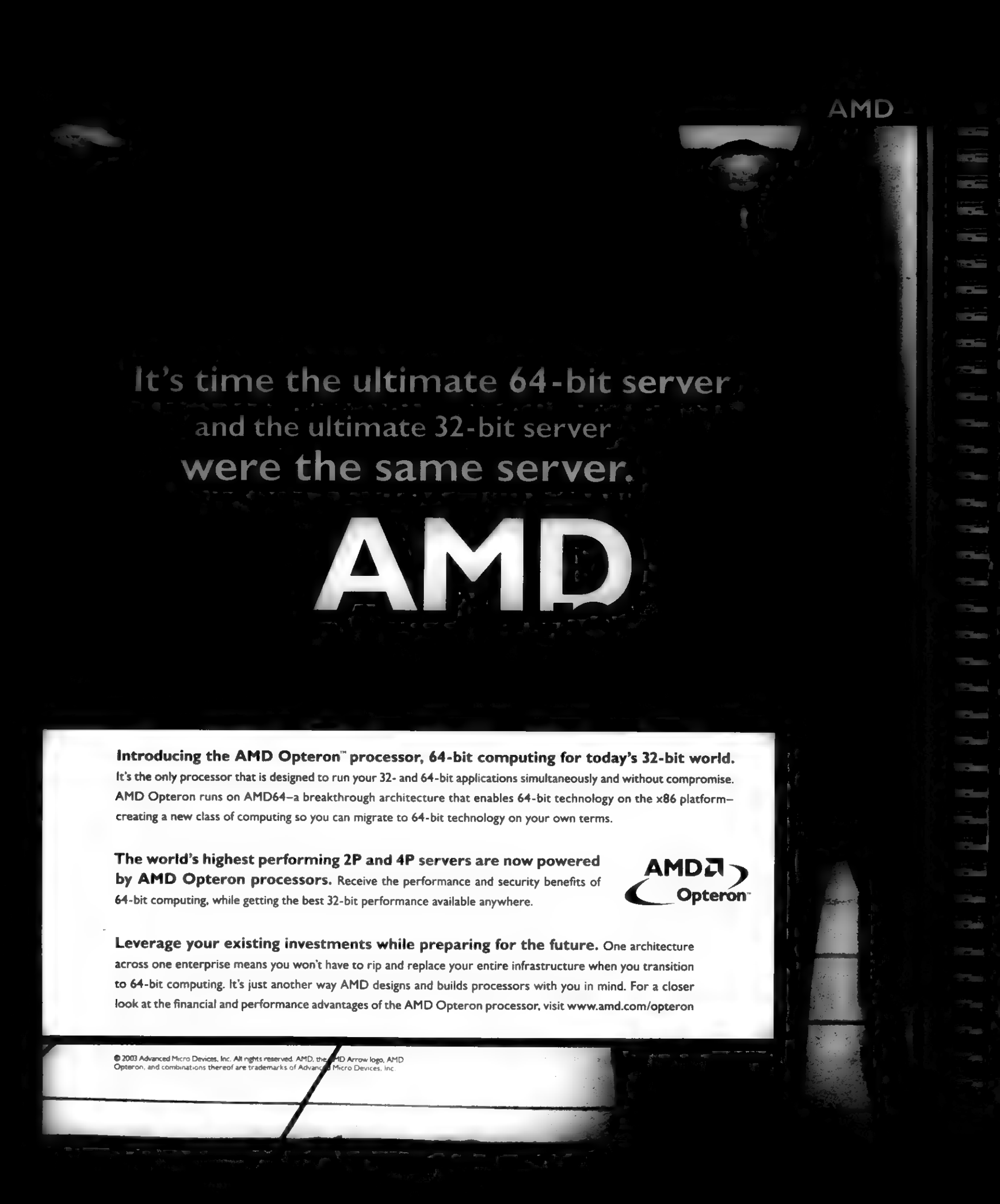
AWARDS

Need More Information?

Contact InnovativeTech@computerworld.com.
But hurry! The nomination deadline is May 12, 2003.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VOL 37
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UMI

Columnist Paul A. Strassmann is back. PAGE 35 Why IT is becoming strategically irrelevant. PAGE 44

COMPUTERWORLD

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MAY 12, 2003 • VOL. 37 • NO. 19 • $5/COPY

TARNISHED IMAGE

DAVID HOLLENBACH

Budget overruns, project failures and lingering resentment over the millions of dollars spent on Y2k are to blame for IT's latest credibility crisis. Some 45% of CIOs acknowledge the problem, which they attribute mostly to IT being too slow and too expensive. To turn things around, IT managers are focusing more on short-term ROI and getting business units more involved in IT planning and decision-making. Page 37

PeopleSoft Plans Technology Blitz To Simplify Apps

Vows to cut installation, integration and upgrade costs, but reveals few specifics

BY MARC L. SONGINI
LAS VEGAS

PeopleSoft Inc. last week outlined an initiative to reduce the cost of installing its business applications, simplify the process of integrating them with other systems and streamline user upgrades of the software.

At PeopleSoft's 2003 Leadership Summit conference here, the company said the plan also includes the development of technologies designed to further automate its software support operations and improve application quality and usability.

Craig Conway, PeopleSoft's president and CEO, said in his keynote speech that the Pleasanton, Calif.-based software vendor plans to spend "hundreds of millions of dollars" on the effort over the next few years. Application projects and other IT operations remain too "people-intensive," he added.

PeopleSoft says it will port all of its software to Linux.

PeopleSoft executives didn't disclose much in the way of specific product plans. But their vow to make application maintenance and upgrades less of a chore struck a chord with Vicki Silvera, director of information systems at Vail Resorts Management Co. in Vail, Colo.

PeopleSoft, page 55

EDS Sinks Under Weight of N/MCI Anchor

Problems with huge Navy intranet project take $334 million toll

BY DAN VERTON

Electronic Data Systems Corp. last week reported a quarterly net loss of $126 million, blaming "problem contracts" and a whopping $334 million pretax loss stemming from difficulties with the multibillion-dollar Navy/Marine Corps Intranet program.

Robert Swan, chief financial officer at EDS, said the two primary causes of the loss associated with the N/MCI contract were lower profit margins on N/MCI seats and deployment delays.

The average N/MCI seat price dropped by 4%, a significant hit resulting from the Navy's decision to place more orders for cheaper N/MCI seats and fewer for higher-priced seats that are configured differently, said Jeffrey Baum, an EDS spokesman. The order therefore fell short of EDS estimates on the number of high-margin seats that the Navy would require.

That shortfall was offset somewhat by a recent improvement in the number of seats deployed and concessions from EDS subcontrac-

N/MCI, page 55

N/MCI: What Went Wrong?

Quarter ended Dec. 31, 2002

- $70M contribution to bottom line

But ...

- Average seat price dropped 4%
- There was a 29% reduction in the number of seats that transitioned to N/MCI

Quarter ended March 31, 2003

- $334M pretax loss

NEWSPAPER

PROQUEST
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WLAN Security Still Vexes IT

Shops need policies to ban rogue access points, IT pros say

BY BOB BREWIN
PALM DESERT, CALIF.

Corporate IT managers continue to grapple with wireless LAN security issues, including the battle against the installation of unauthorized WLAN access points by employees who are unmindful of the risks such links can pose.

That was the theme repeated last week by many attendees at *Computerworld*'s inaugural Mobile & Wireless World conference here. About 200 high-level IT executives attended the event.

Tom Dillon, manager of mobile and wireless technology at Hilton Hotels Corp. in Beverly Hills, Calif., said the manager of a Hilton hotel he recently visited assured him that

WLAN Security, page 14

With 10 servers.

...and/or other countries. The names of actual companies and products mentioned...

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05.12.03

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In the Technology section: Data center automation software can help companies cut administrative costs and improve efficiencies at the heart of the IT infrastructure. But beware of immature software. **Page 25**

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5 **AT&T speeds up** a network expansion in 50 countries in the face of stiff competition in the IP VPN services market.

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Web Site Privacy Seals: Are They Worth It?

E-BUSINESS: You've seen those Truste and BBB privacy logos on Web sites. Should you get one, too? Columnist Jay Cline offers some advice. QuickLink 38298

C# Type Conversions

DEVELOPMENT: Get an overview of possible type conversions in the C# language. QuickLink 38291

Hands On: Using Imaging To Deploy Apple Software

MAC: In his first article for *Computerworld.com*, IT professional and technology writer Ryan Faas explains how to deploy copies of a master disk software image across a large number of Apple computers. QuickLink a3150

Epicenter of the Real-Time Enterprise

SECURITY: Federated identities hold the key to helping companies control growing amounts of information from employees, customers and partners, says Bill Malik, CTO at Waveset Technologies. QuickLink 37586

Designing the Storage Network Backbone

STORAGE: The storage network has come into its own, and more business managers are viewing the technology as a long-term strategic resource, according to Eric Blonda at Sandial Systems. QuickLink 37642

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AT DEADLINE

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HP's 'Adaptive' Strategy Faces Challenging Market

Differentiating plan from those of rivals key for company

BY PATRICK THIBODEAU
SAN JOSE

LAWRENCE LINKENS, vice president of IT at Consolidated Edison Communications Inc., a New York-based telecommunications provider, likes Hewlett-Packard Co. CEO Carly Fiorina's vision for making IT responsive to changing business needs.

"She's hitting the nail on the head," Linkens said of Fiorina's plan, detailed last week, to focus on "adaptive" technologies to reduce the level of IT effort, cost and risk associated with corporate change. But HP faces challenges from IBM, in particular, which has a similar vision, he said.

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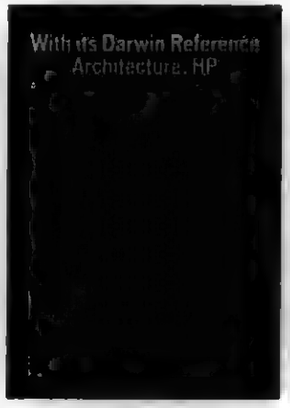
HP, which calls its plan the "adaptive enterprise," last week waved its 1-year-old union with Compaq Computer Corp. as evidence of its ability to quickly adapt to change. As a result of the merger, the combined firms, for instance, cut the number of applications running on internal systems from 7,000 to 5,000. That, together with other efficiencies, reduced IT costs by $3 billion.

Fiorina said companies, whether responding to new federal regulations or to competitive pressures, need simplified, standardized, modularized and integrated architectures. The framework HP is building to address those needs will be anchored by an enterprise architecture strategy called Darwin.

Other IT vendors are working on similar strategies, and differentiating the vendors' offerings from one another will be difficult, said Paul Mason, an analyst at IDC in Framingham, Mass.

HP "can put themselves in a very strong position, and so can IBM, obviously," said Mason. "So it's going to be a matter of who executes best."



Aside from IBM, Sun Microsystems Inc. has developed its N1 strategy for more dynamic enterprise management, and Electronic Data Systems Corp. has its "agile enterprise" framework.

In an announcement last week about the new Power4+ processors on its eServer pSeries line, IBM said it added capacity-on-demand functions that allow companies to pay for processing power as they need it.

One pSeries user, Ed Toben, the CIO at New York-based Colgate-Palmolive Co., said the on-demand feature "has a lot of charm," particularly for the consumer products company, which is growing and often buys hardware in anticipation of future needs. He's interested in IBM's overall on-demand strategy, but "how you get there, how the business model works, the pricing model . . . still need to be worked out," he said.

HP last week also finalized a $3 billion services agreement with Procter & Gamble Co. in Cincinnati. The deal will affect 2,000 P&G employees who have been managing the company's IT infrastructure, data center operations, desktop and other services in 48 countries. They will become HP employees under the agreement.

Filippo Passerini, P&G's global business services officer, said that although he does have a high-level understanding of HP's new enterprise plan, the decision to outsource was based on his company's 15-year relationship with HP.

"I don't think one can ever bank on one particular new solution for a strategic, long-term decision," said Passerini, who nonetheless said he believes that HP's enterprise strategy will add value to the relationship. ◗

Step 1: Hire a Consultant, HP Exec Says

In an interview last week with *Computerworld*'s Patrick Thibodeau, Juergen Rottler, a vice president in HP's services division, discussed the company's enterprise strategy. Excerpts follow.

Your major competitors are also trying to persuade users to go to an on-demand model. Does that make it harder to differentiate HP in the market? Our announcement today isn't about utility computing alone, per se. That's one element within it, [but] there's a broader view that you need to connect business with IT. When you talk about a pure hardware and software vendor, that is more of a risk to you than if you are a broad vendor who has a strong services capability and can basically be the provider of that sourcing solution called utility services.

What's the first step a company should take in adopting the on-demand model? The first thing we tell customers is not to immediately jump to technology. What you want to understand before you invest in anything is your business agility – your ability to respond to changes: how quickly you can respond, how much it costs to respond and what skill sets you need to respond to change. So let us come in and do an assessment with you. It's an investment of $25,000. We will profile your current environment; we will help you identify where you weaknesses and strengths are.

Must companies that adopt your adaptive enterprise strategy also use HP services? Are you locked into outsourcing to HP services? No. Have we created intellectual property and methodologies that we believe are highly pragmatic in terms of helping you move toward an adaptive enterprise? Yes.

Since the merger with Compaq, has HP had difficulty reaching all of its customers to explain its strategy? Customers are very engaged in driving us in this direction. We have done a very good job reaching out to our largest customers. The results that we're getting from our middle customers are actually quite good as well, but they are directly tied to the ongoing sales coverage – either through HP or through our partners. We have revamped a lot of our partnership programs, so whenever you revamp programs, you will find periods where things don't go as smooth as you want. We're seeing strong positive feedback to the new partner model that we have put in place.

Feds, Health Insurers Focus On Sharing Bioterror Data

Plan mock terrorist attacks to evaluate medical community's preparedness

BY DAN VERTON
WASHINGTON

The Department of Homeland Security today plans to begin a five-day exercise to test government and private-sector information-sharing in response to mock terrorist attacks involving weapons of mass destruction.

The White House is billing the exercise, called TopOff 2 (for Top Officials 2), as the most comprehensive terrorism-response exercise ever undertaken in the U.S. It will include 19 federal agencies, the American Red Cross, and officials from Washington, Illinois, the District of Columbia and Canada. The scenario will consist of near-simultaneous mock attacks involving a radiological device in Seattle and the covert release of a biological agent in Chicago.

A key aspect of the exercise will be the ability of state and local officials in the U.S. and Canada to identify medical patients complaining of symptoms that indicate exposure to a biological agent and to communicate that information in a timely manner to other federal and state officials.

The exercise comes as the U.S. health insurance industry nears the completion of a pilot project that aims to create a nationwide data mining, surveillance and information-sharing system for the type of regional health crisis envisioned in TopOff 2.

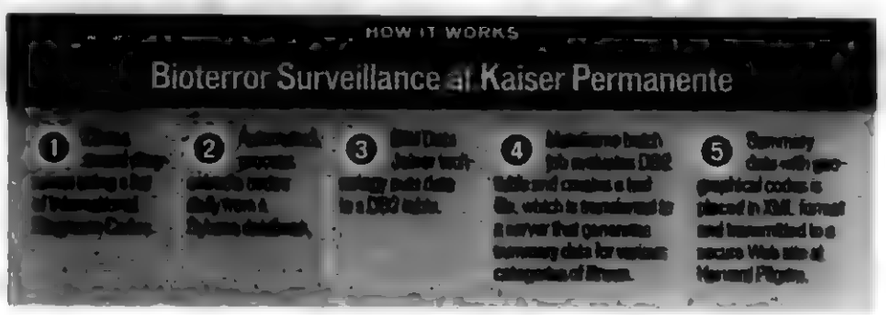
Relying on a mix of private funding and a $1.2 million grant from the Atlanta-based Centers for Disease Control and Prevention, four member organizations of the American Association of Health Plans (AAHP) are testing a national bioterrorism syndromic surveillance system that uses real-time data collected from more than 20 million people in all 50 states. The primary goal of the program is to "develop and implement standards, protocols, infrastructure and analytic tools for detecting and reporting unusual geographic clusters of symptoms or complaints" of acute illness that might indicate that a covert bioterrorism attack has taken place, said AAHP President and CEO Karen Ignagni, during a May 5 House of Representatives hearing.

Dr. Jim Norton, program manager at project participant HealthPartners Inc., said his Bloomington, Minn., organization's mainframe-based research database wasn't timely enough to meet the 24-hour reporting requirement of the surveillance system. As a result, a significant amount of programming was required to pull the data out of the medical operations mainframe, put it into a standard file format, strip out all personally identifying information and assign geographic and demographic codes to each patient.

Transmitting the data to the central server operated by Harvard Pilgrim Health Care Inc. in Wellesley, Mass., remains a 36-hour manual process, he said. Once fully automated, reporting will occur every 24-hours. Pattern-recognition software and trend analysis are also still works in progress, said Norton. Some algorithms have been developed, but officials aren't satisfied with how they handle geographic analysis of outbreaks.

Debra Ritzwoller, clinical research investigator at Kaiser Permanente Colorado in Denver, said daily encounters with patients are scanned for a set of 700 diagnosis codes. That data is then grouped into syndromes and further classified by age, sex and ZIP code.

"We expect to be able to pick up something two or three days sooner with this system than you would by waiting for people to come into emergency rooms," said Norton. "That will be critical to preventing the spread of these diseases."



AT&T Speeds Up Global Rollout of IP VPN Services

Carrier establishes consulting team, plans network links in 50-plus countries

BY MATT HAMBLEN

AT&T Corp. last week outlined plans to expand its IP virtual private network (VPN) services globally, partly by accelerating an ongoing installation of technology based on the Multiprotocol Label Switching (MPLS) standard.

AT&T is speeding up a rollout of 150 MPLS-based network points of presence in more than 50 countries this year, said Mike Jenner, the company's vice president of global IP network services. In addition, AT&T has formed a 500-person VPN integration consulting team and has made it possible for customers to order VPN setups and other managed Internet services electronically, Jenner said.

The move comes as AT&T readies itself for a market-share battle with Baby Bell companies and other network service providers that offer IP VPN capabilities, said Vijay Bhagavath, an analyst at Forrester Research Inc. in Cambridge, Mass.

"Everybody and his mother has an IP VPN service," Bhagavath said. As a result, AT&T is trying to show that it has the broadest global reach and the most advanced VPN functionality, he explained. VPN offerings that make use of MPLS could provide users with greater scalability and better traffic management capabilities than other approaches do, Bhagavath said.

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

Coverage Considerations

Antonio Lopez, marketing director at HIT Rail BV in Utrecht, Netherlands, said his company in February went live with AT&T's IP VPN service to connect 26 data centers in 15 European countries.

"We picked AT&T because of the network coverage they have in Europe," Lopez said. "Other carriers in Europe don't cover as much area as AT&T, even though they claim they do. We did a careful study."

HIT Rail is jointly owned by 15 railway companies and manages IT projects for them. The IP VPN replaced a private network based on the X.25 protocol and is expected to produce annual savings of 30%, Lopez said. He wouldn't disclose the cost of AT&T's service.

Jenner said AT&T will make it a priority to provide improved VPN provisioning services. The company and its rivals have faced criticism from large users regarding their provisioning capabilities. "In general, customers voice dissatisfaction even with AT&T . . . on provisioning," Jenner said.

Telecommunications carriers like AT&T need to become more knowledgeable about business applications and other technologies, Bhagavath said. "They are very telecom-savvy, but they have to train their people more on CRM, IP and Oracle databases, for example," he said.

Another thing IP VPN customers should monitor is how well carriers work with providers of last-mile communications services, because that's where the majority of network service outages occur, Bhagavath added.

AT DEADLINE

Microsoft Warns of Passport Flaw

Microsoft Corp. said it turned off the password-recovery feature in its Passport user authentication service after being informed of a security flaw that attackers could use to change passwords. By doing so, attackers could access credit card numbers and other personal data, the company said. Microsoft added that it would restore the feature once it finishes developing a fix.

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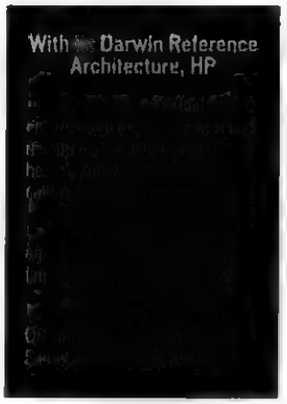
HP "can put themselves in a very strong position, and so can IBM, obviously," said Mason. "So it's going to be a matter of who executes best."



Aside from IBM, Sun Microsystems Inc. has developed its N1 strategy for more dynamic enterprise management, and Electronic Data Systems Corp. has its "agile enterprise" framework.

In an announcement last week about the new Power4+ processors on its eServer pSeries line, IBM said it added capacity-on-demand functions that allow companies to pay for processing power as they need it.

One pSeries user, Ed Toben, the CIO at New York-based Colgate-Palmolive Co., said the on-demand feature "has a lot of charm," particularly for the consumer products company, which is growing and often buys hardware in anticipation of future needs. He's interested in IBM's overall on-demand strategy, but "how you get there, how the business model works, the pricing model . . . still need to be worked out," he said.

HP last week also finalized a $3 billion services agreement with Procter & Gamble Co. in Cincinnati. The deal will affect 2,000 P&G employees who have been managing the company's IT infrastructure, data center operations, desktop and other services in 48 countries. They will become HP employees under the agreement.

Filippo Passerini, P&G's global business services officer, said that although he does have a high-level understanding of HP's new enterprise plan, the decision to outsource was based on his company's 15-year relationship with HP.

"I don't think one can ever bank on one particular new solution for a strategic, long-term decision," said Passerini, who nonetheless said he believes that HP's enterprise strategy will add value to the relationship. ◗

Step 1: Hire a Consultant, HP Exec Says

In an interview last week with *Computerworld*'s Patrick Thibodeau, **Juergen Rottler**, a vice president in HP's services division, discussed the company's enterprise strategy. Excerpts follow:

Your major competitors are also trying to persuade users to go to an on-demand model. Does that make it harder to differentiate HP in the market? Our announcement today isn't about utility computing alone, per se. That's one element within it, [but] there's a broader view that you need to connect business with IT. When you talk about a pure hardware and software vendor, that is more of a risk to you than if you are a broad vendor who has a strong services capability and can basically be the provider of that sourcing solution called utility services.

What's the first step a company should take in adopting the on-demand model? The first thing we tell customers is not to immediately jump to technology. What you want to understand before you invest in anything is your business agility – your ability to respond to changes: how quickly you can respond, how much it costs to respond and what skill sets you need to respond to change. So let us come in and do an assessment with you. It's an investment of $25,000. We will profile your current environment; we will help you identify where you weaknesses and strengths are.

Must companies that adopt your adaptive enterprise strategy also use HP services? Are you locked into outsourcing to HP services? No. Have we created intellectual property and methodologies that we believe are highly pragmatic in terms of helping you move toward an adaptive enterprise? Yes.

Since the merger with Compaq, has HP had difficulty reaching all of its customers to explain its strategy? Customers are very engaged in driving us in this direction. We have done a very good job reaching out to our largest customers. The results that we're getting from our midsize customers are actually quite good as well, but they are directly tied to the ongoing sales coverage – either through HP or through our partners. We have revamped a lot of our partnership programs, so whenever you revamp programs, you will find periods where things don't go as smooth as you want. We're seeing strong positive feedback to the new partner model that we have put in place.

Feds, Health Insurers Focus On Sharing Bioterror Data

Plan mock terrorist attacks to evaluate medical community's preparedness

BY DAN VERTON
WASHINGTON

The Department of Homeland Security today plans to begin a five-day exercise to test government and private-sector information-sharing in response to mock terrorist attacks involving weapons of mass destruction.

The White House is billing the exercise, called TopOff 2 (for Top Officials 2), as the most comprehensive terrorism-response exercise ever undertaken in the U.S. It will include 19 federal agencies, the American Red Cross, and officials from Washington, Illinois, the District of Columbia and Canada. The scenario will consist of near-simultaneous mock attacks involving a radiological device in Seattle and the covert release of a biological agent in Chicago.

A key aspect of the exercise will be the ability of state and local officials in the U.S. and Canada to identify medical patients complaining of symptoms that indicate exposure to a biological agent and to communicate that information in a timely manner to other federal and state officials.

The exercise comes as the U.S. health insurance industry nears the completion of a pilot project that aims to create a nationwide data mining, surveillance and information-sharing system for the type of regional health crisis envisioned in TopOff 2.

Relying on a mix of private funding and a $1.2 million grant from the Atlanta-based Centers for Disease Control and Prevention, four member organizations of the American Association of Health Plans (AAHP) are testing a national bioterrorism syndromic surveillance system that uses real-time data collected from more than 20 million people in all 50 states. The primary goal of the program is to "develop and implement standards, protocols, infrastructure and analytic tools for detecting and reporting unusual geographic clusters of symptoms or complaints" of acute illness that might indicate that a covert bioterrorism attack has taken place, said AAHP President and CEO Karen Ignagni, during a May 5 House of Representatives hearing.

Dr. Jim Norton, program manager at project participant HealthPartners Inc., said his Bloomington, Minn., organization's mainframe-based research database wasn't timely enough to meet the 24-hour reporting requirement of the surveillance system. As a result, a significant amount of programming was required to pull the data out of the medical operations mainframe, put it into a standard file format, strip out all personally identifying information and assign geographic and demographic codes to each patient.

Transmitting the data to the central server operated by Harvard Pilgrim Health Care Inc. in Wellesley, Mass., remains a 36-hour manual process, he said. Once fully automated, reporting will occur every 24 hours. Pattern-recognition software and trend analysis are also still works in progress, said Norton. Some algorithms have been developed, but officials aren't satisfied with how they handle geographic analysis of outbreaks.

Debra Ritzwoller, clinical research investigator at Kaiser Permanente Colorado in Denver, said daily encounters with patients are scanned for a set of 700 diagnosis codes. That data is then grouped into syndromes and further classified by age, sex and ZIP code.

"We expect to be able to pick up something two or three days sooner with this system than you would by waiting for people to come into emergency rooms," said Norton. "That will be critical to preventing the spread of these diseases."

HOW IT WORKS

Bioterror Surveillance at Kaiser Permanente

1. Clinics record diagnoses using a list of International Diagnosis Codes.
2. Automated process extracts codes daily from a Sybase database.
3. IBM Data Joiner technology puts data in a DB2 table.
4. Mainframe batch job evaluates DB2 table and creates a text file, which is transferred to a server that generates summary data for various categories of illness.
5. Summary data with geographical codes is placed in XML format and transmitted to a secure Web site at Harvard Pilgrim.

AT&T Speeds Up Global Rollout of IP VPN Services

Carrier establishes consulting team, plans network links in 50-plus countries

BY MATT HAMBLEN

AT&T Corp. last week outlined plans to expand its IP virtual private network (VPN) services globally, partly by accelerating an ongoing installation of technology based on the Multiprotocol Label Switching (MPLS) standard.

AT&T is speeding up a rollout of 150 MPLS-based network points of presence in more than 50 countries this year, said Mike Jenner, the company's vice president of global IP network services. In addition, AT&T has formed a 500-person VPN integration consulting team and has made it possible for customers to order VPN setups and other managed Internet services electronically, Jenner said.

The move comes as AT&T readies itself for a market-share battle with Baby Bell companies and other network service providers that offer IP VPN capabilities, said Vijay Bhagavath, an analyst at Forrester Research Inc. in Cambridge, Mass.

"Everybody and his mother has an IP VPN service," Bhagavath said. As a result, AT&T is trying to show that it has the broadest global reach and the most advanced VPN functionality, he explained. VPN offerings that make use of MPLS could provide users with greater scalability and better traffic management capabilities than other approaches do, Bhagavath said.

What to Ask Yourself

Before choosing a VPN service, companies should answer these questions:

- Does the VPN include overseas sites?
- How much network bandwidth do you need?
- Would you be better off with a managed architecture or a build-your-own environment?

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

Coverage Considerations

Antonio Lopez, marketing director at HIT Rail BV in Utrecht, Netherlands, said his company in February went live with AT&T's IP VPN service to connect 26 data centers in 15 European countries.

"We picked AT&T because of the network coverage they have in Europe," Lopez said. "Other carriers in Europe don't cover as much area as AT&T, even though they claim they do. We did a careful study."

HIT Rail is jointly owned by 15 railway companies and manages IT projects for them. The IP VPN replaced a private network based on the X.25 protocol and is expected to produce annual savings of 30%, Lopez said. He wouldn't disclose the cost of AT&T's service.

Jenner said AT&T will make it a priority to provide improved VPN provisioning services. The company and its rivals have faced criticism from large users regarding their provisioning capabilities. "In general, customers voice dissatisfaction even with AT&T . . . on provisioning," Jenner said.

Telecommunications carriers like AT&T need to become more knowledgeable about business applications and other technologies, Bhagavath said. "They are very telecom-savvy, but they have to train their people more on CRM, IP and Oracle databases, for example," he said.

Another thing IP VPN customers should monitor is how well carriers work with providers of last-mile communications services, because that's where the majority of network service outages occur, Bhagavath added.

BRIEFS

Microsoft, HP Demo PC Prototype

At the Windows Hardware Engineering Conference last week in New Orleans, Microsoft Corp. and Hewlett-Packard Co. demonstrated a prototype desktop PC that included a 23-inch flat-panel display and built-in wireless telephony capabilities. HP said the PC, code-named Athena, could be ready as early as next year.

CSC Team Wins Royal Mail Pact

A team of IT services firms led by Computer Sciences Corp. (CSC) said they have signed a 10-year, $2.4 billion outsourcing contract with Royal Mail Group PLC, the U.K. government's mail delivery company. CSC's partners are BT Group PLC in London and Xansa PLC in Hemel Hempstead, England. About 1,735 Royal Mail IT staffers will be transferred to the vendors, with nearly 85% of them shifting to El Segundo, Calif.-based CSC.

Cisco's Profit Up, But Sales Down

Cisco Systems Inc. reported a $967 million profit for its third quarter, which ended April 26. It was up 35% from $729 million a year ago, but revenue dipped 4% from $4.8 billion to $4.6 billion. Cisco CEO John Chambers predicted a similar revenue total for the fourth quarter but said he's slightly more optimistic about the general economy.

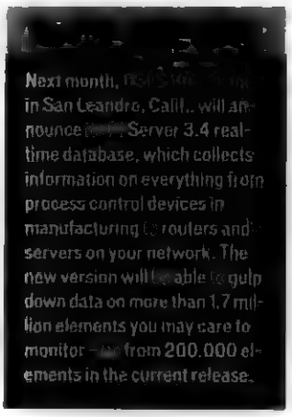
Short Takes

The WORLD WIDE WEB CONSORTIUM released a proposed revision of the SOAP specification for final review. . . . PALM INC. in Milpitas, Calif., said Palm OS-based handheld devices will now be able to use the BlackBerry wireless e-mail software developed by RESEARCH IN MOTION LTD. in Waterloo, Ontario.

MARK HALL ■ ON THE MARK

ASP Turns Financial Corner and Proves . . .

. . . the business model, brags John Ottman, executive vice president of worldwide markets at Corio Inc. **Maybe, maybe not.** Ottman says the San Carlos, Calif.-based application service provider (ASP) had 66% revenue growth in the recent quarter over the same period last year and was **profitable – although it used the popular dot-com EBITDA method** of adding revenue dollars and cents without subtracting all of the company's real-world expenses. Still, it's a good start. It's especially good when you consider that although Corio has only 100 customers, the same as it did about three years ago, these days precious few are dot-bombers. Most of the new customers are outfits we've heard of, like American Express, Pfizer and the U.S. Coast Guard. The ASP's users also include Carlson Companies, one of the largest private companies in the U.S., which counts Radisson Hotels and TGI Friday's restaurants among its holdings. But when CIO Stephen Brown explains why Corio is good for his company, it doesn't, as Ottman would have it, "prove the business model." Rather, it proves that Corio is willing to flex its business model to get and keep customers. According to Brown, **Carlson doesn't use Corio's data center to host its applications** — which the classic ASP business model would require. Instead, it exploits Corio's expertise, leveraging the ASP's technology until it can train its own IT staff on how to run the software. Carlson then co-locates the servers in its own data center in its Minneapolis headquarters. Furthermore, even Ottman acknowledges that the traditional ASP model of demanding that users stick to cookie-cutter versions of an application is out the window. For example, Brown wouldn't have accepted his PeopleSoft application from Corio without substantial rework for Carlson's needs. "We wanted to share in hosting and customization so we would have the skill sets from a process management point of view," he says. Where the classic ASP model does work well, Brown believes, are cases in which his company needs to "get resources by the drink" from Corio, such as an extra server to handle bigger loads. ■ Next month Corio will be serving up another drink to its customers: **a new single-sign-on service with an identity management system.** Users who wander from their computers for too long will be logged off all their open apps. But the single sign-on will dull that pain. *Prosit.* ■ Monitoring application licenses can be as tough as keeping tabs on users' access to them. LANDesk Software Inc. in South Jordan, Utah, has for years been helping IT shops comply with software licenses, as well as manage the deployment of software across the network, with its LANDesk Management Suite. Following today's announcement (see below), Version 7 will hit the streets May 15 with **support for Mac OS X clients and servers.** With its profile-migration capabilities, application settings for the latest versions of Microsoft Office, Outlook and Internet Explorer will be maintained in Version 7. Lotus Notes profile migration will come in July. ■ Now that you're in license compliance for all your software, it's time to assure that you're **in policy compliance with regulations such as HIPAA.** One of the first out of the gate for that will be SecurityProfiling Inc. in Lafayette, Ind. CTO Brett Oliphant says you can expect the company's Policy Compliance product sometime this summer. SecurityProfiling plans to ship Version 2 of its Intelligent IDS next month. Oliphant claims that intrusion-detection systems (IDS) often identify up to **90% false positives, making these security packages essentially useless,** since systems administrators cease taking the tools seriously. The new release, which will feature an improved user interface management console, will sort through every suspect packet using Snort, an open-source IDS, and compare those packets against your application portfolio. At least then you can eliminate all those potential breaches of no consequence to your network and maybe **take your IDS seriously for once.** ◗



Next month, [redacted] in San Leandro, Calif., will announce [redacted] Server 3.4 real-time database, which collects information on everything from process control devices in manufacturing to routers and servers on your network. The new version will be able to gulp down data on more than 1.7 million elements you may care to monitor — up from 200,000 elements in the current release.

LANDesk Eases Hardware Upgrade Pains

BY MATT HAMBLEN

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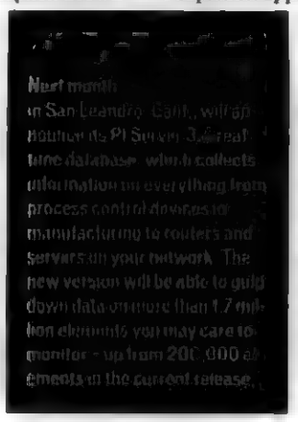

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From his desk at TrendLabs Los Angeles, Joseph Miller, Ph... joins a team of antivirus experts working worldwide to uncover data security answers enterprise-wide.

Event-Driven Architecture Poised for Wide Adoption

Complex event processing the 'next big thing' after Web services, says Gartner

BY CAROL SLIWA
LOS ANGELES

JUST AS MANY IT shops are starting to get their arms around the service-oriented architecture (SOA) approach now that Web services standards are emerging, there's already a "next big thing" on the development horizon, according to Gartner Inc.

Four years from now, "mere mortals" will begin to adopt an event-driven architecture (EDA) for the sort of complex event processing that has been attempted only by software gurus building operating systems or systems management tools, and sophisticated developers at financial institutions, predicted Roy Schulte, an analyst at Stamford, Conn.-based Gartner, which held its Web Services and Application Conference here last week.

Fortunately for IT shops, the EDA approach is complementary to SOA, which forward-thinking IT shops are starting to employ in greater numbers as they forge ahead with Web services. Taking an SOA-based approach, developers build an application by assembling "services," or software components that define reusable business functions.

One of the main advantages of the SOA approach is that by building standards-based interfaces between components, developers can incrementally construct applications and swap out, reuse and modify components without having to concern themselves with their inner workings. Those who build Web services typically describe the interfaces using the Web Services Definition Language and send XML-based messages between components using SOAP over HTTP.

But Schulte said connecting services occurs in a linear, predictable sequence, whereas an event-driven architecture allows for multiple, less predictable, asynchronous events to happen in parallel and trigger a single action.

Simple event-driven processing has been in common use for at least 10 years with technology such as IBM's or Tibco Software Inc.'s message-oriented middleware and, in the past few years, message-driven Enterprise JavaBeans, he noted.

But Schulte predicted that complex event processing (CEP) will start to become mainstream in 2007, as application developers and systems and business analysts strive to do more business in real time. Paving the way for the trend will be faster networks, the arrival of general-purpose event management software tools and the emergence of standards for event processing beginning in 2005, he said.

Hints that CEP will become mainstream include Palo Alto, Calif.-based Tibco's acquisition of Praja Inc. and IBM's work on event-broker technology, Schulte claimed. "It's obviously the first step for IBM, and the next step will be complex event processing," he said.

David Luckham, a professor of electrical engineering at Stanford University and author of a book on CEP, *The Power of Events*, said the goal of CEP is rather simple: delivering understandable information about what's happening in IT systems. That information, in turn, can be used for a variety of purposes, such as detecting unusual activity, improving security and recognizing advantageous scenarios in CRM and supply-chain systems.

"The events in IT systems contain untapped information. CEP lets you extract it and use it in ways you want to," he said.

Luckham predicted that CEP will start creeping into Web services, middleware and application servers in 2005. By 2008, he foresees the emergence of CEP standards, languages and complex event-pattern search engines. Ubiquity of CEP will come in 2012, he forecasted.

To prepare for EDA, Schulte advised companies to look at their application requirements to see if there are places where they could do simple event processing instead of SOA to design part of an application. Leading-edge companies should also look to implement complex event processing for applications that bring a competitive advantage, he said.

Meanwhile, users who still haven't adopted SOA are trying to sort it all out. "Before you get time to deploy one thing, the next thing's already out," said Vito Iannuzzelli, a senior systems architect at New Jersey Manufacturers Insurance Co. in West Trenton, N.J.

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Service-Oriented Architecture

SERVICE: A software component, or collection of software components, that implements a reusable business function, such as adding a new customer or looking up a customer's account balance.

SOA: An approach for designing and building applications that tie together services, which are defined by their interfaces. The SOA approach has gained favor with companies building Web services interfaces to new and existing applications with the goal of enabling them to interoperate or be combined into new composite applications. An SOA-based application consists of components that supply services and other programs that act as clients, or "consumers," of those services. Because the components are loosely coupled, developers can swap one for another without concern about their inner workings.

SOURCE: GARTNER INC., STAMFORD, CONN.

IT Managers Still Working on SOA

Gartner Inc. may see event-driven architecture as the "next big thing," but plenty of IT managers are still struggling to lay down the foundation for the current one – service-oriented architecture (SOA).

Gartner analyst Daryl Plummer estimates that no more than 30% of IT shops are doing SOA-based development by design, and among that group, less than half are doing it consistently well. But he predicted that 85% will be building applications using SOA concepts five years from now.

"It's too early for us," said Glyn Crocker, e-business applications manager at Shell Oil Products US in Houston. But he said he does see opportunity "to bring quick business value without having to rewrite legacy applications."

Robert McCarlie, a group manager in the e-business group at Royal Bank of Canada in Toronto, said his company is in the "education phase," still figuring out what it might do with Web services. "But the concept of being able to loosely couple legacy applications is quite interesting," he said, even though Web services security is still immature and loose coupling and the "verbosity of XML" cause performance hits.

The SOA concept isn't new, but SOA has become a buzzword now that Web services are hitting the mainstream. Services are exposed to one another through standards-based interfaces, and SOAP is used to send XML-based messages between them. Because components are loosely coupled, developers can easily swap them out and, in theory, gain the benefit of code reuse.

But several IT managers said they won't be holding out high hopes for code reuse. "It's a major culture change because people have to be willing to share and use someone else's code," said David Wei, application development manager at SDG&E, a unit of San Diego-based Sempra Energy.

"It's an ego thing," said Xavier Soosai, a senior manager and IT architect at Farmers Insurance Group of Companies in Los Angeles. He said he would expect no more than 60% reuse – "100% reuse is not realistic." Soosai said Farmers will use the SOA approach "just where it makes sense" and won't replace existing code with new Web services because that would be expensive.

– *Carol Sliwa*

Bank CIO uses up vacation days before end of year

Prior to implementing Nokia Message Protector, CIO Sam Cooke, 42, was robbed of 2–3 weeks per year

"I feel liberated," Sam was heard saying by fellow banking staff as he left the office for a well-earned break. Sam was recently seen in Pisa wearing a very silly hat, and rumor has it he was then off to Venice to count the pigeons at St. Mark's Square. He credits his wanderlust to Nokia. "Before, I was constantly worried about the impact that [illegible] practices would have on the network. I had to have the best protection with slowing down the flow of m We asked Sam what had insp him to install the Nokia solu and he said that he was tire missing out on his annual vac entitlement. "Too much time and too much risk" mea felt he could never get away email and network teams w me to find funding for a comprehensive solution th secure, automatic updates a took less time to manage. end I had to go with their [illegible] dation – it just made to

Features
Secure
Automatic
Updates

Introducing Nokia Message Protector.

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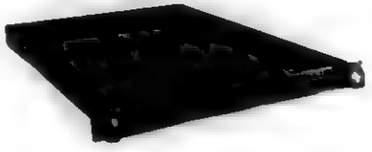

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Survey Points to Continuing Friction Between Business, IT

One-third of polled business execs say they're not satisfied with their IT units

BY THOMAS HOFFMAN

ONE-THIRD of 437 business executives surveyed recently by Forrester Research Inc. said they're dissatisfied with the performance of their IT departments. But some IT managers and analysts last week said the results aren't surprising — and may actually represent an improvement in IT's standing.

The survey, which was released by Cambridge, Mass.-based Forrester last month, also found that dissatisfied business managers are more likely to fight with IT departments for control of technology initiatives. Moreover, the unhappy business executives think that their companies lag others in adopting new technologies and face higher IT project failure rates, said Forrester analyst Meredith Child.

Because this was the first time Forrester posed these questions to business leaders, it's hard to say whether the survey results signal an improvement or a decline in satisfaction with IT. But "if you ran this study in 1995, I bet the numbers might be flipped — that 66% would have been dissatisfied with their IT groups," said Steve Andriole, a senior consultant at Cutter Consortium in Arlington, Mass., and an IT management professor at Villanova University in Pennsylvania.

Since the economy's rapid growth came to a halt in late 2000, IT managers have had to work more closely with business units to cost-justify technology investments, Andriole said. CIOs "have gotten smarter about defending their IT budgets," he added.

Others were a bit more skeptical about the survey results. "This is a subject that goes a lot deeper than some of the simple correlations that [Forrester] built," said Cedric Rhoads, former director of information systems at Matsushita Avionics Systems Corp., a Bothell, Wash.-based company that develops in-flight communications and entertainment systems for the airline industry.

Two months ago, Rhoads became a product manager for a new group that Matsushita Avionics formed two months ago to develop ground-based technologies like passenger

personalization systems. Before that, he helped create an IT steering committee that includes executives from the company's five major business units plus its chief financial and technology officers.

The steering committee is developing a framework for reviewing, funding and tracking IT projects, Rhoads said. Previously, the company's IT department "had a history of working in the background," he noted.

Alignment between business units and IT is an age-old problem, said John Parkinson, chief technologist at Cap Gemini Ernst & Young's Americas division in Chicago. "Why would anybody be surprised by the [survey] results?" Parkinson asked. "This has been a problem for the 25 years I've been in the profession."

One of the challenges is that applications built to support business operations are often rigid and can be "antithetical to agile behavior," Parkinson said. "Businesses like to be able to change directions on a dime."

Parkinson said IT departments should have some of their workers "live" with business units to get a better understanding of their requirements. In addition, IT managers have to be straightforward with business leaders "on what's reasonable to expect from IT projects and what's unreasonable to expect," he said.

MORE THIS ISSUE
CIOs take steps to repair IT's tarnished image. Page 37

Veritas Readies Tools to Support Utility Computing

BY LUCAS MEARIAN
LAS VEGAS

Veritas Software Corp. last week detailed plans to use an upcoming IT cost-allocation tool and technology from two acquisitions as the centerpieces of a product line that can be used to manage computer resources as a utility.

Mountain View, Calif.-based Veritas, which made the announcement at its Vision 2003 user conference here, became the latest IT vendor to target utility, or on-demand, computing. Company officials said Veritas will support storage virtualization, automated hardware provisioning, system-performance management and business-unit chargeback capabilities.

Several conference attendees said tight IT budgets are forcing them to try to do more with less. Management software like the tools promised by Veritas could help make that possible, they added.

Richard Guetzloff, senior director of enterprise systems at R.R. Donnelley & Sons Co. in Chicago, said he has been talking to Veritas since December about the new product suite because he wants to more effectively automate management of about 30 storage-area networks (SAN).

The SANs have a total capacity of 150TB and support about 800 application servers at R.R. Donnelley, which provides printing, content management and distribution services to publishers, retailers and other companies.

Goal: One Day of Training

Guetzloff said his goal is to install a central management console for provisioning IT resources. "I'm really looking at how to make it simpler, so that with a day of training, anyone can do this from an operating perspective," he said.

Until now, Veritas has focused on storage management tools. But earlier this year, the company said it was looking to expand into other IT management technologies, a strategy fueled partly by acquisitions that were announced late last year [QuickLink 36722].

A purchase of Westwood, Mass.-based Precise Software Solutions Inc. that's due to be completed next month will give Veritas new performance management tools. Veritas also is integrating a server provisioning application that it bought in its December acquisition of Sunnyvale, Calif.-based Jareva Technologies Inc.

The acquired products are due to be joined later this year

by Service Manager, an internally developed tool for tracking the use of IT resources.

Dong Jin Kim, a senior SAN architect at Eastman Kodak Co. in Rochester, N.Y., said he's trying to move away from using massive Excel spreadsheets to document Kodak's IT infrastructure. Kim is involved in managing more than 200 Sun Solaris servers, 160-plus Oracle databases and disk arrays from multiple vendors.

"It's becoming a nightmare to track it all," Kim said. He added that he now plans to evaluate Veritas' automated discovery and provisioning software, along with similar products from EMC Corp., IBM and Scotts Valley, Calif.-based InterSAN Inc.

Guetzloff said one thing he likes about Veritas' technology is that it appears to be more "vendor-agnostic" than rival utility computing tools being offered by server and disk array makers.

SWITCH PLANS
Veritas also said it will port some of its software to Cisco and Brocade storage switches.
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Blogs Play a Role in Homeland Security

Make it easy for critical-infrastructure agencies to share info from bottom up

BY DAN VERTON

WEBLOGS, the Internet technology that allows anyone with a browser to publish a personalized online journal, are increasingly being used to support the intelligence-sharing requirements of homeland security efforts.

Providence, R.I.-based Traction Software Inc. today will announce that the Western States Information Network (WSIN) has deployed Traction's TeamPage enterprise weblog software to support law-enforcement task forces that are working on terrorism and drug investigations.

Karen Aumond, assistant director of the WSIN, said a new project called the Advanced Terrorism Information Exchange, which is being expanded to local water departments, fire departments and other critical-infrastructure organizations, will be one of the first initiatives to benefit directly from enterprise weblogs.

"What typically happens is that there is a flurry of e-mails, and everybody is copied on the e-mail," Aumond said. "And they are automatically purged after 60 days if you don't archive them. By doing this [posting e-mails to a weblog], we can forward these e-mails to a central place, and then we can access them from the road. And what's even better, we can search them."

Criminal-intelligence analysts are using TeamPage to create access-controlled weblogs, or blogs, as repositories for research data collected for further analysis. The WSIN watch center in Sacramento, Calif., uses them to share user tips, training schedules and articles that are of interest to law-enforcement task forces.

The enterprise weblog "has all the hallmarks of a disruptive technology," said Greg Lloyd, Traction's cofounder and president. "Unlike ERP hell or groupware hell, where it may take six months just to deploy infrastructure, weblogs that use the standard Web infrastructure can be deployed in 15 minutes."

MORE INFO
Read our QuickStudy about weblogs at
QuickLink 37757
computerworld.com

Many Benefits

Peter Brockmann, vice president of marketing at Irving, Texas-based bTrade Inc., is using a weblog as a marketing tool for the company's business-to-business software. Low cost is only one advantage that blogs have over more traditional and complex collaboration products, he said. "The other tools allow you to do more, but what's nice about a blog is it's real easy. It's highly tuned to allow for rapid publishing," he said.

Blogging is "no-brainer Web technology," Brockmann added. By deploying it, "you save yourself a lot of headaches, heartburn and pain."

Weblogs can also benefit corporate cultures, analysts said. "Knowledge management systems are often so formal and top-down-driven that the normal worker sees no benefit in using them or contributing," said James Gaskin, an IT consultant in Dallas. "Blogs, like e-mail, flatten the hierarchy and let everyone contribute without having to stare down a suit at a meeting or contradict a manager in person."

Sundar Kadayam, chief technology officer at Intelliseek Inc., a Cincinnati firm that develops Web-based intelligent-agent and knowledge-discovery technologies, said blogging applications can add to the problem of information overload if they don't incorporate personalized searching and alert mechanisms — capabilities that Intelliseek is developing. "When those types of capabilities are layered on top of blogging tools, you're going to see the mainstream adoption of weblogs in the enterprise setting," he said. ▶

IM Security Problems Persist

BY JAIKUMAR VIJAYAN

Security problems relating to the unfettered use of consumer chat software on corporate networks are fueling adoption of tougher security measures and more commercial-grade products, users and analysts said.

Ongoing concerns about instant messaging (IM) security were heightened last week by the disclosure of six vulnerabilities in America Online Inc.'s Mirabilis ICQ IM client software. Two of them are particularly dangerous and could allow hackers to gain full administrative control of a victim's computer, according to Ejovi Nuwere, a security engineer at Core Security Technologies Inc., the Boston software company that discovered the flaws.

A spokesman for AOL's ICQ subsidiary acknowledged the flaws in the latest version of ICQ's freely downloadable chat software. But he claimed that only one of the flaws, involving a feature that lets users open Internet e-mails, is dangerous. A fix is in the works, he added.

Sensitive Data at Risk

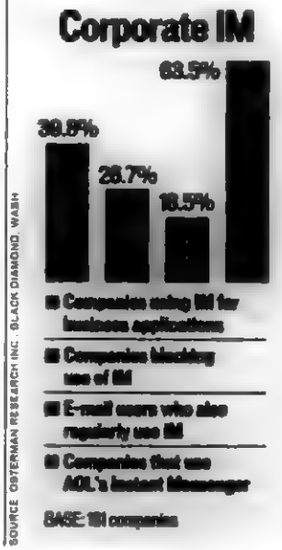
Security analysts have been warning for some time that unchecked use of such software could cause dangerous holes in firewalls, leading to sensitive corporate data being exposed on public networks and files being transferred in an unprotected fashion.

Such concerns are pushing companies to look for new ways of securing IM communications, said Michael Osterman, president of Osterman Research Inc. in Black Diamond, Wash. The firm's twice-yearly surveys have shown adoption of commercial IM products to be growing faster than consumer IM products on corporate networks.

At the same time, public IM products still dominate corporate networks. AOL's Instant Messenger, for instance, is used at 64% of the companies surveyed, Osterman said.

"The good news is that it is easy to detect the use of [consumer] services and to either shut them down or to give users an alternative that is a sanctioned enterprise product," said Dana Gardner, an analyst at The Yankee Group in Boston.

Arlington County, Va., is rolling out Microsoft's Real-Time Communications server software, which will tie into the county's Exchange 2003 and Active Directory environments. It will form the basis of a collaborative infrastructure, where users will be able to carry on secure IM and whiteboard sessions, as well as share applications and files in real time, said Vivek Kundra, the county's director of IT.



The use of consumer IM software is a serious security concern, said Scott Loach, senior information security engineer at Raymond James Financial Inc., a financial services firm in St. Petersburg, Fla.

"We have seen some vulnerabilities [in consumer IM software] that have been exploited," Loach said. The need to comply with regulatory requirements has led to a much closer scrutiny of IM use on corporate networks, he added.

The company plans to ban the use of consumer IM software on its networks, Loach said. New application-level security software from Check Point Software Technologies Ltd. in Redwood City, Calif., will make it possible to shut down consumer chat clients by simply checking a box in the software's administrative interface, he explained. ▶

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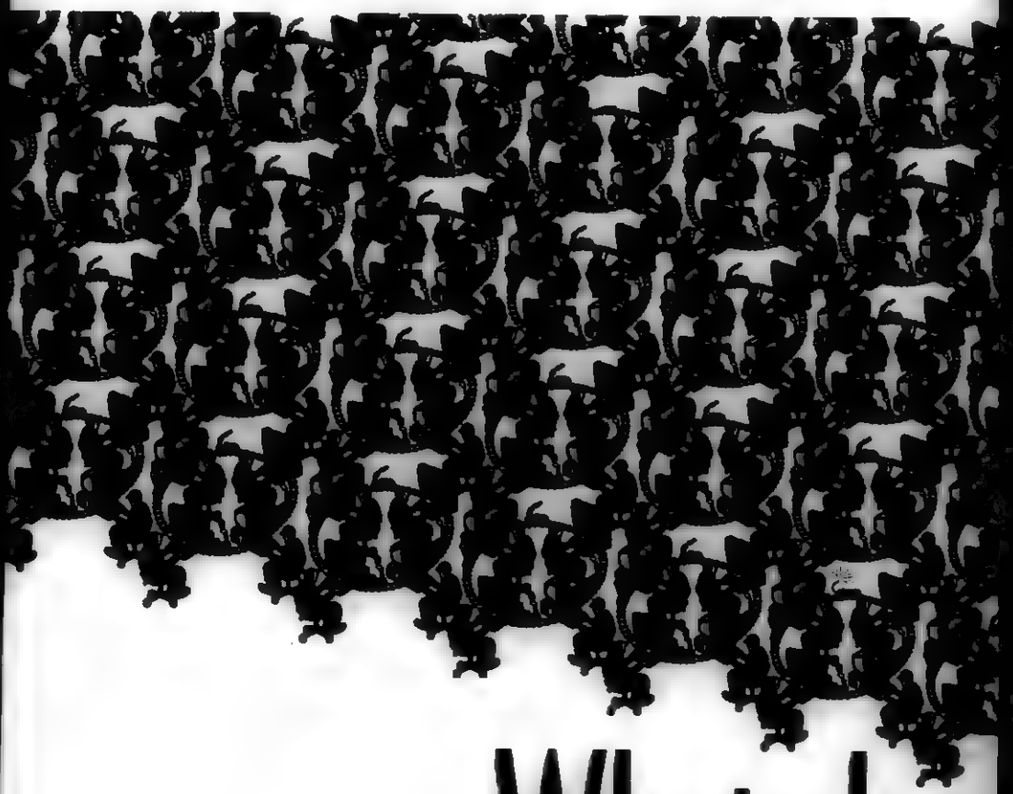

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Air Force Unit Tracks Deliveries Of Parts With Wireless System

IT director says new technology could help logistics center save $15M per year

BY BOB BREWIN
PALM DESERT, CALIF.

THE AIR FORCE Materiel Command's logistics center at Hill Air Force Base in Ogden, Utah, has deployed a wireless parts-tracking system that's expected to save about $15 million annually by cutting the average length of time that parts remain in the repair pipeline from 24 hours to just two.

Mike Neri, the base's IT director, last week said at *Computerworld*'s Mobile & Wireless World conference here that Hill AFB needs to track a massive number of parts. The base moves 86,000 items in and out of 33 warehouses each month, including everything from electronic "black boxes" to landing gear assemblies used on a variety of fighter aircraft.

Although the status of parts can be monitored by a wired inventory system at the base, until the recent wireless rollout, Hill AFB had no way to track the vehicles and drivers that transport hardware from one warehouse to another. In addition, some of the warehouses and repair facilities are located miles apart from one another, according to Neri.

Now the base has deployed a wireless Automated Manifest Tracking System (AMTS) that automatically transmits pickup and delivery information to drivers equipped with cellular phones from Reston, Va.-based Nextel Communications Inc. or mobile computers made by Tokyo-based Toshiba Corp. The system works over a cellular network operated by Overland Park, Kan.-based Sprint PCS Group, Neri said.

Both the Nextel phones and the Toshiba computers have built-in Global Positioning System receivers that automatically transmit the locations of the 30 trucks used to move parts to dispatch centers, Neri said. The mobile devices are also equipped with bar code scanners, which let drivers transmit information to the base's back-end systems about the parts they pick up.

Because IT security is a prime concern for the Air Force, Neri said, the AMTS uses encryption technologies that support the Triple Digital Encryption Standard. Coverage is a concern for some users of wireless networks, but Neri said that isn't an issue at Hill because both Nextel and Sprint rely on cellular towers located on the base.

The increased visibility into the location of repair items — as well as the ability to track and dispatch drivers — has allowed Hill to dramatically reduce the time it takes to move parts through the repair process, Neri said.

It took Hill AFB two years to develop AMTS using IBM's WebSphere Everyplace Access software. Now that the wireless system is running in production mode, Neri said, he expects that it will also be installed at Air Force Materiel Command centers in Georgia and Oklahoma.

IBM, Palm Combine on Mobile Starter Bundle

IBM last week launched a starter version of its WebSphere Everyplace Access software that's packaged with 25 of Palm Inc.'s Tungsten handheld devices, a move designed to let companies test-drive IBM's mobile middleware technology.

Rodney Adkins, general manager of IBM's pervasive computing division, said that the Mobile Office Entry Jumpstart Solution will provide companies with the technology needed to pilot and test mobile applications, such as sales force automation systems.

Adkins said the Jumpstart package will also let companies "start small with mobile applications and then grow over time" and evaluate returns on investment throughout the process.

Although IBM has bundled Palm hardware with the WebSphere tools as part of Jumpstart, the middleware supports a range of mobile devices, including Pocket PCs, smart phones based on operating systems from Microsoft Corp. and phones that use London-based Symbian Ltd.'s software.

The Jumpstart kit will sell for about $80,000, which includes the cost of the Palm hardware, Adkins said.

Jack Gold, an analyst at Meta Group Inc. in Stamford, Conn., said that for Palm, the Jumpstart package represents an opportunity to boost the penetration of its handheld devices into the corporate market.

Until now, most of the handhelds sold by Palm have been bought by individual users, Gold said. "Palm has just not done a very good job of putting together enterprise solutions," he added.

– Bob Brewin

Continued from page 1

WLAN Security

the property's network had only six authorized WLAN APs in operation. Dillon said he fired up network sniffer software to check the actual number of APs — and quickly detected a total of 15.

That example clearly illustrates the continued proliferation of rogue APs, he noted. Dillon said IT managers need to fight back by setting and enforcing strict policies against unauthorized WLAN devices. He also recommended that companies institute tough end-user authentication systems to ensure that only legitimate users can gain access to wireless networks set up to transmit sensitive business information.

In addition, Dillon said companies need to set rules governing the use of WLAN client devices, which can be operated on home or public-access WLAN systems that lack stringent security controls. For example, Hilton now requires that WLAN cards in laptop PCs be disabled when the systems are connected to the company's wired LANs to prevent viruses or Trojan horses from being injected into the networks.

In a similar vein, IT staffers at Sears, Roebuck and Co. have added software to the 10,000 WLAN-equipped notebook PCs distributed to the retailer's field service technicians that blocks them from using public-access hot spots, said Dave Sankey, director of process and technology development at Sears. He added that Sears plans to install private WLAN hot spots at stores and other company facilities so technicians can access training materials.

Growing Concern

The need to better secure WLANs is expected to remain a paramount concern for IT managers as the use of high-speed, over-the-air networks continues to expand. Gartner Inc. in Stamford, Conn., estimates that shipments of WLAN chip sets used in both APs and client devices totaled 18 million units last year and predicts that the figure will hit 50 million by 2006.

Joe Przeporia, an IT manager at agricultural products conglomerate Cargill Inc. in Wayzata, Minn., said the company's numerous business units use such a wide variety of WLAN and fixed wireless technologies "that we are not [yet] equipped to deal with it at a corporate level." But, he added, Cargill has started to develop high-level policies to address WLAN security issues, including rogue APs.

Hewlett-Packard Co. has scrambled to come up with policies governing the use of its wireless networks by visitors to its facilities, said Richard Stone, mobility solutions manager at the vendor's HP Americas division. The rules now subject guest users to the same Internet filtering procedures that are applied to HP employees, Stone said.

Allan Thompson, CEO of Senforce Technologies Inc. in Cupertino, Calif., said his company has developed location-aware security software that automatically configures settings on PCs and mobile devices to prevent hackers or network sniffers from gaining unauthorized access to data when the systems are connected to public-access WLAN hot spots.

MORE ONLINE

A Commerce Department IT manager details a series of wireless trends:
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CRM Apps Take Flight at Aircraft Makers

BY MARC L. SONGINI

Facing gloomy market conditions, large airplane makers like Raytheon Aircraft Co. and The Boeing Co. are rolling out CRM applications in a bid to boost sales and improve their customer service capabilities.

Raytheon Aircraft in November went live with call center, sales and service applications developed by Siebel Systems Inc., said Ed Dolanski, vice president of customer support at the Wichita, Kan.-based maker of business jets and personal planes. About 170 Raytheon employees are using the CRM system.

Prior to the Siebel rollout, there was no formal CRM system in place at Raytheon Aircraft, a subsidiary of Lexington, Mass.-based Raytheon Co. "We identified that we didn't have any type of customer memory, and we cleaned up our act," Dolanski said.

He wouldn't disclose the project's cost but said Raytheon Aircraft has already recovered $1.4 million of its investment through increased sales. The Siebel applications were installed for 13% less than originally budgeted and were in use four weeks ahead of schedule, Dolanski added. Now the company plans to extend the software to its airport service centers so workers there can access relevant information about aircraft owners.

Saving Time and Money

Chicago-based Boeing's commercial aviation services unit is preparing to retire a mix of homegrown Unix and mainframe CRM applications in favor of Siebel's call center software, said Gabe Hanzeli, information systems director for technical services and modifications at the Boeing division.

Hanzeli said the new system will cost several million dollars and is due for a test rollout in the first half of next year. The Siebel software will let Boeing's aircraft support staff access customer data from a single screen, he said.

Hopefully, that will reduce the time it takes to answer questions from customers, Hanzeli noted. Boeing also expects the Siebel rollout to reduce its internal application maintenance costs.

CRM is just starting to gain momentum in the aviation industry, said Sheldon Tkatch, a senior project manager at Garrett Aviation Service Centers, a Tempe, Ariz.-based provider of plane maintenance and modification services. In January 2002, Garrett began using hosted sales and service applications from Salesforce.com Inc. The software has helped Garrett become more proactive in tracking sales opportunities and contacting customers, Tkatch said.

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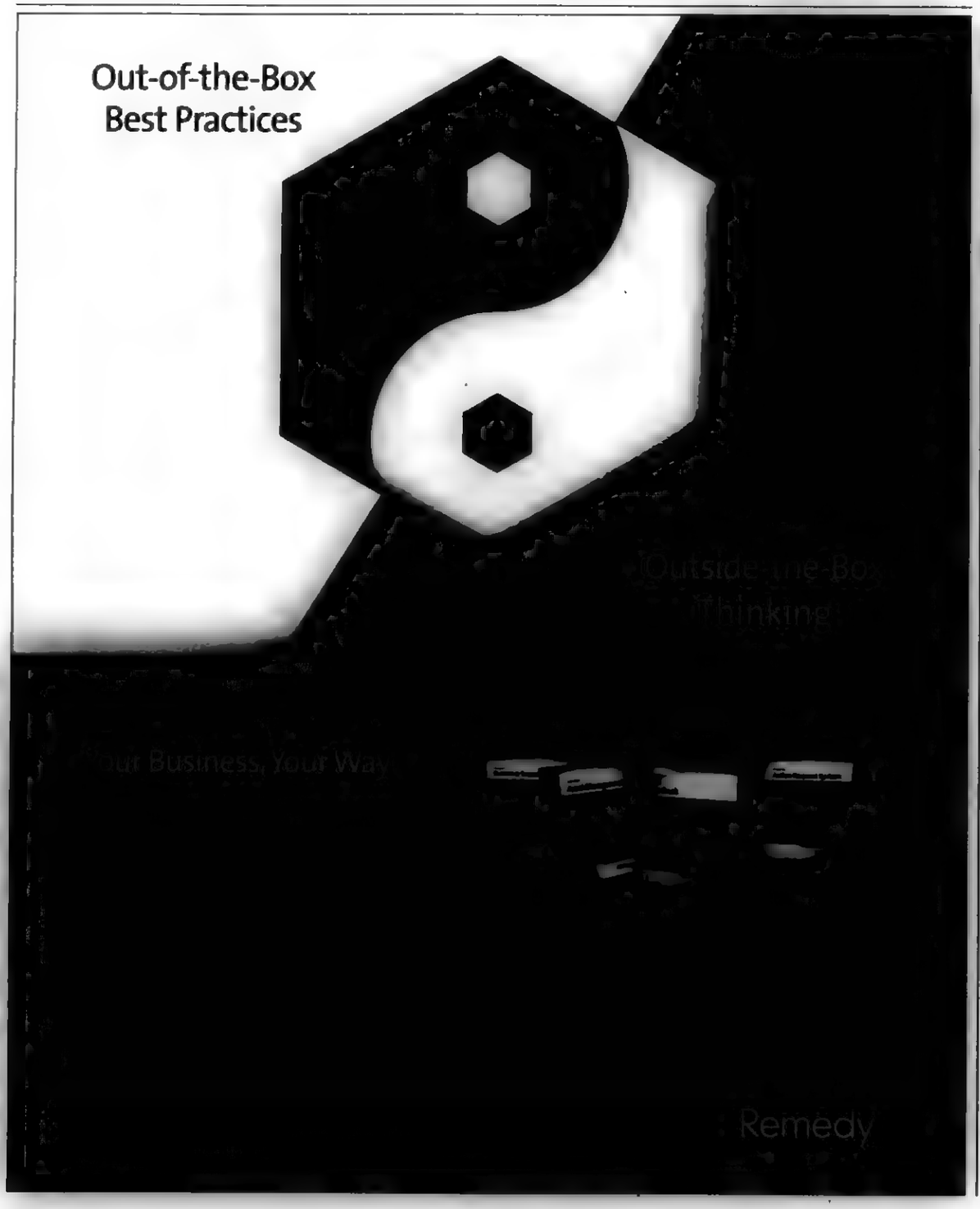
U.S. Agencies Defend Data Mining Plans

BY GRANT GROSS
WASHINGTON

Government officials in charge of two data mining projects that have been criticized by privacy advocates told Congress last week that the information to be collected will be much more limited in scope than opponents have feared.

James Loy, director of the U.S. Transportation Security Administration (TSA), and Anthony Tether, director of the Defense Advanced Research Projects Agency (DARPA), both tried to assuage concerns that large amounts of personal data about U.S. citizens will be gathered and stored as part of the two IT projects. Loy and Tether testified at a House subcommittee hearing on whether data mining programs could help improve national security.

The proposals have also come under fire from members of Congress who have questioned how the data mining technology will be used and what kind of databases will be created. Rep. William Clay (D-Mo.) said at the hearing that the projects have "a dark cloud of secrecy" hanging over them.



Targeting Terrorists

The TSA's Computer Assisted Passenger Prescreening System II (CAPPS II) will analyze the name, address, phone number and birth date of airline passengers, in an effort to detect terrorists. Loy declined to comment on how the TSA will decide whether a passenger should be let on a plane or questioned further.

But CAPPS II should reduce the number of false positive identifications that the government's existing airline-passenger profiling system produces, Loy said. He called the current technology flawed because it lacks sophisticated methods of predicting passenger behavior.

Loy said the TSA expects to roll out CAPPS II by mid-2004. The agency has no plans to save information about travelers who aren't flagged as possible terrorists, he added.

Tether said DARPA's Total Information Awareness (TIA) research project is designed to provide the FBI and other federal agencies with tools that can be used to mine data. But DARPA doesn't plan to collect any data itself, he said.

When asked how DARPA will ensure that personal information caught in TIA's net is correct, Tether said that's up to potential users like the FBI.

"We're not the people who collect the data," he said. "We're the people who supply the analytical tools to the people who collect the data."

Gross is a reporter for the IDG News Service.

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9:00am to 9:45am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners
9:45am to 10:15am	**Business Case Study** James Beattie, EVP and CTO, CCC Information Services
10:15am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Joe Drouin, VP and CIO, TRW Automotive ■ Tasos Tsolakis, VP of Global Technology Operations, Global Exchange Services ■ James Beattie, EVP and CTO, CCC Information Services
11:30am to Noon	Open Forum

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PATRICIA KEEFE

IT Does Matter

KICKING UP THE DEBATE on the future of IT another notch is Nicholas G. Carr's sure-to-be-controversial contention in this month's *Harvard Business Review* that the pervasiveness of IT will soon make it strategically irrelevant. Summing up his position is the article's headline: "IT Doesn't Matter."

Bam! Now there's a stance sure to stir up some conversation around the data banks. (To read an interview with Carr, turn to page 44.)

On the one hand, the very pervasiveness of IT, coupled with two other trends — the increasingly technically literate population, and the rising integration of computer technology into everything from cars to clothes dryers to clothing — severely diminishes the mystique that has always surrounded IT.

The idea is that IT has become as ordinary, albeit as key, as the less glamorous accounting or manufacturing departments. You can't run a company without them, but they're nothing to get excited about. Everyone has these departments, and they pretty much do the same things. Carr reasons, then, that these departments have lost whatever competitive or strategic edge they might have once provided.

And there is some truth to that. For example, right now, we're all using cell phones, desktop PCs and laptops, and a goodly portion of us are using wireless devices. Yes, there will be another wave of technology. There always is. It's like a force of nature that you can't hold back. Carr is right again when he says everyone will eventually line up to use that next advance in technology, creating a level playing field. For him, it's enough that IT filters, adapts and manages these evolutions.

But technology has the potential to succeed in permeating almost every aspect of our lives and the products we use. Some might say that creating all that new stuff won't be IT's job. The R&D, manufacturing and design groups will be responsible for weaving technology advances into consumer goods. The question, then, for IT folks is: What role will we play?

IT has more to offer than mere supervision. It could become a combination of tech adviser and testing lab for many of these products. Or it could morph away from building pure technology systems that run a business and toward building technology into the services and products the business sells. You can't get more aligned with business goals than that!

General Motors is off to a good start here. Corporate CIO Ralph Syzgenda years ago teamed each of his group CIOs with specific department heads. He wanted his CIOs to understand the business they were serving and to be on the front lines, ready and able to partner on creating solutions to business problems.

And that is just one model. Unlike Carr, I don't think IT has to dissolve into an entity that is strictly focused on maintenance, risk avoidance and cost-cutting. Astute CIOs are already practicing this in some form or another.

Yet if you spend too much time nursemaiding the past or practicing risk mitigation in the present, then the future — and opportunity along with it — will be here and gone before you know it. We still need IT leaders who can think conceptually, who can dream of ways to further business goals via technological advances. No matter what your present circumstances, you need to keep an eye on the future.

Carr advocates taking a more defensive posture toward IT investments. But sometimes the best defense is a good offense. What's needed now is to go back to the chalkboard and figure out the best strategy. ◗

PIMM FOX

IT Warning: No Badge, No Access

IMAGINE THIS SCENARIO: You leave your computer unattended while you're in a meeting, and someone uses it to send e-mail with sexual innuendos to a co-worker. Next thing you know, an HR representative is asking you to do some explaining.

Or what about shared computers in hospitals, call centers or financial services firms with open floor plans? Chances are, users are expected to log off the network every time they walk away from the terminal. That's supposed to thwart unauthorized access to personal or sensitive information.

But that rarely happens.

Instead, users depend on you to babysit their security needs. They want you to build and install systems to guard against their own lapses, which, as you know, are the biggest threat to fundamental security policies and procedures. People just don't make the effort, and until something awful happens, you can't even get them to rid their monitors of yellow sticky notes with scribbled passwords. That's why IT security has to include physical systems woven into the daily routine of each employee.

A new and potentially ubiquitous option involves RF-based smart cards linked to fingerprint readers that connect via the USB port. The smart card allows for a security net of your choosing — from 1 to 10 meters. If you travel outside of that range, the computer locks up. Come back within range, and the screen reverts to the last image. This wireless system relies on a unique personal identifier encrypted into an RF badge.

Coupled with the fingerprint reader — another IT security watchdog — this device enables you to determine who has used any computer at any given time. In addition, if more than one person has access to a particular PC, the screen will revert to the im-

age appropriate for each user.

Manufactured by a small St. Louis-based company, Access Denied Systems Inc., these systems are being used at Washington University, also in St. Louis. They are one type of what I predict will be myriad vendor offerings that link physical security and access to IT systems.

It's a good way to take aim at unauthorized access from within an enterprise. That type of system could be especially important in health care and financial services companies, where new government regulations are designed to protect patient and customer confidentiality.

There's no panacea for security threats. Firewalls, software protection and password management schemes are for naught if you've already got a Trojan horse who parks in the company lot.

MICHAEL GARTENBERG

Wi-Fi: Why and Why Not

WITHOUT A DOUBT, one of the few growth areas of the industry today is wireless network technology built around the 802.11x standard. According to my company, Jupiter Research, corporate deployment of 802.11 devices (including adapter cards and access points) will reach 99 million by 2008, up from 14 million in 2003 — representing a compound annual growth rate of 48%.

The primary key to this growth will be standards compliance. The expected ratification of 802.11g and 802.11i this year will provide the backward compatibility and security that enterprises seek, while combined industry efforts led by Intel (with its Centrino chip), Cisco Systems and the Wi-Fi Alliance will help interoperability between vendor products and simultaneously raise corporate awareness.

There are a number of benefits to deploying corporate wireless LANs, which should put them on most IT departments' to-do lists in 2003. But you need to know a few caveats.

There are cost savings associated with using a WLAN instead of traditional wired technology, but saving money isn't going to be the biggest driver. Rather, the additional productivity gains associated with wireless are what make WLANs useful and, combined with the cost savings, create a powerful argument to get a WLAN project approved.

Before you run out and start cutting purchase orders for Wi-Fi access points, remember that one size WLAN does not fit all organizations. Organizations of different sizes will have different issues to resolve. Large companies will have greater concerns about security and will be focused on the confusion over evolving security standards that hinder adoption in that market. Smaller businesses should first focus on justifying initial start-up costs and look for ways to lower those as much as possible. These problems are critical for IT departments to address prior to implementation but can be easily resolved with some upfront planning.

For smaller companies, one way to drive down costs is to use existing standards-based products, such as those with 802.11b technology. That approach is technically viable and ensures compatibility with future investments. As costs for 802.11b equipment fall further, these purchases will be much easier to justify.

Big companies should also support existing standards, such as 802.11b, but in addition they need a road map toward 802.11g and 802.11i compliance in the products they buy via software and/or firmware upgrades. They should be prepared to offer multimode and 802.11g products once these standards are fully ratified. While large companies are least likely to be concerned about backward compatibility, they would be best served by taking a risk-averse approach and waiting for ratified 802.11g technology rather than risking short-term deployments of equipment that may become expensive to upgrade or may not interoperate with new gear.

Finally, improved security must become an important factor in selecting WLAN products. This remains the biggest barrier to wide-scale deployment.

The power of WLANs is readily apparent. The productivity of knowledge workers greatly increases when mobile technology — lightweight laptops, Tablet PCs and powerful handheld devices — are enhanced with high-speed WLAN connections. Because more users are dependent on network connections in order to be productive, WLANs can help extend this reach and therefore justify their costs in terms of ROI gained. The key is to balance the gains and focus on the issues that are appropriate to your business, then deploy and watch the accolades come into your in-box — wirelessly, of course.

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READERS' LETTERS

Thoughts on Giving CFOs Project Info

CIOs NEED to be careful about what they reveal to the CFOs who want information for quarterly earnings reports that comply with the Sarbanes-Oxley Act ["CFOs Push IT Managers for More Info About Projects," QuickLink 37988]. Strategic projects and investments in IT make the future of the company. If this information is made public, close scrutiny by competitors can reveal a lot about company direction.

Nauman Sheikh
Functional architect, Metavante Corp., Milwaukee

CFOs AND THEIR C-level peers, including CIOs, should have been doing this a long time ago. If they haven't, they deserve the problems that have arisen. I moved from being the manager of a $300 million chemical plant to managing IT projects 10 years ago precisely because of the issue raised by this article. I have delivered value because I didn't let the geeks BS the organization about why they didn't have to follow the laws of ROI.

Fred Fickling
Dallas, gungh@yahoo.com

THE INSTALLATION of system development methodologies would solve all the problems described in the article, but CIOs would have to sacrifice some of their "smoke-and-mirrors" power. International experience with methodologies has proved their worth. Sadly, being on time and under budget isn't as important to IT departments as retaining power.

Andrew H. Olsen
Managing director, Team International Group, Gainesville, Fla., teamolsen@bigplanet.com

Don't Export Jobs

MACHIAVELLI said not to use mercenaries: If they're lousy, they'll lose your kingdom for you, and if they're good, they'll take it away from you. My corollary: The same thing goes for outsourced IT workers ["Exporting IT Jobs," QuickLink 38007].

Stewart Dean
Unix Systems administrator, Bard College, Annandale-on-Hudson, N.Y., sdean@bard.edu

MAYBE WE SHOULD outsource U.S. executive managers, with their excessive pay and perks, instead of IT workers. After all, managers consume most of the overhead. Any decent, educated person with common sense can perform their job functions.

It won't be the Chinese, the Vietnamese, the Russians or all of the terrorists combined who destroy this country; it will be American business.

Greg Maschak
Cleveland

NOW I REALIZE why they call it "Blue Monday." Sheesh, could you run these depressing stories on Thursdays?

Michael Jones
Programmer/analyst, Savannah, Ga., enojones@email.uophx.edu

A World View

I CAN HIRE in places like India, Pakistan, Russia and the Philippines managers and security experts with better qualifications than you'll be likely to find in any company in the U.S.

In fact, I suggest that most of our legislators, CIOs and government contractors should be drawn from the ranks of the hungry and hard-working, college-educated personnel available in those places.

Sending work offshore is the economic equivalent of people voting with their feet. Hopefully, the inevitable equilibration of wage levels across all nations whose borders aren't closed to commerce will eventually result in everybody in the world being better off, and not in the U.S. becoming a Third World country, with barefoot, starving people.

David M. Eaves
CEO, Internet Security Corp., Sunnyvale, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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computerworld.com/letters

Dave Passmore is the Virginia-based Research Director for the Burton Group. Named one of Network World Magazine's "50 Most Powerful People in the Networking Industry," Passmore is Burton Group's "thought leader" in the area of network architecture.

UNISYS PRESENTS

ask THE EXPERT

A few minutes with Dave Passmore, Research Director, Burton Group

Mobility—Access Anywhere, Anytime

> The term "mobility" is being used in many different contexts. How do you define it?

Increasingly, the meaning of mobility is becoming aligned with the concept of "untethered communications" — it assumes portable devices that will support some type of wireless voice or wireless data networking functionality. Mobility implies the use of wireless LANs, cellular phone systems or various wireless wide-area or metro networking services. Ultimately, mobility will permit a device such as a laptop computer or personal digital assistant (PDA) to seamlessly roam between these various wireless communications systems without the user having to reconnect or login again. In this context, wireless geographical coverage will be ubiquitous.

> Public Wi-Fi (802.11) wireless networks are emerging as an attractive alternative to cellular networks. What are the benefits driving this growth? What are potential barriers to Wi-Fi's successful deployment as a public carrier service?

The emerging industry view is that public Wi-Fi networks will be complementary rather than competitive to cellular networks. In fact, many of the public Wi-Fi hotspots are allied with or operated by cellular carriers in an attempt to provide comprehensive local and wide-area wireless coverage along with a single monthly bill for customers. Wireless LAN (WLAN) hotspots are becoming extremely popular due to their ease of use and the abundant Internet access bandwidth provided — more than 10 times what's provided by the latest cellular data network offerings.

> Convergence of voice and data communications is accelerating on traditional wireline networks. Do you see convergence on wireless networks also gaining wide acceptance? How soon?

Voice/data convergence is already happening in the wide area, as next-generation 2.5G and 3G data networking services are being added to cellular voice networks. But many businesses are expected to implement their own converged wireless networks that support Wi-Fi phones. Some issues must be addressed to ensure traditional "total quality" voice, but these challenges should be worked out with products that implement the new 802.11e WLAN quality of service standard within the next two to three years.

> Enterprise-wide deployments of WLANs can become very complex to implement and manage. Do you see a strong market opportunity for managed services of WLANs?

Some organizations will choose to outsource the management of their WLANs in the same way that they outsource managed services for their wired LAN and WAN infrastructures. However, one of the hottest new technology developments may address much of the WLAN complexity issue. About a dozen vendors (startups and established vendors) have introduced "WLAN switches" that re-architect a site's WLAN environment into a single integrated system and simplify the administration, security and deployment of complex WLAN environments. Of course, the installation and life-cycle management of these next-generation WLAN systems also represents an opportunity for managed services providers and systems integrators to provide their expertise in this sector.

> The adoption of wireless-enabled devices (both laptops and PDAs) is creating a management nightmare for IT to support. Do you see the management of mobile devices as another strong market opportunity for managed services?

The management of laptops and PDAs is certainly much more complex than it used to be; operation often requires "locking down" these devices so that they can't pick up stray viruses, and to ensure that appropriate security measures are used. An important issue is establishing comprehensive security policies for wireless-enabled devices — particularly when employees want to purchase and use their own low-cost PDAs or laptops on corporate networks. Many organizations are turning to managed services providers for help in this area.

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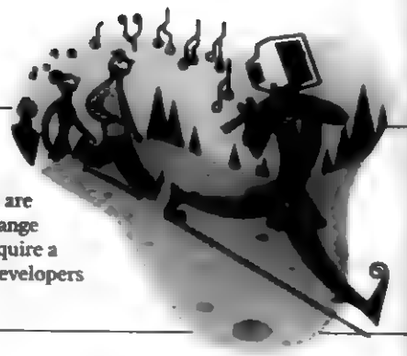
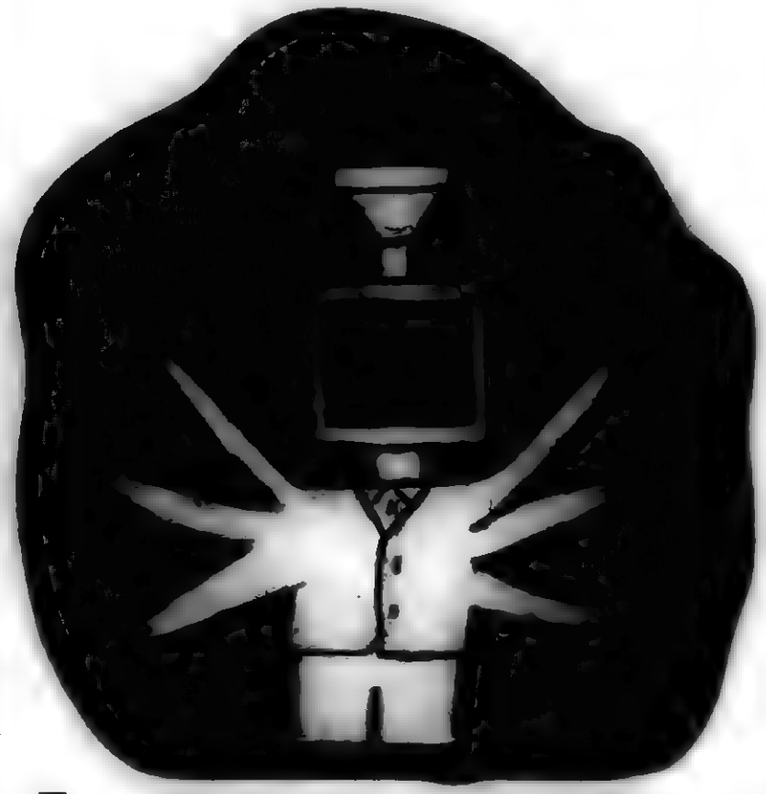
—Curtis Robb, Delta Air Lines CIO, Delta Technology CEO



Wading Into IP Telephony
A hybrid IP/PBX approach allows some companies to realize the benefits of IP telephony without taking an expensive plunge.
Page 28

QUICKSTUDY
Fighting Spam
Software that controls the flow of unwanted commercial e-mail uses a variety of techniques, including blacklisting, "whitelisting" and Bayesian analysis, to keep up with the spammers. **Page 33**

FUTURE WATCH
Computers That Cajole
Persuasive technologies, which are striving to use computers to change attitudes and behaviors, will require a new sensitivity on the part of developers and IT managers. **Page 32**



Automated TO THE CORE

Data center automation software promises to help companies cut administrative costs and improve efficiencies. By Jaikumar Vijayan

FRANKLIN HAMMOND

DATA CENTER AUTOMATION

AS A COMPANY that hosts supply chain operations for customers such as Verizon Wireless and the U.S. Postal Service, New Breed Inc. has a crucial need for infrastructure availability and reliability.

As part of its efforts on those fronts, the company is using software from Opsware Inc. in Sunnyvale, Calif., to automate several day-to-day operational tasks across its data centers.

Manual administrative duties such as making configuration changes, upgrading applications and rolling out patches have been automated using the software. And Opsware has also allowed High Point, N.C.-based New Breed to boost its disaster recovery capabilities through the software's ability to store and use data center configuration data to rebuild downed systems.

The net result: better change management processes, speedier problem resolution and lower administration costs, says New Breed CIO Ashfaque Chowdhury.

"We have about 400 servers with nearly 5TB of data and almost 100 people in our data center," Chowdhury says. The hope is that Opsware's technology will "enable high levels of reliability and reduce cycle time in delivering change at a lower cost," he adds.

New Breed isn't alone. As IT organizations come under increasing pressure to cut costs, expect to see a growing number of them move to automate data center operations, says Corey Ferengul, an analyst at Stamford, Conn.-based Meta Group Inc. Many companies have already tapped other cost-cutting opportunities — through measures such as staff cuts and reduced work hours — and are now looking to data center automation as a new way to rein in costs, Ferengul says.

"This whole automation trend is a pretty fundamental one," says Chowdhury. "You can't be competitive in cost and pricing unless you are able to operate with a lower cost structure."

But to take advantage of such technologies, companies will first need to put in place good processes that easily lend themselves to automation, Ferengul says. Products that are currently available are largely immature and untested in enterprise environments, with most vendors having fewer than 10 customers, he notes.

"It is also still not established what the core criteria is that users are looking for," he says. As a result, "every vendor has their own take and is attacking the market in their own way."

Broadly speaking, data center automation tools aim to enable intelligent and automatic deployment and provisioning of hardware, software, applications and services. The knowledge behind repetitive, time-consuming systems administration tasks — such as upgrading, changing, managing and configuring equipment — is encapsulated into and executed by automation software, based on user-defined preferences and policies.

For example, using such tools, a company could centrally distribute and manage new applications, security patches, user profiles and passwords across data center systems. Or those tools could be used to provision additional hardware or storage resources to applications on the fly.

The savings come from the reduced dependence on systems administrators and the shorter time it takes to implement changes, says Nick Van der Zweep, a director at Hewlett Packard Co.'s Enterprise Systems Group.

A Range of Options

Data center automation tools vary widely in capabilities and functions.

HP's Utility Data Center and Sun Microsystems Inc.'s N1 technologies, for instance, allow users to do on-demand provisioning of consolidated hardware, storage and network equipment. The technologies work by aggregating, virtualizing and sharing such resources across multiple data center applications.

Another example of automation software is Opsware System 3.5, which focuses more on the automation of software processes.

Opsware's technology, for instance, aims to enable automated deployment of operating systems, applications and databases across multiple servers. In addition, it allows users to centrally identify and patch servers that need to be secured and to deploy or roll back code, content and configurations of multiple servers, says Tim Howe, chief technology officer at Opsware.

Provisioning Strategy

Users can define and encapsulate specific policies relating to their application environments — like optimal configuration and security settings — which Opsware uses when deploying applications and services, Howe says.

The software works by collecting a wide range of infrastructure information from agent software that's installed in data center hardware. A centralized policy engine uses that information when deploying software or making changes that impact the infrastructure. Opsware 3.5 also holds a complete blueprint of the software infrastructure in a data center that allows companies to recover quickly from disasters.

> **"We have taken all of the manual fingers on keyboard user account creations and automated them, [resulting in lower costs and better efficiencies].**
>
> **TOM KING,** CHIEF INFORMATION SECURITY OFFICER, LEHMAN BROTHERS HOLDINGS

Tira Wireless Inc. in Toronto is using software from Think Dynamics Inc., also in Toronto, to automate the manner in which its hardware allocates resources to applications.

The company is using the ThinkControl software suite to tie its existing Wintel servers to a bank of standby machines with idle capacity. ThinkControl uses information gathered from third-party network management products such as HP OpenView and Computer Associates International Inc.'s Unicenter to monitor CPU utilization rates on the Wintel servers. When CPU utilization on any box exceeds a certain threshold, the software automatically kicks in and brings in fresh resources from the standby pool, says Chris Prendergast, Tira's director of operations.

When CPU utilization drops below the predefined threshold, ThinkControl automatically releases the excess capacity back to the common pool.

The approach has eliminated the need to continually add and configure hardware to handle workload spikes, Prendergast says. Many of the capacity planning and performance monitoring tasks that used to be done manually are now done by ThinkControl.

"We were having a difficult time modeling the hardware requirement to support users as adoption [of Tira's services] ramped up," Prendergast says. Without Think Dynamics' software, the option would have been to buy large, grossly underutilized dedicated systems for each application to handle unexpected spikes.

The temporary provisioning offered by Think Dynamics "is proving to be a better option," Prendergast says.

Identifying Targets

Some tools aim to help users automate key data center administration tasks.

Investment firm Lehman Brothers Holdings Inc., for instance, is using software from New York-based Thor Technologies Inc. to automate the administration of user application access rights, according to Tom King, chief information security officer at Lehman Brothers.

The software automatically controls user access to applications based on policy and keeps up with changes to business rules or employee status, without requiring the administrator to reset or change anything, according to Nancy Colwell, a director at Thor.

"Just like any other firm our size, it is quite a challenge to efficiently and consistently apply all of the different rules around user provisioning to get people into and out of systems quickly [and reliably]," King says. Lehman Brothers plans to expand use to all 12,500 of its employees.

"We have taken all of the manual fingers on keyboard user account creations and automated them," resulting in lower costs and better efficiencies, King says.

But the key to such benefits lies in careful planning, Ferengul says. Care needs to be taken and lots of testing needs to be done before companies entrust key administrative tasks to automation software, says Prendergast.

"There is an aspect of testing and validation this thing needs to go through before it can be deployed," Chowdhury says. "There can be a huge impact on productivity if this thing goes haywire."

This is especially important because the software is still highly immature, he adds.

It's also crucial that the software can be customized to fit an organization's specific needs, King says. Otherwise users can get locked into proprietary interfaces, he says.

And not all processes can be easily automated, Ferengul says. Though a lot of administrative tasks can be codified into such software, there are specialized tasks that cannot.

CHOOSING A VENDOR

For a market that's still evolving, there are a lot of vendors offering data center automation tools, users and analysts say. And while many of the products seem similar on the surface, their capabilities vary.

So prior to choosing one, it's vital to know precisely what your requirements are, find out which vendor meets your specific needs and ensure that the technology really works as billed, says Ashfaque Chowdhury, CIO at New Breed.

For instance, some tools allow users to automate application and hardware provisioning and to track, audit and remediate configurations. Others use infrastructure performance information to determine and fulfill application needs. And still others are focused on pooling, virtualizing and sharing data center hardware, storage and network resources.

"The product categories from a purchaser's point of view are too differentiated" to directly compare, Chowdhury says. "You have to decide based on your needs."

"The most difficult part was just selecting the right application," says Tom King, chief information security officer at Lehman Brothers, which is using automation software from Thor Technologies to provision user access to enterprise applications.

For Lehman, the most important factor was the ability of the automation software to manage not just packaged applications but customized applications as well, King says.

"There are hundreds of applications that are homegrown or proprietary that we needed [the software] to interface with," King says.

Vendor stability should also be considered when making a purchasing decision, says Corey Ferengul, an analyst at Meta Group. Most of the companies in this market are start-ups with fewer than 10 customers, he says.

—Johnmar Vijayan

MAJOR PLAYERS AND PRODUCTS

Opsware Inc.
Sunnyvale, Calif.

MAIN PRODUCT: Opsware System 3.6

WHAT IT DOES: Enables IT organizations to automatically provision, deploy, change and operate multiple application and operating system software stacks across multiple hardware platforms and data centers.

BladeLogic Inc.
Bedford, Mass.

MAIN PRODUCT: BladeLogic Configuration Manager

WHAT IT DOES: Automates server and application provisioning on Solaris, HP-UX, AIX, Linux, NT and Windows 2000 systems. Also automates system configuration changes.

Jareva Technologies Inc.
Sunnyvale, Calif.
(Acquired by Veritas Software Corp.)

MAIN PRODUCT: OpForce IT Automation Suite

WHAT IT DOES: Automates discovery and recording of hardware and software inventory, tracking software licenses, provisioning servers, setting up administrator and user access and provisioning servers.

Think Dynamics Inc.
Toronto

MAIN PRODUCT: ThinkControl Suite

WHAT IT DOES: Provides policy-based management of computing resources and service-level objectives through automation of infrastructure provisioning, capacity management and service-level management.

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WHAT IT DOES: Automates server and application provisioning on Solaris, HP-UX, AIX, Linux, NT and Windows 2000 systems. Also automates system configuration changes.

Jareva Technologies Inc.
Sunnyvale, Calif.
(Acquired by Veritas Software Corp.)

MAIN PRODUCT: OpForce IT Automation Suite

WHAT IT DOES: Automates discovery and recording of hardware and software inventory, tracking software licenses, provisioning servers, setting up administrator and user access and provisioning servers.

Think Dynamics Inc.
Toronto

MAIN PRODUCT: ThinkControl Suite

WHAT IT DOES: Provides policy-based management of computing resources and service-level objectives through automation of infrastructure provisioning, capacity management and service-level management.

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Wading Into IP Telephony

While some companies are taking the plunge into pure-play IP systems, others are easing forward with a hybrid IP/PBX approach. By Steve Ulfelder

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On the other hand, in 2001, when the Cancer Therapy & Research Center consolidated facilities and expanded its headquarters in San Antonio, the organization was working from a clean sheet of paper — and opted for a pure IP setup from Cisco Systems Inc. Chief Technology Officer Mike Luter says the network's speed and manageability, along with the "increased mobility" enjoyed by physician end users, made pure-play the way to go.

These experiences neatly summarize the telephony choices IT organizations are making today. Legacy PBXs are rapidly being supplanted by IP-enabled "hybrids," which analysts say offer most of the advantages of pure IP systems (such as the ability to easily change extensions and to use a new generation of applications for activities like inventory management) while allowing companies to retain most of their existing infrastructures. But pure-play IP systems, unlike hybrids, let IT organizations manage one network structure rather than two and are useful in small regional offices where it wouldn't make sense to install a PBX.

Bottom line: Pure-play IP telephony is gaining traction primarily (but not exclusively) with organizations that are undergoing other major changes — a headquarters move or consolidation, for example, or any major construction project that entails new cabling.

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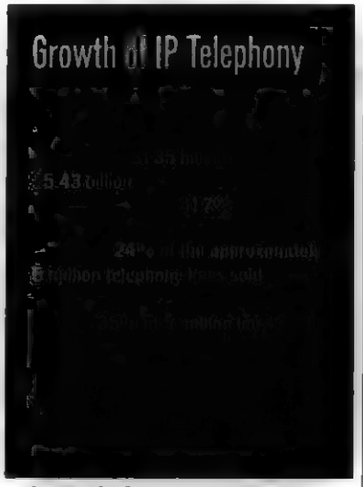

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Gooding adds that "some vendors have been slow" to provide redundancy in their IP signaling interfaces — that is, the backup system that kicks in if a server goes down.

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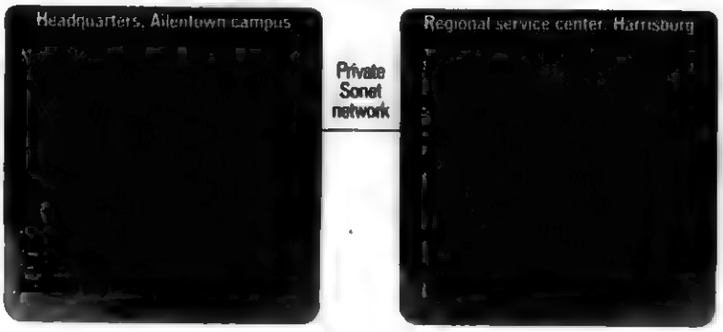
IP/PBX Hybrid

Network Diagram: PPL, Allentown and Harrisburg, Pa.



Pure IP Telephony System

Network Diagram: Cancer Therapy & Research Center

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Thomas Dunkerley, IT communications manager at *The Seattle Times*, concurs with Shannon's assessment of the trade-offs between a data-centric vendor like Cisco, 3Com Corp. or Sunnyvale, Calif.-based Shoreline Communications Inc. on the one hand and a voice-centric vendor like Avaya, Nortel or Siemens AG on the other. When the newspaper decided to replace its 10-year-old Avaya Definity PBX, it explored Cisco's pure-play IP system and hybrid PBXs, and Avaya emerged as the leading hybrid candidate.

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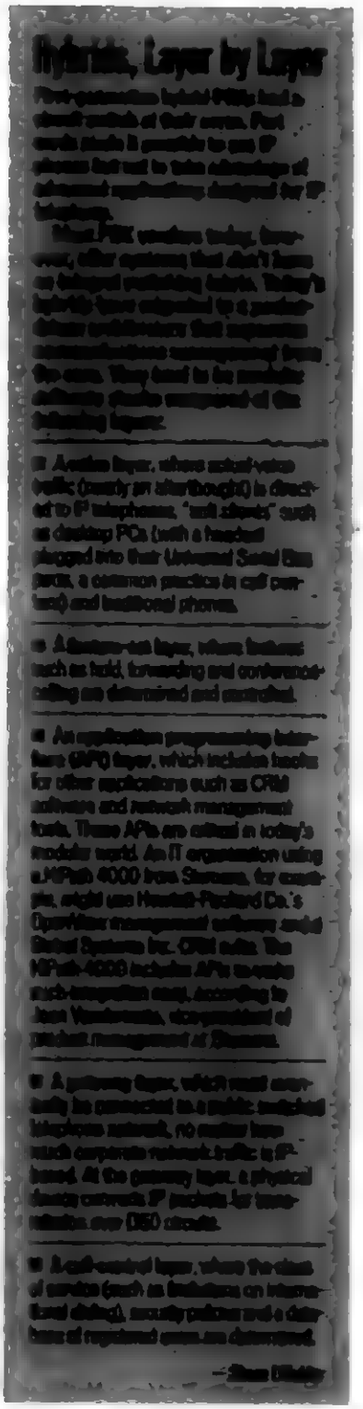

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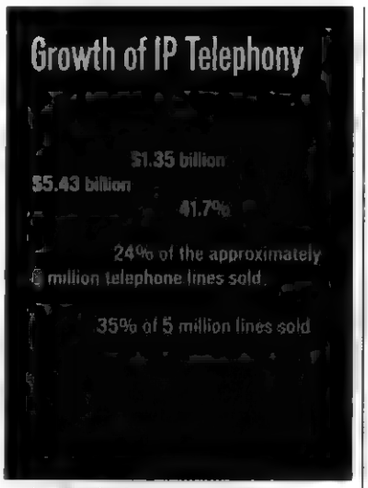

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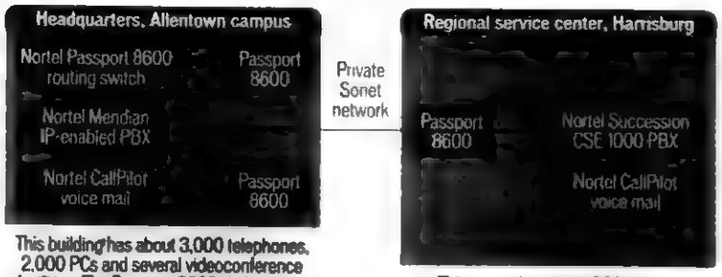

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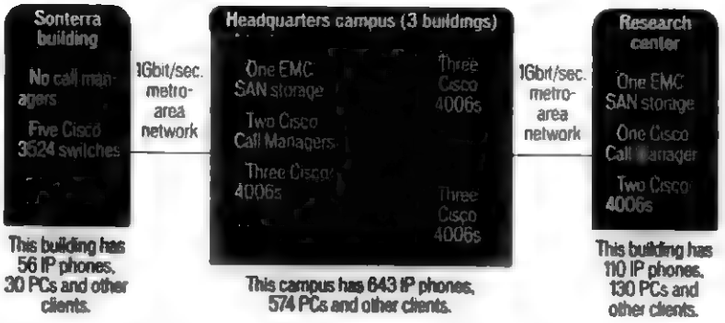

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Hybrids, Layer by Layer

First-generation hybrid PBXs had a circuit switch at their cores. Port cards made it possible to use IP phones but not to take advantage of advanced applications designed for IP telephony.

Most PBX vendors today, however, offer systems that don't have an integral switching fabric. Today's hybrids have migrated to a packet-driven architecture that separates communications management from the core. They tend to be modular software stacks composed of the following layers:

- **A voice layer**, where actual voice traffic (nearly an afterthought) is directed to IP telephones, "soft clients" such as desktop PCs (with a headset plugged into their Universal Serial Bus ports, a common practice in call centers) and traditional phones.
- **A feature-set layer**, where features such as hold, forwarding and conference-calling are determined and controlled.
- **An application programming interface (API) layer**, which includes hooks for other applications such as CRM software and network management tools. These APIs are critical in today's modular world. An IT organization using a HiPath 4000 from Siemens, for example, might use Hewlett-Packard Co.'s OpenView management software and a Siebel Systems Inc. CRM suite. The HiPath 4000 includes APIs to make such integration easy, according to Joan Vandermate, vice president of product management at Siemens.
- **A gateway layer**, which must eventually be connected to a public switched telephone network, no matter how much corporate network traffic is IP-based. At the gateway layer, a physical device converts IP packets for transmission over DS0 circuits.
- **A call-control layer**, where the class of service (such as limitations on international dialing), security policies and a database of registered users are determined.

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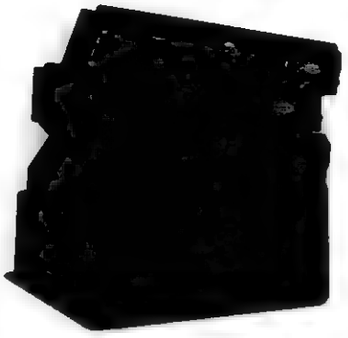

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Computers That Cajole

Persuasive technologies are aimed at changing users' attitudes and behaviors. By Matt Hamblen

WE ALL KNOW ways that computers employ psychology to change our attitudes or behaviors.

Mostly, we see it on Web sites. A widely used technique involves providing a fun game to play or a captivating video that might have no other purpose than to get us to linger on a site or bookmark it.

If we e-mail a link for the site to a friend, the site and its technology and designers have altered our behavior slightly. The process creates a new attitude or alters an old one about the site or the brand and products behind it.

Web sites and applications use a growing variety of persuasive techniques to alter our attitudes and behaviors, and after the bursting of the dot-com bubble, there is increasing interest in "stepping back to see what really works and persuades," says B.J. Fogg, director of the Persuasive Technology Lab at Stanford University. He also coined the term *captology*, the science of using "computers as persuasive technologies."

In the coming years, Fogg says, captology is likely to challenge IT managers and traditional business leaders, who will see persuasive techniques become an important part of business training, management coaching and marketing.

He says captology will be used to motivate people to make better use of computers by offering helpful hints when problems occur in early uses of a new application. Applications will send e-mails that praise workers for trying them, Fogg says.

Captology will require developers to understand behavioral science as it applies to technology, Fogg says. "IT managers might not think captology is appropriate for computers and will ask why persuasion should be a part of it," he says. "They will wonder, 'Does this work, and is this relevant to my company or job?' "

Fogg ticks off a list of applications and laboratory studies indicating that captology does indeed work. In studies of human/computer reciprocity, users were discovered to be far more willing to do simple tasks for a computer, such as signing up for a newsletter or upgrading software, if the computer had provided them useful information and told them so. "The computer points to good work it's done for you, much as a good employee tells a boss, 'I've done this and this,' before asking for a raise," he says.

For example, Fogg says, a successful virus-protection program could be even more successful if it counted how many times it blocked a virus on a computer and when, then reported that information to the user before reminding him to upgrade or renew.

RSIGuard Software in Santa Cruz, Calif., has developed software that helps users protect against repetitive-stress injuries by monitoring how much they use the keyboard and mouse and encouraging them to take regular breaks when at work. They are persuaded to use the program because it's seen as offering relief and because it can be tailored to suit the individual's workstyle and tolerances, says Ron Goodman, a project manager at RSIGuard.

Another example of captology is America's Army, a simulation and online game created to provide insights about U.S. Army life, teamwork and training. The game, which cost $10 million to develop, is part of the Army's official communications strategy, according to an explanation on the *www.americasarmy.com* Web site.

Fogg says the site has "worked in spades" at bringing in recruits who are excited by the computer-based experiences. It has worked so well that it's "kind of scary, to be honest," adds Fogg, who worries that there might not be enough checks and balances to protect people from government abuse of powerful persuasive techniques.

U.S. Army Col. Casey Wardynski, the creator of America's Army, says the game has become one of the most popular online games globally since it was launched in July. He agrees that it uses many persuasive technologies, but only at a very early stage in the recruiting process.

Fogg says that many applications of captology in the workplace are coming. They include everything from using behavioral science in software in order to increase output per employee in a call center to improving managers' skills, especially with delegating, setting goals and getting people to arrive at meetings on time.

The trick, Fogg believes, will be getting developers to write software that motivates based on positive rewards, reminding users that they will be happier and better at their jobs if they take certain actions.

"IT shops will have a role in integrating all of these captologies," Fogg adds.

LEO ESPINOSA

FUTURE WATCH

UNDER THE INFLUENCE

To learn more about some technologies that are unpersuasive, go to:
QuickLink 39073

Corporate IT shops could learn a lot from the America's Army online simulation game:
QuickLink 38285
www.computerworld.com

Fighting Spam

DEFINITION

Software that controls spam — unsolicited commercial mass e-mail sent over the Internet — uses techniques such as blacklisting or "whitelisting" particular URLs or domain names, and includes self-learning programs based on statistical analysis.

BY RUSSELL KAY

EVERY DAY most of us get e-mail offering to sell us drugs (especially Viagra), vacations, ways to enlarge specific parts of our bodies, get-rich-quick schemes, cable-television descramblers, lower mortgage rates and Internet-based pornography. I don't want it, and neither do you. Spam has become a serious and growing problem for Internet users, affecting individuals and corporations alike.

QUICK STUDY

Spam costs its recipients money. David Ferris, president of San Francisco-based Ferris Research, estimates that spam and efforts to combat it cost U.S. companies $8.9 billion in 2002.

In a December 2002 report, Gartner Inc. analyst Joyce Graff predicted that "by 2004, unless an enterprise takes defensive action, more than 50% of its message traffic will be spam." Ferris analyst Marten Nelson pegs the volume of spam at 20% to 30% of corporate traffic and 40% to 50% of Internet service provider traffic. Nelson says that CIOs and corporate messaging managers should consider three major elements in determining the impact of spam.

"First, you need to look at the costs associated with loss of user productivity, then the cost to the messaging infrastructure and finally the cost to your help desk in dealing with user complaints," he says.

Strategies

There are dozens of products and services available to help block spam. They use the following basic techniques:

■ **Blacklist the sender.** Get a list of spammers' addresses and block any e-mail from those addresses. This can't block spam from new addresses, however, so there's a constant race between the spammers and the spam-fighters. At times, the blockers get too eager and may shut off all mail from a specific domain name, blocking legitimate messages from nonspamming users.

■ **"Whitelist" the sender.** The opposite approach is to accept e-mail only from a list of approved addresses. This is highly effective but not terribly practical, especially for business users who want to hear from new customers.

■ **Look for telltale signs.** Spam messages tend to have a lot of features in common. According to CipherTrust Inc., some of the more common elements found in the subject lines of spam are "$," "!," "999," "Credit," "Earn," "FREE," "Free," "Get," "Lose" and "Money."

■ **Keep score.** Much antispam software relies on analyzing message IDs, formats and other traits, assigning values to each identified feature and adding up a numerical score for new messages. If the score exceeds a specified limit, it's considered spam and is blocked. Unfortunately, this approach delivers a lot of false positives, rejecting mail that isn't spam.

■ **Learn as you go.** The most promising approach seems to be Bayesian filtering, which is based on statistical analysis. With this method, you train the software by classifying mail as spam or nonspam. Based on your classifications, the software analyzes new messages and determines the probability that they may be spam. Bayesian programs continually learn, and if a spam message slips through, you tell the program and it becomes smarter.

Tips for Avoiding Spam

There are ways you can fight spam in addition to software tools, including the following:

■ Don't opt out. Your opt-out or "unsubscribe" reply merely confirms your valid e-mail address and is likely to get you more, not less, spam.

■ Stop giving away your address. In March 2003, the Washington-based Center for Democracy and Technology reported on research into where spammers get their addresses. The overwhelming source (97%) was public Web sites. In fact, every single normal address they posted on a Web site received some spam. They also obscured some addresses by making them look like running text (joe@mycompany.com becomes "joe at mycompany dot com") or by converting them to HTML (Joe's address now reads joe@mycompany.com). Obscured addresses got no spam at all.

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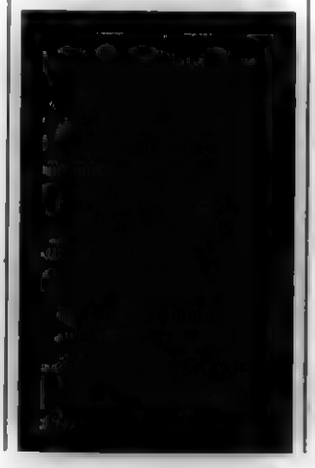

The Bottom Line

Spam seems here to stay. It's too easy, too cost-effective and too cheap to kill entirely. But we can take effective measures to block most of it.

"Yes, it's a cat-and-mouse game between the spammers and the antispam vendors, but I believe the antispam vendors will win," says Ferris Research's Nelson. "In the next five years or so, we will look at the spam problem much as we look at viruses today. It used to be a serious problem, but now it's fairly well under control."

Kay is a Computerworld contributing writer in Worcester, Mass. You can contact him at russkay@charter.net.

Enterprise-Class Spam-Fighters

PureMessage 3.0
ActiveState Corp.
Vancouver, British Columbia
www.activestate.com/products/puremessage

BrightMail Anti-Spam Enterprise Edition, Release 4.5
Brightmail Inc.
San Francisco
www.brightmail.com/enterprise-os.html

IronMail
CipherTrust Inc.
Alpharetta, Ga.
www.ciphertrust.com/ironmail/

Authority
Cloudmark Inc.
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www.cloudmark.com/products/authority/

Gordano Messaging Suite
Gordano Ltd.
North Somerset, England
www.gordano.com/technology/anti-spam.htm

Lyris MailShield Server
Lyris Technologies Inc.
Berkeley, Calif.
www.lyris.com/products/mailshield/

MailFrontier Anti-Spam Gateway
MailFrontier Inc.
Palo Alto, Calif.
www.mailfrontier.com/enterprise_overview.html

SpamKiller
Network Associates Inc.
Santa Clara, Calif.
www.networkassociates.com

Postini
Postini Corp.
Redwood City, Calif.
www.postini.com/services/

Proofpoint Protection Suite
Proofpoint Inc.
Cupertino, Calif.
www.proofpoint.com/product-spam-and-spam.html

SPAM FROM THE START

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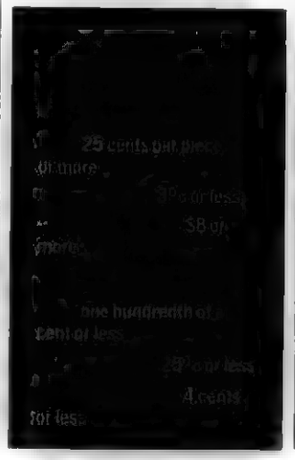

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www.activestate.com/products/puremessage

BrightMail Anti-Spam Enterprise Edition, Release 4.5
Brightmail Inc.
San Francisco
www.brightmail.com/enterprise-as.html

IronMail
CipherTrust Inc.
Alpharetta, Ga.
www.ciphertrust.com/ironmail/

Authority
Cloudmark Inc.
San Francisco
www.cloudmark.com/products/authority/

Gordano Messaging Suite
Gordano Ltd.
North Somerset, England
www.gordano.com/technology/anti-spam.htm

Lyris MailShield Server
Lyris Technologies Inc.
Berkeley, Calif.
www.lyris.com/products/mailshield/

MailFrontier Anti-Spam Gateway
MailFrontier Inc.
Palo Alto, Calif.
www.mailfrontier.com/enterprise_overview.html

SpamKiller
Network Associates Inc.
Santa Clara, Calif.
www.networkassociates.com

Postini
Postini Corp.
Redwood City, Calif.
www.postini.com/services/

Proofpoint Protection Suite
Proofpoint Inc.
Cupertino, Calif.
www.proofpoint.com/product-mpe-mod-spam.html

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Reserve Call-up Hits IT Security Department

When an IT security manager gets the call, the rest of the staff is left to pick up the pieces. By Mathias Thurman

AS IF THE EVERYDAY stress of my information security job were not enough, our department was hit with a bombshell. I'm in the U.S. Air Force Reserve, and my unit activated me. I've been out of the office for a couple of weeks now, and I'm attempting to contribute at work as best I can using my laptop and cell phone.

I got the call on a Thursday and had to report to the base the next day to sign in. Fortunately, I live near the base, so I'm able to return home on the weekends. I received word just prior to the war that I was going to be activated, so I was able to give my boss and security team advance warning. They weren't happy, but they were supportive and seemed more concerned that I return home safely than that I deal with unfinished business before my departure.

By law, my company must let me participate in the Reserve and must hold my position for me until I return. Although companies are required to hold reservists' jobs, they aren't required to pay them while they're gone.

Fortunately, my company will continue to pay me for the first six months of activation. That's a pretty good deal, since the difference between military and civilian pay is steep. (For some of my peers, the pay difference has been devastating.) Hopefully, I'll be released before the full six months are up.

In preparing for my departure, I transferred as many of my duties as possible to the staff. Right now, my major projects include deploying a wireless LAN, centralizing Unix authentication, performing application assessments and attending architecture review meetings for current and proposed applications. My other duties include things like documenting policy, procedures and standards; conducting investigations; and handling the administration of some critical security applications. I compiled a list of all of these tasks and approached my staffers to see who wanted to take over what. Although everyone is already stretched thin, they all pitched in and relieved me of the critical duties that I can't perform remotely. For now, I'm still available by cell phone and e-mail when questions or issues arise.

SECURITY MANAGER'S JOURNAL

Remote Mode

As a full-time telecommuter, I'm using my company's Cisco virtual private network (VPN) concentrators for LAN access. Although the performance isn't as fast as it would be if I were at my desk, it has been sufficient to allow me to get work done when I'm off duty from my new day job. My department also has a weekly staff meeting, which I have attended via teleconference.

> **Between the VPN, teleconferencing and additional telephone communication, I have managed to still be somewhat effective.**

Between the VPN, teleconferencing and additional telephone communication, I have managed to still be somewhat effective. But there's a limit to what I can do. If I'm deployed to the Middle East, Internet access may not be available for my civilian work. And even if I do have access, the performance might degrade. Also, many military firewalls block VPN traffic to IP addresses that don't belong to the .mil domain name. So I'm preparing for the worst.

This week, I moved temporarily to another base in the U.S. that, fortunately, provides high-speed Internet access. So I used the VPN connection to access my company's newly installed WLAN management tool, the AirWave Management Platform (AMP), which we just purchased from San Mateo, Calif.-based AirWave Wireless Inc. Not only was I able to check on the status of the dozens of access points (AP) located throughout the corporate campus, but I also completed a rogue AP detection scan.

AMP uses two methods for rogue detection. The wireless detection mode works by switching some of our APs into promiscuous mode. We primarily use Cisco AP 1200s, but we have some units from 3e Technologies International Inc. in Rockville, Md., spread across our campus that we use exclusively for wireless AP detection.

The second rogue AP detection method involves a wireline AP scan. With this feature, the AMP system initiates a scan of the designated network and probes for signatures that resemble an AP. The AMP interrogates an IP address and port and can determine the type of AP by examining the return packets from the interrogated IP address.

This feature requires some additional configuration, because I have to ensure that I don't scan network addresses that aren't within my company. In addition, scans have to be coordinated so the security analysts don't panic as a result of what might look like a coordinated port-scan attack.

This time around, my scan didn't detect any rogue APs. Employees seem more cognizant of our AP detection capabilities and the ramifications of the discovery of a rogue AP (we confiscate the AP, and the employee faces disciplinary action). I now have set a schedule for scanning each of our networks on a regular basis. I've automated as much of this as possible, but it still requires coordination, and I'd rather control the execution of the scanning myself if I can.

In addition to participating in the management of the wireless network infrastructure, I hope to continue to perform a limited number of application assessments.

I remain hopeful that I will be released from my Reserve duties sometime soon so that I can return to full-time duties on my security team. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum:

QuickLink a1990

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

BRIEFS

XAware Upgrades Integration Server

XAware Inc. last week announced XA-Suite 3.0 for Java. The upgrade includes new features for streaming large XML documents, XML-to-XML mapping to simplify schema transformation, functionality for flexible data manipulation and mapping to business rules, and increased support for stored procedures with relational databases, according to the Colorado Springs-based company.

XA-Suite for Java 3.0 is available now and is priced from $5,000 to $50,000, depending on processor and connectivity requirements, the company said. It is also available for evaluation at www.xaware.com.

Nortel Introduces Layer 2 Switch

Nortel Networks Ltd. in Brampton, Ontario, last week introduced the BayStack 470-24T 10/10000 switch for Layer 2 connections in large companies. The switch is designed to lower complexity while adding quality-of-service functions. Nortel also announced new BayStack Operating System Switching Software that's designed to let users control a stack of BayStack devices as if they were a single system. Both products are scheduled to ship later this month. Pricing wasn't disclosed.

Bitstream Updates Wireless Browser

Bitstream Inc. in Cambridge, Mass., last week released a new version of ThunderHawk, its wireless Web browsing technology. Upgrades to the Enterprise Edition include features designed to improve and simplify installation, a new Linux installer and the ability to scale to 64 concurrent users, twice as many as previous versions were able to handle. ThunderHawk runs on the Pocket PC operating system. To download a free, 30-day trial version, visit www.bitstream.com.

PAUL A. STRASSMANN

Enterprise Software's End

SUPPLIERS of enterprise resource planning software are headed for a dead end. Systems integration from now on will be accomplished by networks that can make diverse systems interoperate without being forced into any one vendor's architecture.

Since the early 1990s, ERP vendors have insisted that companies will cut costs and improve productivity by investing in tightly integrated end-to-end ERP. These systems promise to automate business processes into an all-embracing architecture that dictates integration by means of an all-encompassing data warehouse. Accordingly, the goals of ERP could be achieved best by using software from one supplier.

The alternative — integrating a multiplicity of applications offered by admittedly superior yet specialized suppliers — was scoffed at as requiring middleware tools and time-consuming integration efforts. Extensive testing would be required as changes occurred. Undesirable translation logic would delay transactions, and performance would suffer.

Preintegrated software packages were the choice of many organizations seeking simplification in information processing and escape from the chaos of software proliferation.

Billions of dollars have been invested in launching organizations on a march toward synchronization through centralization. In just about every case I have examined, the driver has always been the finance establishment. They welcomed the opportunity to consolidate financial systems. The real agenda was to reassert control over the mess left by the rapid succession of failed CIOs.

The reality of ERP turned out to be different than claimed. Just about every ERP system would be, in due course, either aborted or truncated when bumped up against the realities of enterprisewide systems integration. Contrary to claims that ERP provides easy-to-use, off-the-shelf solutions, the truth is that forced conversions from "legacy" systems are horrendously expensive and traumatic for the people who work with them. Many of these legacy applications could have been modernized at a fraction of the conversion cost by updating their data formats and standardizing on communications.

And few ERP systems have ever been completed as originally proposed. Smart operators never let go of systems that gave them answers they needed. Slipping schedules, budget overruns and user revolts forced firms to purchase supplementary solutions from a variety of small suppliers. Increasingly, users had to divert efforts from their vendor-provided standard applications to fixes and overlays that thwarted hoped-for systems integration.

Why do I now pronounce the ERP era as coming to an end? The answer is Web-based services that can deliver integration of dissimilar systems. Web services make it possible for corporations to plug into best-of-breed suppliers for rapid acquisition of innovative applications. Web services enable pilot tests that can verify performance before the company commits to implementation. They offer a superior architecture for enterprisewide integration of diverse, distributed and refurbished "legacy" applications that can remain in place until gracefully upgraded or retired. Web services promise a way to reduce huge development budgets. Web services avoid the shock of forced insertions commonly associated with all ERP ventures because they can be trickled into the workplace as the workforce is ready to absorb changes. Web services smooth the migration from hard-to-manage (and insecure) client/server environments to outsourced network service providers that offer the protection of experienced security staffs.

Web services accept diversity in applications instead of a single application architecture dominated by one supplier. They allow integration through network message sharing (in vendor-independent universal standard formats such as XML) instead of forcing every data element into a monolithic data repository.

Rapid replacement of failed applications is a benefit of Web services as is tactical outsourcing as an alternative to emigrating most of a company's IT to a contractor from where it can hardly ever be repatriated and never reconstituted. Web services make it possible to unburden the CIO of an organization from housekeeping and allow him to make IT a source of competitive advantage. Through loose coupling of services, the Web environment is more suited to the prevailing conditions where mergers, acquisitions and supplier and customer collaboration call for interapplication interoperability in a matter of days instead of years, as currently dictated by ERP initiatives.

Why then is the adoption of Web services so slow? Organizations can shift to Web service-based integration only after they restructure the way IT is managed and shift attention from computing to communications. They must also accept a move away from ownership of the means of computing and be willing to purchase most of their transactions as a service. I will write more about such transformations next month.

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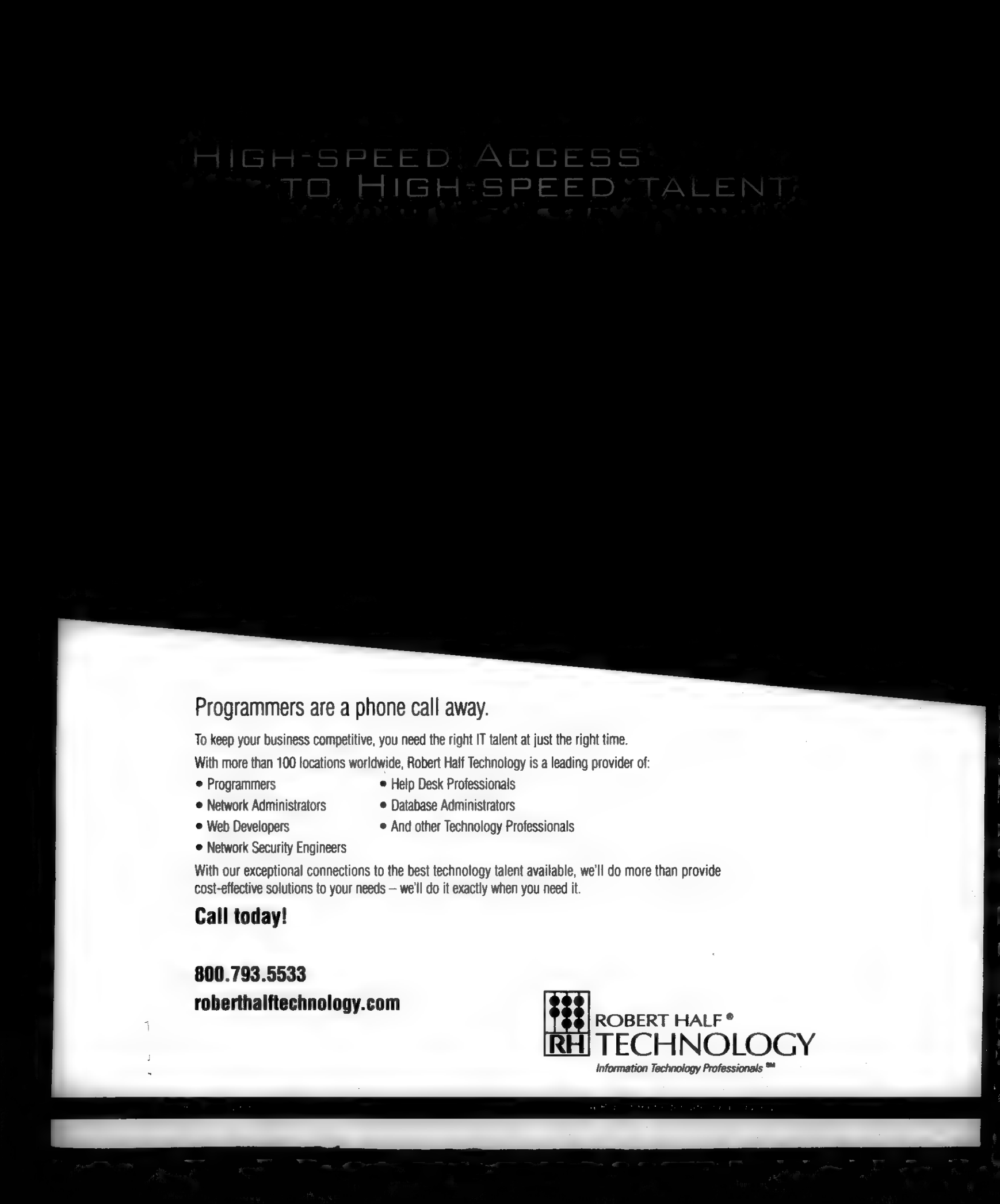

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MANAGEMENT

Squandered Opportunity
Companies invested heavily in IT asset management tools prior to Y2k, but they have largely failed to make long-term improvements. Industry experts offer tips for picking up the pieces. **Page 42**

Get Over Yourself
The pervasiveness of IT may be making it strategically irrelevant, according to *Harvard Business Review* editor Nicholas G. Carr, who says, "IT management should, frankly, become boring." **Page 44**

What You Measure Is What You Get
Forget descriptions like "world-class support." Contracts must include clearly defined metrics if supplier performance is to be measured fairly, writes columnist Bart Perkins. **Page 46**

TARNISHED IMAGE

DAVID HOLLENBACH

Budget overruns, project failures and lingering resentment over the millions spent on Y2k are to blame for IT's credibility crisis.

By Gary H. Anthes and Thomas Hoffman

IT WAS BUDGET TIME at Allied Building Products Corp., and the CEO wanted to know how the company could increase sales and profits in the coming year. "How much money do you need?" he asked his senior managers. "How many people do you need?"

"I said, 'Whatever extra dollars you would give to me, give to Jamie,' " recalls Brian Reilly, chief financial officer at Allied. "I get a better return out of money spent in Jamie's world than in mine."

Jamie Kutzer is CIO at the East Rutherford, N.J.-based company, where the CFO's extraordinary generosity with his budget is testimony to the extraordinary reputation of IT there.

Sadly, that type of relationship between IT managers and business managers is uncommon. Budget overruns and return on investment underruns have plagued IT and tarnished its reputation for decades. IT's performance has been poor in completing projects on time and within budget.

And it has grown worse during the past few years, according to research conducted by The Hackett Group in Atlanta, which regularly benchmarks the performance of nearly 2,000 companies, including 97% of the Dow Jones Industrial companies and 81% of the Fortune 100. According to Hackett, average-performing companies reported an IT project completion rate of 67% in 2002, down from 72% in 1999. The decline is more striking for the completion of one-year IT projects, which dropped from 58% in 1999 to 51% in 2002.

The Y2k nonevent, the dot-com bomb and disappointment over the cost and performance of complex systems have diminished the stature of some IT shops. Many IT leaders acknowledge that there's a credibility problem in IT. At *Computerworld*'s Premier 100 IT Leaders conference in February, 45% of 135 survey respondents said that IT had an image problem, which they attributed mostly to IT being too slow and too expensive.

IT is a "joke" in many boardrooms, says Joe Noga, a partner at Tatum CFO Partners LLP, an Atlanta-based CFO placement company. "What I hear is, 'Holy Christmas, they told me it was only going to cost 1% of sales, and it's 4%.' Or, 'They told me this thing was going to be installed and working in 18 months, and here we are 30 months into it, and we don't have the first part working.' " Noga says. And the explanations from IT managers often aren't helpful or particularly clear, he says.

Some IT executives acknowledge that IT faces cyclical reputation and credibility problems. For example, they point to the massive amount of money and labor thrown at the year 2000

problem. Total U.S. spending on Y2k from 1997 to 2000 was $125.9 billion, Meta Group Inc. estimates.

Although many industry experts and CIOs say the paucity of problems that occurred after the date change was a result of the effort put in by IT departments, some board-level executives say they think the problem was hyped and, thus, overfunded.

"I believe that credibility has been damaged and is being justifiably questioned," says Jerry McElhatton, president of global technology and operations at MasterCard International Inc. in Purchase, N.Y. One reason, he says, is that systems are much more complex than they were 20 years ago. "These enterprise systems are massive, and they require significant infrastructure changes," he says. "It's a huge undertaking, and people just miscalculate and underestimate what it takes to get these [projects] completed."

Many companies lack the capital to invest in modernizing IT, and IT has a history of not delivering ROI on such investments. These problems "test CIO credibility in some companies," says Robert A. Kotch, president of SIM Associates Inc., an IT consulting firm in Purdys, N.Y. Others point to CIOs who persuaded management to spend lavishly during the dot-com era on e-commerce initiatives that never paid off.

Susan Unger, CIO at Daimler-Chrysler AG, says that even during the height of the e-commerce boom, the automaker invested only in IT projects that were expected to deliver sizable returns. "We didn't get a huge increase in our IT budget then, so we haven't experienced a big decrease to our budget recently," she says.

For Unger, credibility depends on how CIOs have been perceived by senior management and what they have accomplished during their tenure. "If they had great credibility to begin with, they should be all right today," says Unger. "If they didn't, they probably lost it well before the dot-com era."

If you believe IT's credibility has decreased, what are you doing to turn it around?

Getting business units more involved in planning and decision-making	17.4%
Improving communications with the CEO and other business unit heads	17.2%
Better prioritizing of key projects	14.6%
Evangelizing the value of IT	12.1%
Putting a greater focus on short-term ROI	10.4%
Establishing customer liaison teams	9.3%
Doing more cost-cutting	6%
Changing the approach and/or structure of the IT organization	1.6%

SOURCE: Survey of 135 attendees at *Computerworld*'s Premier 100 IT Leaders conference in February. Multiple responses allowed; 431 total responses.

Chivalry Isn't Dead

Allied Building Products' IT shop wins credibility among business unit managers with a can-do spirit tempered with realism. As CFO Reilly says of CIO Kutzer: "Jamie's attitude is, 'You call me, and I'll get you the answer,' rather than 'I'll send you a report, and you run the business the best you can.' The gentleman before him promised too much, too fast, or he just said, 'You're not going to get it.' "

Not overpromising is important, Kutzer says. "Just last week, I walked into somebody's office and said, 'I'm here to manage your expectations,' " he says. Kutzer explained to the supply manager why the distribution software to be installed at a branch office was likely to be troublesome for the first three weeks. By doing so, Kutzer says he was able to help the manager set his hopes realistically.

Throwing cold water on user expectations is the right thing to do sometimes, but it can't stop there, Reilly says. "We'll go to Jamie and say, 'Here's what I'm looking for. How long will it take you?' And he says, 'How about if you did it this way instead?' He's sort of re-engineering the question." Kutzer has a strong background in business operations and distribution that helps his credibility, Reilly says.

But not everyone believes IT has a credibility problem. "I've seen a noticeable improvement in the reputation of IT and IT leaders in the past few years," says Linda Roubinek, an information systems officer at Nationwide Mutual Insurance Co. in Columbus, Ohio. "IT has become more of a core competency in business, and business leaders are starting to see technology as an enabler to delivering business plans."

Roubinek outlines several things Nationwide is doing to make IT both effective and appreciated. For example, she says, the CIO introduced a "sponsorship model" by which IT and business units are joined at the hip before a project starts. "Funding is agreed upon between the systems and business partners, and they go together to our corporate leadership for the money," she says. "They collaboratively work out what the ROI is and the goals of the project before requesting funding."

Every six months, Roubinek says, the IT and business partners take a fresh look at each project, recompute the expected ROI and request funding for the next six months. Risk mitigation plans are updated at that time. Any project heading south could get killed at one of these reviews. "We have developed the managerial courage to stop a project when we feel it's not meeting our original expectations," she says.

Corporate Systems Vice President Damien Bean's strategy for success at Hilton Hotels Corp. in Beverly Hills, Calif., can be summed up in one word:

Continued on page 40

THE BOSS MATTERS

ALL TOO OFTEN, a company's top executive sees IT only as a tool.

For that reason, the CIO should report to the CEO, says Joe Noga, a partner at Tatum CFO Partners. "When IT grows up under a CFO, it is not viewed as an equal partner," Noga says.

Tim Stanley, CIO at Harrah's Entertainment Inc. in Las Vegas, reports to the chief operating officer.

"I have reported to CFOs in the past, and I don't much care for it," he says. "CFOs are very financially savvy. But being directly linked to the chief operating officer puts you right in the thick of business needs, desires and impacts. It's less of a cost equation and more of a business-value driver equation."

Of course, it doesn't hurt for IT to hit a grand slam, Stanley adds. The casino company's Total Rewards loyalty program is "a key driver of our 17 consecutive quarters of same-store sales growth," he says. The program and everything under it – such as modeling to predict customer behavior – is all IT-driven and for the past five years has produced better than 60% ROI, he says.

Despite periodic setbacks, there is some evidence IT may be increasing in stature. The Hackett Group last year published a survey showing that the percentage of companies with CIOs increased from 65% in 1999 to 82% in 2002. In 2003, more than a third of CIOs will report to CEOs (see chart).

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Callahan, who joined Guardian in 2000, says the previous IT regime had "undershot expectations and overshot costs, and that led to a level of dissatisfaction with IT." To turn that around, Callahan says he pushed IT into a "rapid response, client-service orientation, starting with me, down."

He recalls the result: "The word got out – we are doing something new, we are moving fast, we are service-oriented, and the business heads and I partner top-down. The typical reaction from them was, 'Oh, I wish you were here five years ago.' "

– Gary H. Anthes

BASE: 2,000 companies, including 97% of the Dow Jones Industrial companies and 81% of the Fortune 100 companies.

NOTE: [illegible]

problem. Total U.S. spending on Y2k from 1997 to 2000 was $125.9 billion, Meta Group Inc. estimates.

Although many industry experts and CIOs say the paucity of problems that occurred after the date change was a result of the effort put in by IT departments, some board-level executives say they think the problem was hyped and, thus, overfunded.

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NOTE: PERCENTAGES MAY NOT ADD UP TO 100 DUE TO ROUNDING

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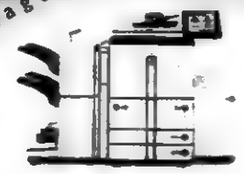

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Bean puts the issue of IT's reputation into perspective: "I don't think IT executives are suffering a credibility gap more than any other senior function." He says if IT deserves a hit for its role in the excesses of the late 1990s, financial executives deserve it even more.

One way to elevate the stature of IT inside a company may be to outsource the commodity functions and retain the strategic ones. Owens & Minor Inc., a Richmond, Va.-based medical supplies distributor, has outsourced day-to-day IT development and operations to Perot Systems Corp. What remains is a small CIO office. Populated by a dozen people who act as links with the business units, the office "steers IT in the direction we need to go," says Don Stoller, director of information management. Stoller says Perot Systems gives him more flexibility to get the right skills for projects. "I don't know if we could have maintained the credibility, and the delivery of projects, without outsourcing," he says.

So while IT remains in the doghouse at many companies, IT managers elsewhere have employed a variety of strategies to win respect. The most successful ones say there is just no substitute for quality work delivered on time and on budget.

LOOKING IN THE MIRROR

See how IT leaders responded to *Computerworld*'s February credibility survey

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www.computerworld.com

First-Class Upgrade

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The "technology CIO" is on the lowest rung of the ladder and controls 3% or less of the company's total budget – basically direct spending for IT people and gear, he says. Next comes the "information resources CIO," who controls not only technology spending but also spending on information resources generally, perhaps 30% of the budget. At the top sits the "information strategy CIO," who ultimately has some influence over 100% of the budget.

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SINGING YOUR OWN PRAISES

SUFFERING FROM A TARNISHED reputation in IT? You may want to step up your sales efforts with a marketing program that helps reinforce the value that IT delivers.

IT executives at companies that have enacted such programs – including The MONY Group Inc., CBS and Baxter International Inc. – point to real benefits like financial gains and image makeovers.

Two years ago, MONY restructured itself by creating separate and dedicated IT groups, IT budgets and IT relationship manager positions to support each of its business units. That's when the IT department's marketing efforts began in earnest, says E.P. Rogers, senior vice president and CIO at the New York-based company.

The reason: MONY's newly organized business units were also given the OK to go around corporate IT and collect bids for technology projects from third-party vendors. If the best price and skills came from the corporate IT group, so much the better. If not, business units were free to hire from outside.

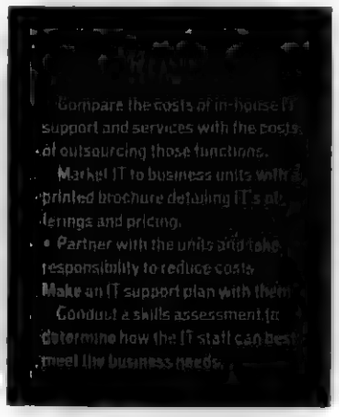
"We were always focused on our customers, and we'd always gotten high marks" from end users on an annual IT report card, Rogers says. "But when the [outside services rule] came down two years ago, we had to market. If we didn't have the right approach or culture established, we'd lose customers and have to let go of people."

Since then, MONY's IT group has taken steps to validate and better communicate its value to users. These steps include benchmarking the costs of developing applications, running its data centers and other IT support functions against external competitors such as IBM, says Rogers.

The IT group has also published a products and services brochure for business units to evaluate the costs and breadth of the IT group's offerings, including hourly Web services programmer rates and data center support costs.

MONY's IT group has been in head-to-head competition with outside providers for IT projects five times and hasn't lost one yet.

This includes a recent request for proposals by the company's annuities division to install a new administration system from Malvern, Pa.-based AdminServer Inc. One third-party services firm "aggressively" pursued the deal, but MONY's IT group demonstrated that it could install the system for $1 million less than the competitor's asking price, says Rogers.



The internal IT group was able to meet systems integration and design needs in a "much more cost-effective" approach than other companies that bid on the project, says Carol Sullivan, vice president and CFO of MONY's annuities division. The implementation began in March and is expected to continue throughout 2003, she says.

Before the restructuring, IT "was one cost center within a corporate entity," says Sullivan. Now, she says, the IT department is viewed as a partner, and both parties have a stake in reducing IT costs, such as CPU use and storage requirements. "It's relevant now that we're paying the bills," Sullivan adds.

Late last year, CBS, a division of Viacom International Inc., launched an IT transformation program that includes an IT marketing and communications practice. The marketing piece is aimed at helping the IT department better align itself with the business units it supports, including the CBS television network, 30 Viacom TV stations across the U.S., 183 radio stations run by Infinity Broadcasting Corp., and Viacom Outdoors, a billboard and transit advertising service.

"The business had changed quite a bit over the years and [the IT organization] hadn't," says Julie Kapsch, vice president of strategic services for CBS IT in New York. "We transformed ourselves in order to be better aligned with the business and to help us execute against an aggressive [business] agenda."

Kapsch says managers from CBS IT met regularly with business unit leaders during the yearlong project to discuss the types of products and services they were receiving and the strategic direction for each business unit before developing a support plan for each group.

Then, the IT group did a skills assessment of each of its 175 staffers and evaluated all of its processes – from planning to project execution and support – to come up with an operating model to meet the needs of the business. "We didn't want to eliminate any head count, but we did want to better utilize our resources," Kapsch says.

One of the biggest challenges for CBS IT since the reorganization has been trying to apply best practices to its own environment. "Even before the reorganization, we've been trying to run IT more like a business and communicate our successes in business terms, such as risk management and yield management," says Kapsch.

Even companies without formal IT public relations functions can take steps to burnish the image of IT. For example, MasterCard International annually surveys its external customers (member banks). It also surveys internal users after every project.

"We ask them did our people understand their requests, did they perform on schedule, did they perform on budget and so on," says Jerry McElhatton, president of global technology and operations at MasterCard. The company's IT satisfaction rating is 98% overall, he says. Its "top-box rating," the percentage of users who give IT the very highest mark, is 75%, he adds.

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The do's and don'ts of marketing IT in-house.
QuickLink 31261

Survey shows the scarcity of internal IT marketing:
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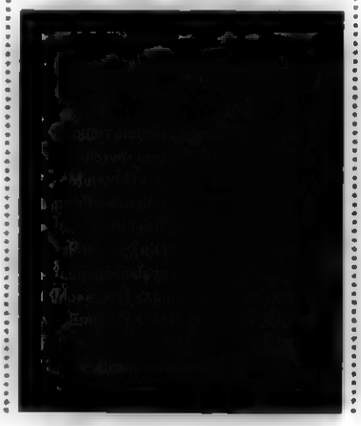

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Squandered Opportunity

Companies invested heavily in IT asset management tools prior to Y2k but have largely failed to make long-term improvements.

By Thomas Hoffman

FLASH BACK to the late 1990s. Companies were spending billions of dollars to prepare computer systems for the Y2k date rollover. One of the key IT investments many of them made was in asset-tracking tools that could help them identify all of their hardware and software and determine which systems required modifications.

At the time, pundits and IT managers widely believed that the money and labor being pumped into Y2k would lead to more mature asset management practices beyond Jan. 1, 2000 (see "Y2k's Fallout of Good Fortune," QuickLink a3140). But that scenario didn't play out, at least not on any grand scale, according to IT industry executives, managers and analysts who track the asset management market closely.

"Companies squandered a lot of opportunities" by failing to make additional investments in their asset management tools and processes, says Frances O'Brien, an analyst at Gartner Inc. in Stamford, Conn.

Generally speaking, companies invested a lot of money and effort to get a more detailed view of the hardware and software in their IT portfolios, says O'Brien. "But they didn't take asset management further," such as using it to better manage IT contracts or to measure the interrelationships among systems more effectively, she adds (see story at right).

COUNTING COSTS
See some of the expenses of launching an asset program:
QuickLink 38001
www.computerworld.com

That's true in part because many companies were focused on attacking the Y2k problem as cheaply and efficiently as possible and paid scant attention to refining their asset management processes, says Phil Davis, a vice president at Layton Technology Inc., a Tampa, Fla.-based firm that provided IT auditing services to companies in the late 1990s and now sells a PC auditing tool called AuditWizard.

Consultant Pat Cicala estimates that more than half of all corporate asset management programs in the U.S. have done little more than gather dust since Jan. 1, 2000. Cicala, president and CEO of Cicala & Associates LLC in Hoboken, N.J., says most companies have failed to follow up their Y2k inventory efforts with the creation of databases to track hardware and software licenses and other contract details on an ongoing basis.

Indeed, during Y2k preparations, many companies focused on tracking their existing hardware and software systems but paid little attention to managing them, says Kevin Roche, general manager of Getronics North America, a Billerica, Mass.-based division of Getronics NV, an Amsterdam-based IT consulting company. The minority of companies that have continued to develop their asset management practices are using tools, people and processes to track hardware and software licenses, IT support costs and system utilization and to determine when an IT asset "has reached the end of its life," says Roche.

Post-Y2k Priorities

Y2k also had a whiplash effect on asset management practices. Heavy spending on Y2k-readiness led many firms to postpone e-business, resource management and other IT projects. Once that pent-up demand was unleashed at the turn of the century, investments and enhancements to asset management initiatives were pushed to the back burner at many companies, says John Hillmer, director of technology services at Northwestern Mutual Life Insurance Co. in Milwaukee.

Now, with a weak economy, IT budgets have been slashed and IT departments have been struggling to reduce costs wherever possible. Asset management has been among the projects to take a hit or be pushed to the back of the line. "Those organizations that are good at asset management are in the catbird seat," says O'Brien. "They can see how their IT investments are performing, and they have an easier time of obtaining funding" for new projects.

"It's a chicken-and-egg thing," says Cicala. If companies had funded and executed their asset management programs effectively over the past few years, "they would have generated the cost savings to pay for 10 other projects," she says.

Picking Up the Pieces

Most companies have generally underinvested in asset management since Y2k. Still, there are steps IT managers can take to improve. Industry experts offer the following advice:

- If your company has an asset management tool in place, see if the license is up to date and determine whether it's capable of supporting your current needs.
- If funding is a problem, start by tackling one area that can quickly deliver identifiable returns, such as auditing vendor invoices – even if they have to be counted manually.
- Get the CFO involved. CFOs understand and appreciate the importance of tracking and managing assets effectively.
- Don't look at asset management tools as a silver bullet, which is a mistake many companies make. People, processes and tools have to be integrated to make asset management programs succeed.

Beyond Covering Your Assets

IT departments that have managed to stay current with their asset management programs since Y2k are now focusing on configuration management and on making sure that they're meeting more stringent software-license compliance guidelines.

"We're trying to take asset management to the next level, beyond tracking and inventorying the costs and service-level agreements for individual assets," says John Hillmer, director of technology services at Northwestern Mutual Life Insurance. Hillmer and his IT group are using asset management tools and techniques to determine how a new application will interface with other software systems the company uses "and the impact it can have on other technologies that are closely integrated," he says.

Meanwhile, Microsoft Corp. and industry organizations such as the Business Software Alliance "are coming down hard" on software license compliance – a trend that's helping to drive a resurgence in asset management practices, says Phil Davis, a vice president at Layton Technology.

"The big guys," like Microsoft and Oracle Corp., are conducting software audits with customers more frequently, "and you have to show what you have in place," says Werner Knoblich, vice president of customer solutions at MRO Software in McLean, Va.

The Mason City School District in Ohio is using a systems management package called LANDesk from Clearwater, Fla.-based Enterprise Management Solutions Inc. to help roll out new software to its 2,200 Dell PCs and monitor all of its software licenses from a central location.

LANDesk, which costs Mason City about $13,000 annually in licenses, has helped the school district's IT department transition from supporting 250 end users with one technician to supporting 500 users, says Dave Hickey, the group's CIO.

Other companies are using asset management to cut costs. For instance, Mike Emmerling, a senior product manager at Getronics, points to a pharmaceuticals company that was having trouble returning leased equipment on time. Its use of asset management tools and processes saved $150,000 in lease cost overruns, he says.

– *Thomas Hoffman*

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The pervasiveness of IT may be making it strategically irrelevant.

Get Over Yourself

Information technology has become a commodity. All that's left to do is mitigate risks and control costs. So states **NICHOLAS G. CARR** *in this month's* Harvard Business Review. *Carr argues that IT, like railroads, electricity and other infrastructural revolutions that came before, has become so pervasive that companies can't live without it but that it now offers them little strategic advantage. Carr, HBR's editor at large, told Kathleen Melymuka why he thinks "IT management should, frankly, become boring."*

Why is the strategic value of IT diminishing? For any resource to have strategic value, it has to allow companies to use it in a distinctive way. As information technology becomes more powerful and ubiquitous, it is increasingly a shared resource that everyone has access to. As a result, it's getting harder and harder to use IT to gain any kind of edge over competitors.

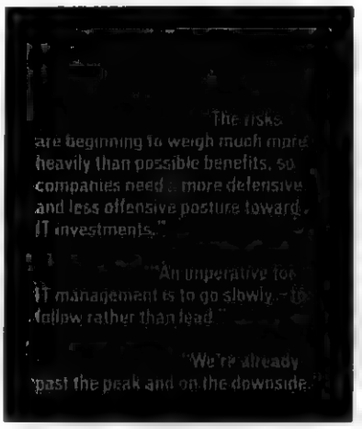
Does this apply to all kinds of IT, or just to infrastructure? I'm defining IT as the processing, storage and transmission of data, so I'm talking quite broadly. All of that is actually becoming part of the general business infrastructure, just as the rail system became part of the infrastructure in the 1800s and the electric power grid became part of the infrastructure in the early 1900s.

Are you saying, for example, that businesses have already derived most of the value they can get from the Internet? Most of the strategic value. Companies are going to continue to use the Internet to increase productivity, but that's going to happen at the industry level, not at the level of individual companies. As a means of differentiation, I think we're already past the peak and on the downside.

What are the characteristics of IT that guarantee this rapid commoditization you write about? First, IT is essentially a transport mechanism. It carries digital information in the same way power grids carry electricity. That's much more valuable when it's shared than when it's used in isolation, so everyone quickly moves to shared systems. Second, the almost infinite scalability of many IT functions, combined with the rush to technical standardization, means there's no economic benefit to having proprietary applications.

No one writes their own e-mail or word-processing applications, and that approach is quickly moving to supply chain management and CRM. Generic systems are efficient but don't offer advantages over competitors because we're all moving to the same systems. With the arrival of the Internet, we've got the perfect delivery channel for generic applications. As we move to Web services, where we can purchase key applications just like we buy electricity, that will push us further toward the homogenization of IT capability.

Isn't it possible that there will be another "big thing" in IT that's still unforeseen? That's possible, but we're already starting to see that the capabilities of the IT infrastructure are greater than the needs that businesses have. It's always possible something out of the blue will change everything, but it's hard to imagine that happening the way you could five or 10 years ago. Also, even if something like that happens, it will



probably come out of the vendor community, not the user community. All companies will be able to buy the capability, so no company will get an advantage.

What do the previous infrastructure build-outs – like railroads and electricity – tell us about the ratio of risks to advantages in the current state of IT? In the early stages of the build-out, companies can get proprietary advantages because access remains limited due to physical limitations or patents or high cost. So companies begin to see them as ways to build advantage. But the build-out happens so fast that the window to gain advantage is open only for a short time. Then the technology becomes a cost of doing business that all pay, and nobody gets advantage.

When things begin to tip that way, the risk involved in using that technology starts to outweigh the advantage. For example, nobody gets strategic advantage from electricity, but if you lose access, that can devastate your business. We're seeing the same thing with IT. The risks are beginning to weigh much more heavily than possible benefits, so companies need a more defensive and less offensive posture toward IT investments.

Are you saying companies should be more concerned with IT risk mitigation than with IT strategy? Exactly. I think IT security should be a much greater concern than it has been. I think the real competitive struggle in the use and management of IT is over cost. It's hard to use IT to gain a strategic advantage, but if you use it poorly, you can quickly put yourself at a cost disadvantage.

You talk about overspending as the biggest risk of all, but every IT leader I talk to bleeds ROI. If an IT project pays for itself and more, isn't that enough? I think the focus on ROI is exactly right. But it's important to make sure when you look at ROI that you're not assuming some competitive advantage that heightens payback. You have to really look at payoff in cost savings and operational efficiency. I think there's still a danger of managers getting excited about the potential for advantage and moving too quickly into new technology.

If it's getting harder to realize the benefits of IT, why is the cutting edge not the place to be? IT costs plummet extremely quickly. Companies should ask not only whether this investment is justified based on ROI calculations today, but whether payoff will be even greater if they wait six months or a year. An imperative for IT management is to go slowly — to follow rather than lead.

Should IT managers be looking for new careers? It depends on what kind of IT managers they are. Companies have increasingly bought into the assumption that IT is a strategic resource. As a result, they have brought in CIOs who are conceptual, strategic thinkers about IT. I think there's less of a need for those types of individuals.

But because expenditures will remain so high, there's enormous need for technically astute, hard-nosed business people who can really help companies to get the most out of IT spending. I think IT management will get less sexy but remain just as essential in another way. ▶

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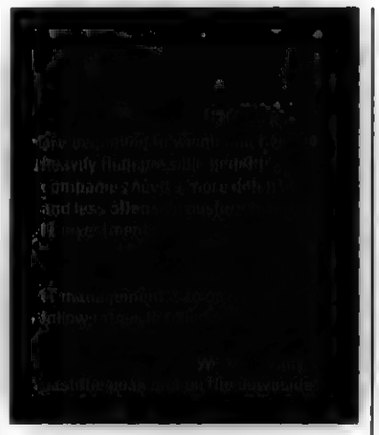

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BRIEFS

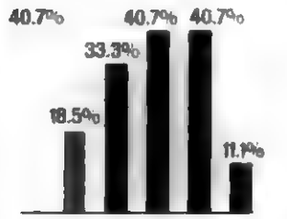
Large Companies Spend $10M on ERP

ERP projects are costing large companies approximately 1% of annual corporate revenues and taking an average of 20 months to implement, according to results of a recent Meta Group Inc. survey of more than 200 companies whose annual revenues exceed $1 billion. About 70% of ERP costs are for labor, Stamford, Conn.-based Meta found. ERP implementations also take an average of 27 months before companies realize benefits from them.

CSC Wins $80M Outsourcing Pact

Denmark's largest insurer, Tryg, has signed a five-year, $80 million outsourcing contract with Computer Sciences Corp. (CSC) in El Segundo, Calif. CSC will provide mainframe, midrange and desktop support as well as perform help desk and network infrastructure functions. CSC will replace Nordea-IT, the IT organization of Tryg's former owner, Nordea AB, a Stockholm-based financial company. CSC said it expects seven IT workers from Tryg and 70 IT workers from Nordea-IT to sign on as CSC employees.

Which project management tasks does your organization outsource?



BASE: 1,000 project professionals and senior-level executives at Global 2,000 companies

SOURCE: CENTER FOR BUSINESS PRACTICES, HAVERTOWN, PA., 2003 (MULTIPLE RESPONSES ALLOWED)

BART PERKINS

What You Measure Is What You Get

A WELL-WRITTEN IT services contract defines many client-specific requirements. But all too often, the metrics necessary to measure and meet those requirements are glossed over during contract negotiations.

Worse yet, service-level agreements are rarely enforced as work progresses. Instead, buyers usually don't bother to look at the metrics they have negotiated until somebody complains. This is like balancing your checkbook only after a check bounces.

Metrics need to be specific, actionable and designed to ensure that the supplier meets the buyer's goals. Metrics that are highly specific but track the wrong things are useless. One example is a call center that measured the length of calls. Because the company was really interested in providing a very high level of service, a better measure would have been the percentage of problems resolved on the first call. Buyers often don't have sufficient experience defining appropriate metrics. Many contracts contain immeasurable and grandiose language such as "provide world-class support." Clearly defined metrics provide a baseline against which supplier performance can be fairly measured.

At contract time, many suppliers lack sufficient information about the customer's requirements to propose useful metrics. (In some cases, suppliers hope to get back price concessions by taking advantage of loosely worded metrics.) Challenge your supplier to share successful metrics from other customers.

The buyer is ultimately responsible for the success of any acquired product or service. Even when you outsource a function completely, it's still your responsibility to monitor the provider effectively. Research best practices. Interview peers and industry watchers to find out what metrics are commonly used and which vendors are meeting them.

To get the most out of your supplier measurement program, you should do the following:

- Prioritize your goals. Most buyers are interested in a combination of financial performance, service quality, operational excellence and the ability to meet future needs. Articulate and weight each goal before negotiating.
- Define metrics early. Metrics should be identified and negotiated as part of the initial contract, preferably by the same individuals who will be responsible for them after the contract is signed. But it's never too late — even where contracts are already in place, negotiate metrics that will effectively measure success.
- Establish operational metrics that support your goals. Appropriate metrics will vary by company and by type of product or service being acquired. Select metrics that will accurately assess progress, and design metrics to influence the behavior you want. For example, monitoring "unit cost" metrics motivates your supplier to drive those costs down — especially if there is a bonus for doing so.
- Grade performance. Use a multilevel indicator of success, e.g., letter grades. If a supplier realizes halfway through the month that a target will be missed, it may quit trying if evaluated strictly "pass/fail." With a letter grade, the supplier can still get a B for the month.
- Use value-based metrics. Poorly chosen metrics allow suppliers to meet their contractual service levels and still disappoint the buyer. For example, some suppliers specify the number of people who will staff a function instead of specifying the expected output. Metrics such as response time per event and cost per service unit are inherently more useful.
- Use metrics that support your culture. Companies that normally operate based on data and numerical analysis can easily work with an extensive set of metrics. Companies that are based more on passion and energy may lack the focus for more than a small number of metrics at first. Stay away from complex measurement approaches until comfort increases.
- Define trade-offs. Prepare to pay more for higher levels of service. And be fair — if you want to collect penalties for poor performance, also pay incentives for exceeding targets.
- Review performance regularly with the supplier. If the service you want is significantly better than the service you are getting, develop a service improvement plan with appropriate metrics and timetable. Service-level agreements form the basis for supplier governance and provide a solid foundation for clear communication. Metrics that are carefully specified and consistently reviewed can help manage expectations fairly and accurately. And they pay off — what you measure is what you get.

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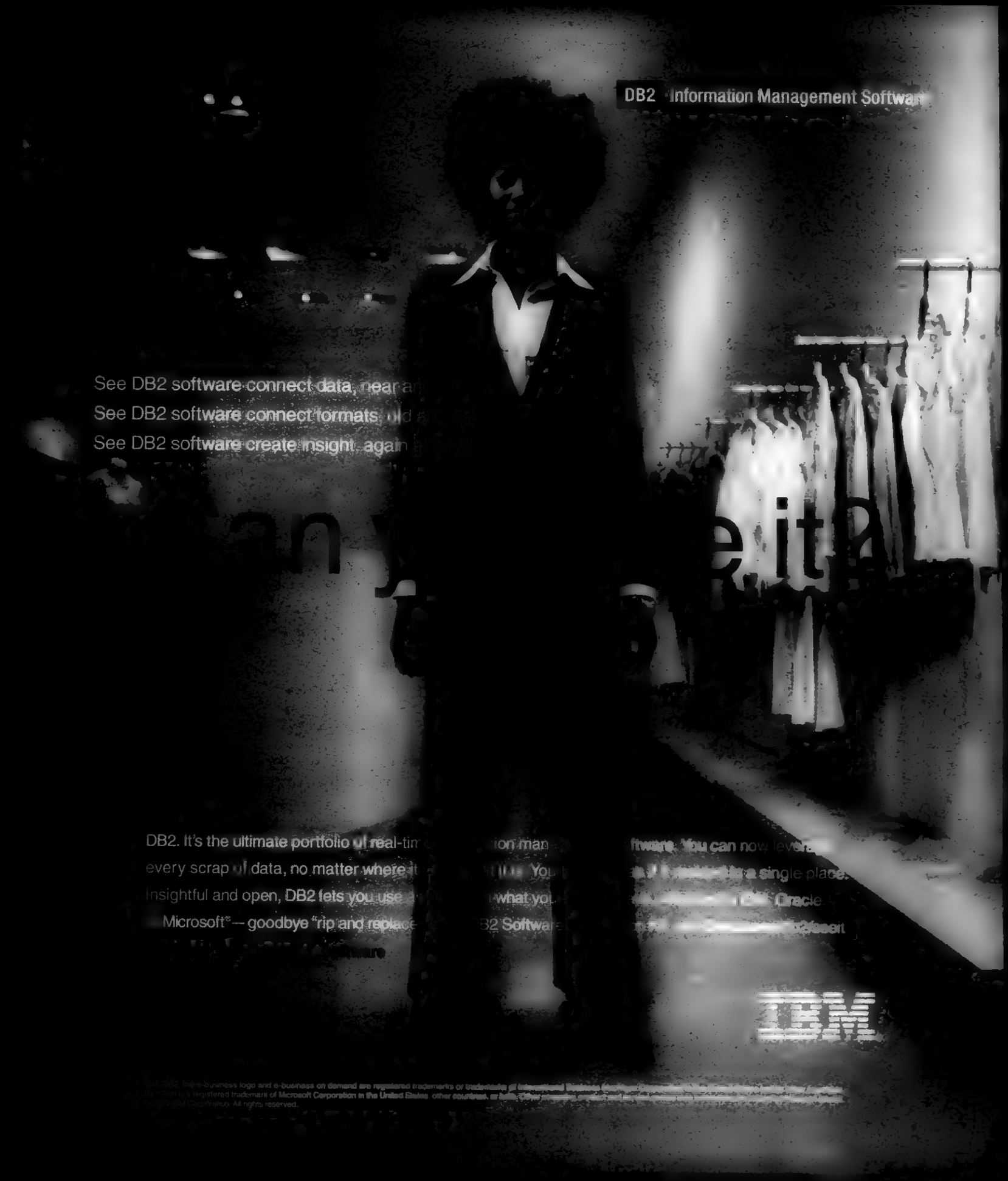

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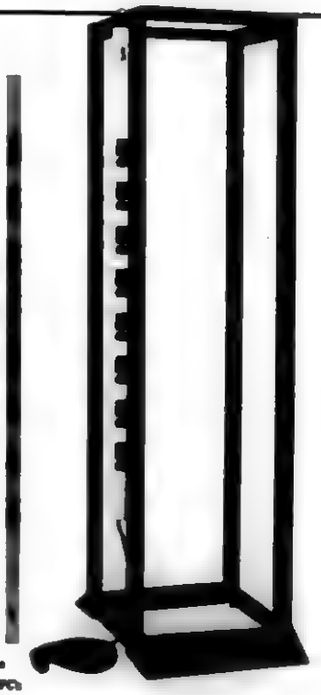

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Optimal Solutions Integration, Inc. has multiple openings for SAP and i2 Consultants, Software Analysts and System Analysts. Please send resume with salary history and requirements to Optimal Solutions Integration, 8445 Freeport Parkway #240, Irving, TX 75063. Open to Green Card holders or US Citizens.

Mascon has mult. openings avail. for IT professionals and Senior Consultants. Duties will include but will not be limited to developing and designing S/W systems using various H/W, O/S tools, software packages and languages; developing client server, mainframe, midrange, erp & web applications. A degree is reqrd. WE will accept foreign equiv. of the required educ. and/or its equiva in edu. and experience. Competitive salaries offered. Must have experienced or education in the IT field. Apply at: mascon-recruiting@mascon.com Mascon HR 1690 E Woodfield Rd, Schaumburg, IL 60173

SENIOR SYSTEMS ANALYST

Responsible for analysis, design and support of Materials Management functionality in the SAP R3 environment including providing consultative services and implementing inventory management solutions; assisting IT Inventory Team Lead with rollout and production support of R3 MM module; assisting in the design, development, implementation and support of Functional Specifications related to all aspects of the order to cash scope; performing systems maintenance, enhancement and production support; and providing training for functional business users as required. Position requires minimum of a Bachelor's degree in Information Technology or a related field and two (2) years experience in SAP R2 and/or R3 configuration and functionality with inventory management modules. Position full-time, M-F. Salary $75,000/year. Job is located in Omaha, Nebraska.

Interested applicants may submit their resumes to www.conagrafoods.com, click on "careers" then "apply now". Note: You must type in the following code of C-CMIS255 in the box labeled "In what job are you interested" in order to apply for this position. Failure to correctly enter this information will result in non-consideration for the position.

SBI is looking for the following positions for its offices in Houston, TX, San Francisco, CA, Warren, NJ, Salt Lake City, UT and Portland, OR: Programmer Analysts, Technical Architects, Technical Consultants, Business Strategists, Systems Analysts, Software Engineers, Art Director, resumes by email or fax only to HR, SBI 2825 East Cottonwood Parkway, Suite 480, Salt Lake City, UT 84121. careers@sbiandcompany.com; Fax (801) 733-3201

IT Project Ldr-Perform device spec h/w maint & install peripheral equip. Prep syst specs, setup & tech support of firmware programmers. Plan, design, build & mge lab test networks, LAN & WAN connections incldg IP satellite uplinks. Design & prog IT systs & applications using Microsoft BackOffice prods such as Microsoft Exchange, SQL Server, Visual Basic & Sun Solaris. Write & implement network security techs & procedures. Bach's deg in Comp Sci, Physics or Engrg reqd + 2 yrs exp in job or 2 yrs exp as Systems Analyst. Send resumes to: MECA/HR, 7625 Panasonic Way, San Diego, CA 92154. Attn: ITPL

Ease seeks S/W Engr. for HQ office in Portland, OR. DESC: Impl. optimized code across industrial & consumer oriented tech apps through dsgn & impl of sys level firmware & s/w apps util C/C++, assembly langs. & var embedded & RTOS. REQ: BS in Engr, CS, Math, or Physics + 5 yrs exp dsgn & impl of sys level firmware & s/w apps util C/C++ & assembly langs to run on embedded & RTOS. Prem. sal. + benes. Pls reply to J. Kinker, Job #ES-101, 9999 SW Wilshire Street, Suite 231, Portland, OR 97225.

Systems Analyst w/5 yrs exp or 5 yrs exp as Computer Eng. to coordinate changes to our UNIX computer databases. Job site in Darien, CT. Send resume to HR, Danzas AEI, 120 Tokeneke Rd., Darien, CT 06820.

ShellSoft seeks IT professionals (programmer/system analysts, software engineers), project engineers. Our minimum requirement is BS. Good skills using Oracle, SAP, SQL, Java, C/C++ preferred. Some position requires travel. Please send resume to: jobs@shellsoftinc.com. EOE.

Computer Professionals (programmer, system analyst, software engineer) wanted by Brailak Technologies. Candidates must have at least BS degree, IT experience in C/C++, Oracle, SQL, VB is a plus. Attractive wage with full benefits. Please send resumes to recruiter@brailak. EOE

Trading Floor Lead Specialist sought by NJ based Securities Dealer for San Francisco, CA office. Must possess Bachelor's degree or equivalent in Management Information Systems or directly related field and 1 year exp. in software/systems development, design and analysis including UNIX and PC systems. Respond to: Human Resources Department #TJX-861MI, Knight Trading Group, 525 Washington Blvd., Jersey City, NJ 07310.

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Seeking qualified applicants for the position of Senior Software Engineer to perform analysis, design, programming and modifications for software products and/or customer applications using Korn-Shell Scripting, PL/SQL, Perl, and JSP/ASP. Requires B.S. or equivalent in Computer Science or related discipline and five years of relevant experience. Experience must include data-warehousing in the healthcare industry. Submit resume to: Melinda Morales, NDC Health, 2394 E. Camelback Rd., Phoenix, AZ 85016.

Western Union, a Division of First Data Corporation, a company headquartered in Greenwood Village, CO, seeks an Application Architect to work in Montvale, NJ to participate in application analysis, design and development of software for money transfer systems. Requires 2 years as a software engineer in the credit card processing industry, as well as working knowledge of money transfer systems, Unisys 1100/2200 platform, ASSEMBLER and COBOL. Respond by resume only to Norm Barnett, First Data Corporation, 12500 E. Belford Ave., Mail Stop M21B12, Englewood, CO 80112 and refer to job #3368KU.

We need a Software Engineer to develop software to control auto engines, powertrain & fuel-injection systems. To design engine control algorithms in signal-diagram form & write programs in C/C++/Assembly to implement them into Siemens 8/16bit microcontrollers. Use Matlab, ASCET-SD, INCA, CANalyzer, Hitex/Hitop debuggers & PVCS tools. Job in Davenport, IA. Related Deg. & Exp. required. Send resume with Ref: ICG/PR/001/2003 to Nawroz Salam, ENTEGEE Inc., 150 Bear Hill Road, Waltham, MA 02451 or Email: entegee.boston@entegee.com within 14 days.

Systems Analysts needed at client sites to analyze & eval systems; provide architecture for systems & interact w/client/teams to enable strategy using Oracle D/base & Oracle Apps, Discoverer, SQL, PL/SQL, Unix, XML, HTML, Sun Solaris, BAAN, SAP, Siebel (Tools & Appl), Power Designer. Apply to Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Senior Systems Developer sought by Charlotte, NC based Information Technology Consultants for Greensboro, NC office. Must posses Bachelor's degree or equivalent in Electrical Engineering or directly related field and 2 years exp. in systems development/design and analysis including JAVA and Rational Rose. Respond to: Human Resources Department: J. Connell, Premier Alliance Group, 4521 Sharon Road, Suite 300, Charlotte, NC 28211.

A multinat'l software consulting co has multp openings for Business Development Managers. Duties will include a thorough understanding of the IT industry. Experience is a must. A degree is required or its foreign equiv. or its equiv. in edu/experience. Apply at MASCON HR, 1699 E. Woodfield Rd., Ste. 200, Schaumburg, IL 60173 or e-mail at mascon-recruiting@msconil.com

Denso Manufacturing is a subsidiary of Denso Corp in Japan. It looks Electrical or System Engineers to design unique equipment for manufacturing process. Candidate must have BS in Electrical eng. with exp using Allen Bradley. Contact Sandra-boland@denso-dem.com. EOE

RW3 Technologies is a leading provider of CRM solutions for Consumer Packaged Goods industry. It has opening for programmer/computer analyst. Minimum requirement is BS with experience in Crystal, SQL, Apache. Send resume to 1033 Laposada, Ste 250, Austin, TX 78752

System Engineer Responsible for system administration for Windows operation, Linux, and AIX environment, troubleshooting, networking issues, software upgrades, implement/maintain all network, webserver, backup and disaster recovery documentation. Req's min BSCS plus 3 yrs exp & familiarity with databases (SQL & MySQL) & exchange 2000. Send resume to: Joseph Kong, Asia Pacific Groups, 1290-24th Ave, San Francisco, CA 94111. EOE

Manager, O&T, to coordinate computerization of clients' business operations. Apply Integration and ERP skills to Operations Mgmt., accounting, payroll, taxes, check writing, cash register records, inventory mgmt., ordering of supplies, merchandise and equipment, supply chain management. Evaluate existing hardware/software, computer networks and recommend upgrades. Supervise programmers, analysts & other team members involved in project execution. ME or MS degree in Engineering or Science + 2 yrs. exp in job duties. Apply to A-1 Consulting, 4278 Covington Highway, Decatur, GA 30035 with proof of permanent work authorization.

Mobile computing technology development company seeks a senior software engineer with 4yrs B.S. degree in science, software engineering, systems engineering, or programmer analyst and 5 yrs relevant experience. This job position requires high level of analytical and design skills to build integrated solutions. Would perform each task in the engineering lifecycle of building a software product including analysis, design, coding, testing and maintenance of the application and manages the project. The candidate will lead projects including reviewing and analyzing business needs and building the appropriate solution. Will provide internal application support by providing technical and consulting services for new business initiatives. The candidate must demonstrate sound program logic and perform post implementation review to ensure all requirements have been met. The tasks would include working on application development that involve COM/DCOM distributed computing, client/server database, SQL server, Internet Information Server programming and XML. The candidate must be proficient in C/C++ and Java. One particular solution is the conduit technology integration, which would link the web with the PDA/phone device 40 hrs. 8a-5p Sal $98000. Reports to VP, Engineering. Qualified candidates send two copies of resume to: Case# 200200636, Labor Exchange Office, 19 Stamford Street, 1st floor, Boston, MA 02114

Computer Software Engineer needed to work in all functional areas of project life cycle: conduct business analysis, application dvlpmt; ensure software processes/products conform to requirements, standards & procedures. Must have Master's degree. Send resume to: Global Resource Management, 250 Pinnacle Way, Norcross, GA 30071.

Junior Programmer (North Palm Beach, FL): Write and fix system software in PERL, HTML and JAVASCRIPT in a Unix Environment. Program Perl Modules/APIs utilizing ODBC/DBI utilities. Produce system documentation for new products. Technical support for website and performance degradation. Troubleshoot reservations systems, including writing code. Utilize knowledge of Apache running Raven and Modperl, XML, Perl, Perl ODBC/DBI, HTML, Javascript, Window NT and Windows 2000, Unix, PVCS, Sabre and Pegasus. Minimum of Bachelor's degree in Computer Information Systems; and 6-month experience in job offered or 6-month experience as a Technical Support Assistant. 40 hours/week; 9 a.m. - 5:30 p.m.; $46,000/year. Please send two resumes to: Jean Wroblewski, President, WorldChoiceTravel.com, Inc., 11300 U.S. Highway 1, Suite 300, North Palm Beach, FL 33408.

Software Engineering Project Manager to be responsible for leading the creation of Internet products for Company's website. WB also develop 401k website for clients, and oversee the development & maintenance of the sophisticated software systems that support the electronic channel group's web-based applications. WB serve as technical lead on various project teams focusing on all aspects of web development, involving ASP, HTML, Java Script & software development in C++. WB work with engineers & designers to bring state-of-the-art products to market quickly using unique methods. WB conceive and design complex leading-edge internet applications using: VC++ 6.0, VB 6.0; COM/DCOM; MTS; IIS; ASP; XML; DHTML and relational databases applying experience in web/internet architectures, object-oriented design & financial services. WB also mentor junior development staff members. Requires: Bachelor's degree in Computer Science, Computer Engineering, Engineering, Mathematics or Physics and five (5) years experience in job offered OR five (5) years experience in developing web-based applications OR in the alternative, Master's degree in Computer Science, Computer Engineering, Engineering, Mathematics, or Physics and three (3) years experience in job offered OR three (3) years experience in developing web-based applications. Candidate must also possess demonstrated expertise developing middleware applications using COM/DCOM, as well as demonstrated expertise developing and designing web applications in Visual C++ and XML using OO methodologies. Salary: $104,680/yr; Mon-Fri, 9:00AM-5:00PM. Submit two copies of resume to Case # 200116236, Labor Exchange Office, 19 Stamford St., 1st fl. Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

NT SYSTEMS ADMINISTRATOR. Will provide support for the Windows NT server environment. Will perform operating system and application software installations and upgrades, including patch releases as necessary. Will perform hardware upgrades, maintenance and system backups on a regular basis. Will maintain and update systems operating procedures. Will ensure system integrity by maintaining and updating anti-virus software. Will maintain internet/intranet infrastructure. Will deploy and maintain video conferencing capability. Will respond to second tier requests through the helpdesk process. Will lead projects as assigned with minimal supervision. Requirements: B.S./B.A. (or equiv) in Computer Science or closely related field and two (2) years of experience in the job offered or two (2) years experience in the related occupation of System Administration or Programming. Also, demonstrated expertise in using three of the following: Microsoft Backoffice Suite; TCP/IP; Citrix Server; McAfee Antivirus Suite in addition demonstrated expertise working in a multi-vendor environment. Must be MCSE certified. Offered salary is $48,000/year for full-time employment (min. 40 hours per week) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002 01345, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114

Systems Analyst w/int'l IT consultants, to work at various client sites in the U.S. and abroad. Implmt, maintain & upgrade Oracle ERP s/ware pkgs. Reqs: Bach in Comp Sci, Engineering, Business, Logistics, HR, or closely related field + 2 yrs exp w/Oracle applic. or db's. Send resumes, refs, and salary requirements to Attn: Hr, IT Convergence, 150 E. Gilman St., Suite B2200, Madison, WI 53703.

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Lead worker for development, maintenance and enhancement of web computer applications. Perform logical and physical database design. Manage assigned projects utilizing comprehensive project management practices. Must be able to design, develop and implement dynamic web applications. Perform project management and make assignments to team members. Responsible for content management, database development, application development, quality assurance R&D, site architecture and security and technical documentation. Bachelor's in Computer Science or MIS. Certified Cold Fusion developer, experience with Microsoft NT, IIS, Java script, HTML, SQL MS Office, Project and Outlook. 4 years experience as Lead Web Developer required. $52,998/year. Must have legal authority to work in the United States. Send resume to:
Madhav Bheemireddi
Nebraska Workforce Development
P.O. Box 94600
Lincoln, NE 68509-4600
Please reference Job Order # SBAH5-M2QP8-14230 on your resume/cover letter

Software Engineer

Resp. for all instl., oper. & impl. throughout co. Implement new tech. to make company more efficient, develop, impl. & maintain a contact management database, manage co.'s network incl. hardware, & software troubleshooting, repairs, & software updates, administer Linux Email server & mailing lists, provide tech support & training, develop & support co.'s website. B.S. in Math or CS & able to use MS Windows 2000/NT/98/95, Linux, SQL, C/C++, Perl, MS Visual Basic, DHTML, ASP, JavaScript, Perlscript, VBScript, MS SQL Server 7.0/2000, TCP/IP adm., LAN/WAN adm., Web-design & adm., E-mail systems adm. Must have certificates: MS SQL Server 7 Programming, TCP/IP Administration, MS SQL Server 7 Administration, Internet Security 4.0.0. Intvls. 9-5. Send resume to Mr. Michael P. Broxterman, Chief Operating Officer, Pinnacle Health Group, 5687 Glenridge Dr., Ste. 300, Atlanta, GA 30328

Consultants

For its clients located all over the United States, Netbriefings.com, Inc. is accepting applications from experienced Consultants for the following positions:

- Network Systems Admn. Analyze, design, network systems, data communication, & network security systems in multi-platform environments; architect & develop enterprise network management systems & network operation centers. Bachelors degree in Electronics, Telecommunications, Comp. Sci. and experience including Micromuse Netcool and HP Open View Products required.
- Programmer Analyst. Develop applications for the embedded systems, real time devices, scanners, mobile devices, PDA's and Hand held PCS. Bachelors degree in Comp. Sci., MIS/IS, and experience including embedded systems, WAP and VC++ on WIN CE Platforms required.
- Business Analyst. For financial and investment industry clients, formulate Business Information Systems solutions in compliance with government regulations, align IT solutions with business initiatives and vice versa, render analysis for Business Process Outsourcing (BPO), provide process guidance at each step of the project. Bachelors degree in Computer Science, MIS/IS and experience including analysis of financial systems and e-Business systems, RUP and tools, and knowledge of SEC, FDIC government regulations required.

Resumes with references, salary requirements & permanent employment authorization/status to Vish Subramanian, General Manager, Netbriefings.com, Inc., 421 N. Wabasha St., Ste. 202, St. Paul, MN 55102

Sr Info Systems Specalist wanted for investigation, development and maintenance of complex software requirements for engineering and manufacturing operations; including reviewing and evaluating requests for changes in existing systems; determining modifications to meet new requirements and improving operation of existing ones; planning and developing new applications and major conversions to new equipment. 40 hrs/wk, 8 am - 5 pm, $63,000/yr; requires Bachelor's degree in Computer Science or Electronics Engineering, and 5 yrs. exp. in job offered, or 5 yrs. related exp. as Systems Analyst, and exp. to include at least 2 yrs. in development and maintenance of software systems for automotive applications. Send resumes to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170. Ref. No. 210679. Employer Paid Ad

Jr. Consultant sought by NYC Computer Consulting firm to analyze user needs, to dsgn, dvlp & implmt medium to large scale applics using technologies such as Lotus Notes & Domino, Lotus Script, HTML, DHTML, Java Script, ASP, VB, Global Knowledge, Formula, IIS, MS Office/Projects/Visio. Must have MS in Comp Sci or Engg, Info Systems Engg or related w/1 yr of relevant work exp. Send resume to Gemini Systems, HR, SUCTM, 61 Broadway, Ste 925, NY, NY 10006.

Positions are available for Software Development Engineers I in Atlanta, Georgia with a technology solutions company. The company architects and designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.

The Software Development Engineers I - Web Application Development will be primarily responsible for designing, developing, and implementing software for new and existing programs for end user applications.

Candidates for these positions should possess a Bachelor's degree in a computer field and demonstrated knowledge of C++, VB, XML, ASP, XSL, HTML, Java Script and SQL. Object Oriented programming, technical documentation and software engineering methodologies; relational databases including SQL Server or Oracle, and set-up and configuration of one of the following Microsoft operating systems: Windows 95, Windows NT, Windows 2000, or Windows XP. Reference Job Code #0030/36

The Software Development Engineer I - Point of Sale is primarily responsible for designing and implementing point-of-sale software for new and existing applications. Specific responsibilities include analyzing, programming, debugging and modifying computer programs.

Candidates for this position should possess a Bachelor's degree in Computer Science or a related field and demonstrated knowledge of C++, Object Oriented programming, relational databases, technical documentation, software engineering methodologies, TCP/IP networking, one of the following programming languages: Java, Clipper or Delphi; and set-up and configuration of one of the following operating systems: Windows NT, Windows 2000, or Windows XP. Reference Job Code #0031

The Software Development Engineer I - Windows will be primarily responsible for designing, developing and implementing software for new and existing programs.

Candidates for the position should possess a Bachelor's degree in a computer field and demonstrated knowledge of C++, Object Oriented programming, Windows GUI programming including Win32API or MFC, set-up and configuration of one of the following Windows OS: Windows NT, Windows 2000, or Windows XP, technical documentation and software engineering methodologies, and one of the following relational databases: Oracle, SQL Server or DB/2. Reference Job Code #0034. Apply with resume by mail to Vickie Olsen, Radiant Systems, Inc., 3925 Brookside Parkway, Alpharetta, Georgia 30022

Positions are available for Quality Engineer Analysts II and a Software Development Engineer II in Atlanta, Georgia with a technology solutions company. The company architects and designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.

The Quality Engineer Analysts II will be primarily responsible for designing, implementing, documenting, and maintaining software programs for computer-based systems. Also designs, develops, and implements tests and evaluates results for all product components.

Candidates for these positions should possess a Bachelor's degree in Computer Science, Engineering or a related field and two years' experience with regression, integration, functional, and stress testing, writing test plans, test scripts, and technical documentation, relational databases including SQL, Windows operating system and issue tracking software. The job also requires demonstrated knowledge of C programming and test lab set up including software installation, hardware configuration, and networking computers. Reference Job Code #005/37

The Software Development Engineer II - Decisions Support Systems is primarily responsible for developing decision support software for major subsystems or sets of applications. Specific responsibilities include evaluating competitive forecasting products with an emphasis on accuracy and performance.

Candidates for this position should possess a Bachelor's degree in Computer Science or a related field and at least two years' experience with statistical methods such as autocorrelation, spectrum analysis, or exponential smoothing, time series analyses; writing technical documentation, data modeling, one of the following programming languages: C, C++, or Visual Basic; and demonstrated knowledge of SQL. Reference Job Code #0021. Apply by mail to Vickie Olsen, Radiant Systems, Inc., 3925 Brookside Parkway, Alpharetta, Georgia 30022

Infinite Computing Systems a Cedar Rapids, Iowa company is seeking qualified computer professionals for our growing team. Current positions available must meet the following requirements. All positions require at least a Bachelors degree (foreign Bachelor degrees are acceptable). We may have additional positions available in addition to the ones listed. Multiple positions are likely available in some positions. Candidate's salary offered relative to experience and skills. Candidates must be willing to relocate and travel as needed.

• At least 1 yr exp as a computer professional, incl. at least 1 yr exp in Expeditor, IDMS, DB2, Unix, Fortran, C++ and File Aid.
• At least 2yrs exp as a computer professional, incl. at least 2 yrs exp in SAP, Java, HTML, and Weblogic.
• At least 2yrs exp as a computer professional, incl. at least 2 yrs exp in Formware, ICR/OR recognition, Imaging, File Net, PC-Docs, Visual Basic, Java, SQL Server
• At least 2yrs exp as a computer professional, incl. at least 2 yrs exp in MS Translation Server, VB, Developer 2000, Magic, Oracle, and SQL Server.
• At least 5 yrs exp as a computer professional, incl. at 1 yrs exp in Easytrieve, QMF, MF-Cobol and MF-CICS.
• At least 5 yrs exp as a computer professional using C, C++, VC++, Oracle, GUI, and SQL Server.

Please send resumes and cover letter to: Rajendra Inani, President, Infinite Computing Systems, Inc., 230 2nd Street - Ste 214, Cedar Rapids, IA 52401.

NETWORK ENGINEER to design, configure, test and maintain local and wide area networks under Windows NT/2000 and Linux operating systems; Plan, install and support servers, routers, switches, data and voice communication lines, network operating systems, and other network related technology, including Cisco routers/switches, TCP/IP, setup and DNS configuration; Maintain routers and switches, optimize traffic patterns, and use traffic filtering to maximize bandwidth; Monitor systems performance and perform capacity planning, Test, research and recommend products; Support and monitor online transaction systems. Require: B.S. degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered; A M.S. degree with a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience will be accepted in lieu of the B.S. degree and two years of experience. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Renga Nathan, Bridaum, Inc., 1900 Emery St., Suite 200, Atlanta, GA 30318. Attn: Job MV

Positions are available for a Senior Business Analysts, Consulting - Grad in Atlanta, Georgia with a technology solutions company. The company architects and designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.

The Senior Business Analyst, Consulting - Grad is primarily responsible for providing consulting services to define best operational practices for the implementation of complex software applications for Radiant clients.

Candidates for these positions should possess a Master's degree in Business Administration or a computer field one year's experience in retail, technology consulting, or business operations including finance, accounting, or general management; team leadership or project management; and one of the following: technology implementation, application programming, systems analysis and management, or business process analysis and re-engineering. Reference Job Code #020/33

Apply with resume by mail to: Vickie Olsen, Radiant Systems, Inc., 3925 Brookside Parkway, Alpharetta, Georgia 30022

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Programmer/Analyst. Analyze, design, develop, test, implement, and maintain customized software applications in a client/server or mainframe environment. Will also provide in-depth trouble shooting and problem solving as well as analysis, design, development and implementation assistance to AS/400 programmers, system administrators, operators and end users. Must have Bachelors or equivalent in CS/MIS/Engineering/Math or related. Must have 2 yrs exp. in job offered or 2 yrs exp. in software development. Such experience must include AS400 and related tools. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $75,000/yr. Hrs. 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case #200201344, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Programmer Analyst, Brunswick, ME, analyze, design, write, implement, customize BaaN business applications, resolve problems and work with BaaN support on patch resolution, develop program specification packages, business requirements and test scripts; conduct design and programming in BaaN tools and seagate information; develop E-Commerce, BaaN front office; re-engineer business processes, conduct user training and technical support; prepare user and technical documents; use Windows NT, BaaN 4C3, BaaN tools, DEM, Report Writer tool, BaaN distribution and manufacturing modules (sales order processing, order acknowledgement, pick/pack operations, shipping, inventory and engineering data management), and MRP/MPS; must have experience with barcoding application to BaaN, integrasion of third party packages to BaaN and conversion from legacy-BaaN, life cycle implementation with at least one year post implementation support. And BaaN certification in logistics and CPIM, and four years experience in BaaN distribution and manufacturing modules. Bach Deg in Indust or Elect Engineering, plus 5 yrs exp, Mon-Fri, 9am - 5pm 40hrs wk, $105,500 per yr send res to Bureau of Labor Standards, 46 State House Station, Augusta, Maine 04333-0045, ref to Job Order #33685 for Programmer Analyst.

Mahantech Corp., an innovative software development & implementation co has openings for IT professionals with industry exp. using IDMS/ADSO, VIA/Alliance, CCCA, ABAP/4, SAP/R3, SAP ITS, SAP Web. We offer competitive pay & benefits. Foreign educ. equiv. accepted. Travel/relocation reqd. Please send resumes only to HR, 4803 MacCorkle Ave., S.E., Charleston, WV 25304 or email: admin@mahantech.com

Software co. in Bedford, MA seeks QA Systems Analyst for quality assurance testing and engineering on ERP software including developlment automated and manual test cases, identify/resolve bugs, define Test Plans and Objectives for integration software packages and participate as QA representative on teams for future products. Must have Bach. in Comp Sci or equiv., 2 yrs exp. in software development or testing, knowledge of ERP software systems, integration with financial packages such as Oracle Financials, PeopleSoft or SAP. Salary $64,000/yr. Submit 2 resumes to Case #200201351, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

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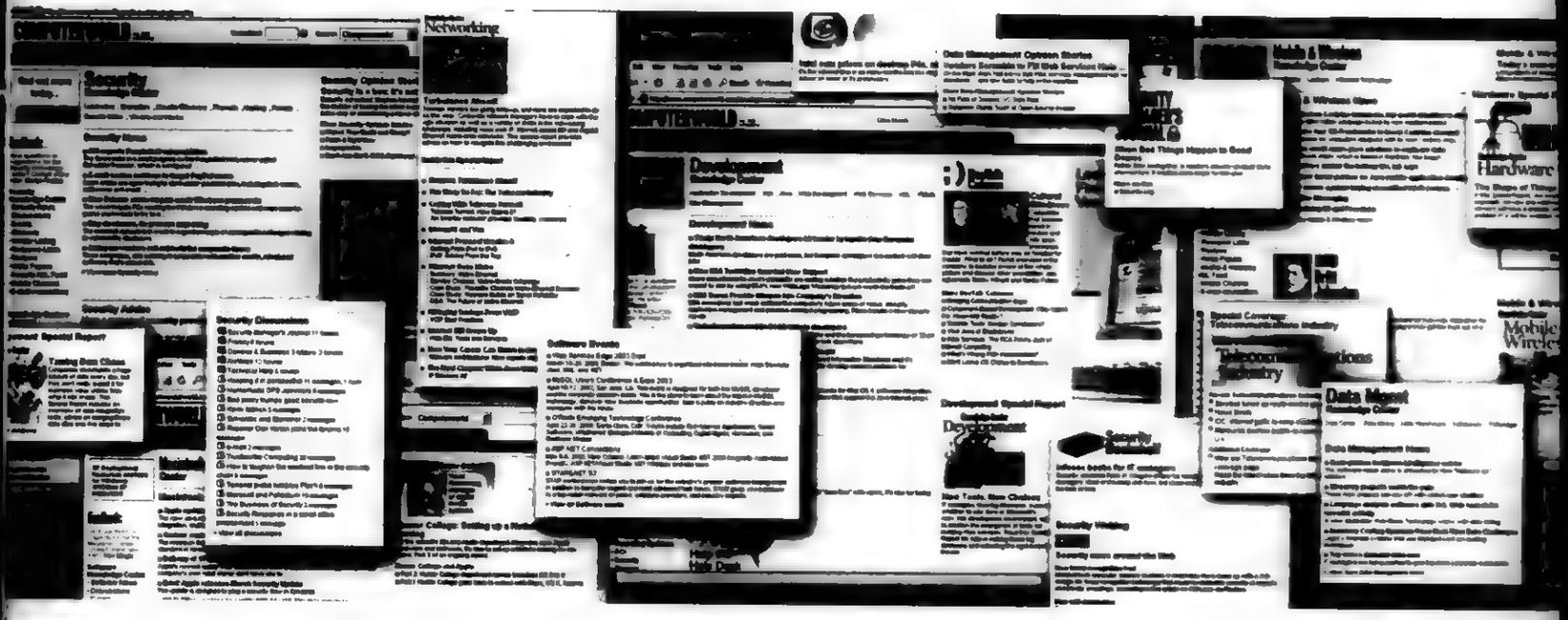

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PeopleSoft

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N/MCI

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When a financial analyst asked if there was a chance that the N/MCI contract wouldn't be part of EDS's portfolio in the near future, Jordan responded, "I wouldn't think so."

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BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

Boom & Bust Blues

THERE'S SUPPOSED TO BE PLENTY of good news to go around in the "2003 IT Workforce Survey" released last week by the Information Technology Association of America. If you're a CIO or corporate IT manager, the good news is that IT labor costs are stabilizing and IT shops are mostly able to hire the people they need. For IT workers in the trenches, the good news is that layoffs are slowing, actual pay cuts are largely a thing of the past, and only 4% of corporate IT departments are considering moving jobs offshore in the next year.

Yeah — that's what qualifies as good news these days.

Trouble is, the survey doesn't show what lies just beneath that feeble good news: Corporate IT morale is in the toilet. And the No. 1 reason is the one thing you can't do much about: the long, long hours.

You can't do much about the hours your people work because the work has to get done and there's no budget for hiring more people to do it. So more and more of our best people are coming to the conclusion that there's a better life to be had than grinding away in an IT shop.

And who will you lose at the first opportunity? Your smartest, sharpest people, that's who. Your IT shop leaders. The ones who best understand the connection between IT and business. The ones you'll need the most, once you get the green light to start building new projects again.

They're the ones who don't have to stay — who can take their corporate IT experience and parlay it into a new career, whether that means conventional IT consulting or a new specialist gig combining law and IT, medicine and IT or some other profession and IT.

And why *should* they stay? They're smart enough to understand that this crunch isn't a one-time thing. We've been through it before. First there's an IT skills shortage: IT shops go crazy looking for ways to fill critical jobs, and IT becomes the hot place to work. Then a few years later the business tightens up, layoffs mount, salaries fall, hours get long and college students switch their majors to anything but computer science.

Which, a few years later, results in another shortage — and the cycle begins again. No wonder your best people want to leave. They love their work, but what sane person would want to build a career on that sort of manic-depressive boom-and-bust cycle?

Can you keep them? Maybe. Your best shot to do that may be to get your IT shop out of the boom-and-bust business. You can't stop economic cycles or change the laws of supply and demand. But you can change the way you organize your shop.

You've heard about cross-functional teams for years. Build a few. Bulldoze some of the walls between different IT functions. You've got programmers and database analysts and network administrators and help desk specialists. Start cross-training. Your programmers don't have to become database experts or network gurus, but the more they know about those other jobs, the better they can create systems that save grief for the whole business.

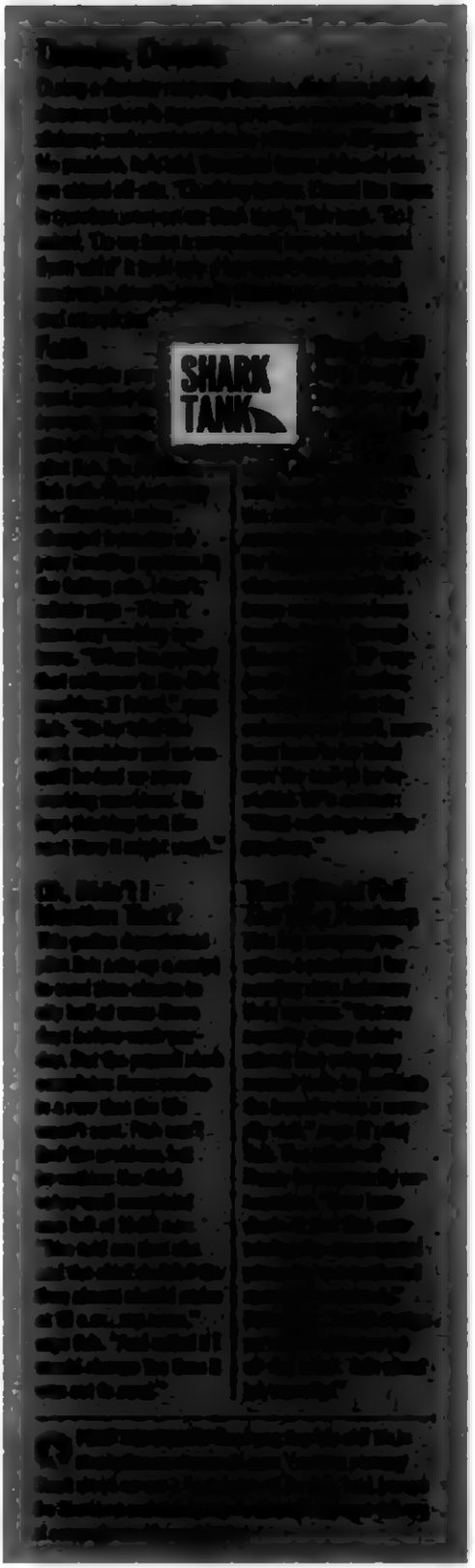
Afraid they'll take the training and run off to a better job? They won't if you invest in educating them for what *your* organization needs. Forget generic IT training — put them to work studying your company's business processes, learning techniques to pry requirements out of your users and understanding the realities of your corporate culture.

That will make them much more valuable to you — but not especially more attractive to another employer who's just looking for someone fresh out of XML class.

You'll get better, smarter work. You'll get more flexibility and efficiency in your IT shop, and greater focus on real business value.

You may even find that your cross-functional IT people don't have to put in such long hours to get the work done.

And for your employees, that would be *really* good news. ◗



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Networked Storage Offers Cure for Backup Ills

Sony StorStation™ family of network-attached storage solutions brings backup efficiency and consolidation to organizations of any size.

Many organizations are finding that tape backup systems installed years ago can't keep up with the new business requirements of today. The problems range from having older tape formats with insufficient capacity to dealing with collections of individual tape drives that require significant IT attention to ensure that backups run on schedule. If your backup tasks are growing out of control, there's a good chance that Sony's family of StorStation networked backup solutions can bring consolidation and efficiency to your backup processes.

For some organizations, increasing backup operational efficiency can be as simple as upgrading to higher capacity tape drives, such as Sony's Advanced Intelligent Tape™ (AIT) family of reliable data protection solutions. For others, it may mean adding automation, such as tape libraries that automatically manage media cassettes and back up on a scheduled basis. But for more and more organizations, increased efficiency is better achieved by adding dedicated network storage solutions to their networked environment in order to consolidate backup tasks, ensure greater efficiency, and reduce backup management and maintenance requirements.

Network-attached storage (NAS) devices, such as those in the Sony StorStation product family, enable organizations to increase efficiency by consolidating multiple backup devices or disk storage devices onto existing Ethernet networks. NAS devices act as centralized backup coordinators that can be configured in a number of ways to suit many business requirements. In the simplest configuration, a NAS server provides shared files or shared network storage for multiple servers. With the proper integrated software, NAS file servers can act as networked caching devices, providing speedy access to frequently used data. And for organizations with a range of network backup or archival requirements, a NAS backup server can route data to an attached tape library, enabling organizations to keep up with increasing backup demands by merely adding additional or higher capacity tape drives. Combining a NAS device with one or more tape libraries brings increased data protection and offers a cost-effective solution for long-term near-line or offline storage.

In addition to increased efficiency and consolidation, automated networked backup solutions can ensure backups are performed on schedule, with limited or no human intervention. The combination of a NAS server and a tape library is a particularly good solution for scenarios such as:

- Centralized backup for remote locations or branch offices that lack on-site IT support;
- Businesses that have outgrown their existing tape capacities;
- Cost-effective disaster recovery for businesses that have many store locations, such as retailers; and
- Departments with multiple servers and growing data requirements.

In the past, it has been cost-prohibitive or too complex for many organizations to deploy networked devices to address such scenarios, but Sony's family of networked backup solutions changes the cost equation. Sony offers two types of NAS solutions: Sony StorStation™ Backup Servers and Sony StorStation™ NAS File Servers.

Sony's StorStation™ Backup Servers combine Sony's high-performance Advanced Intelligent Tape (AIT) library with a NAS file server and a leading pre-integrated backup management software solution. The "NAS head" provides network connectivity and backup management, while the StorStation™ AIT library provides the backup capacity, automation and media handling. For environments with growing data protection and archival requirements across multiple application, database or production systems, the StorStation™ Backup Server solution provides a single point for backup consolidation. Moving from a server-attached backup strategy to a networked solution brings cost and efficiency benefits by eliminating the duplicate resources, efforts and equipment required to back up individual servers separately. As the number of servers or the amount of data generated grows, the cost-benefits of a networked backup approach increase.

The Sony StorStation™ Backup Server, when used with a Sony tape library, is ideal not only for consolidating backups on-site, but also as a component of an overall backup strategy for companies needing to back up or archive data from satellite or branch offices. The StorStation™ Backup Server, when used with a Sony tape library, delivers the capability needed to achieve an unattended backup of several days or even several weeks, depending on the amount of data to be protected. In addition, it can be managed remotely simply by connecting it to the headquarters office via a wide-area network.

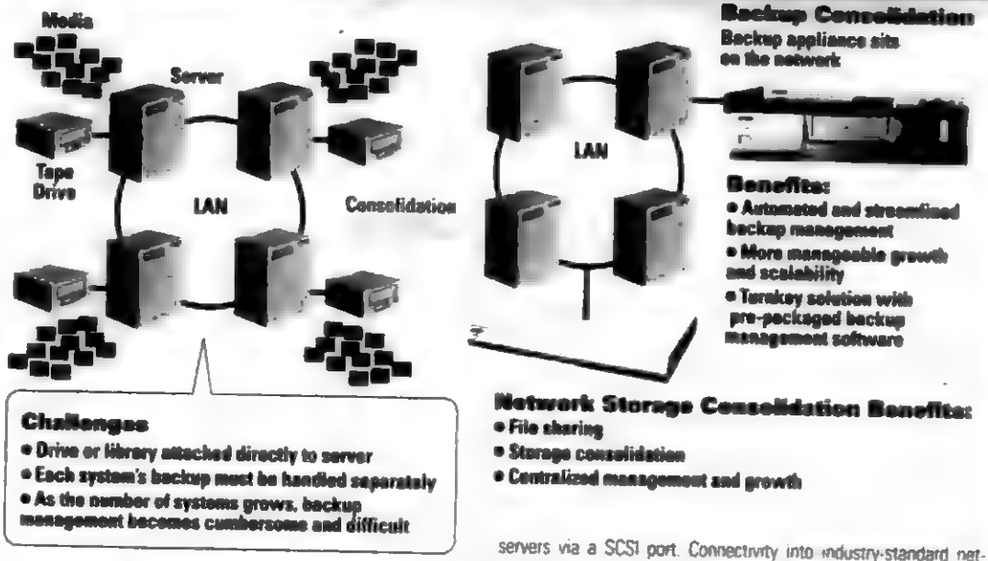
Sony's StorStation™ NAS File Servers provide a low-cost solution for data storage consolidation, file serving and file sharing capabilities for small and midsize businesses and enterprise departments. Sony StorStation™ NAS servers are an ideal complement to Sony AIT tape libraries. For organizations with a range of file sharing or network storage requirements, Sony provides NAS server configurations that provide 330 GB to 720 GB of networked storage.

For ease of use and flexible access, Sony file servers feature browser-based management and file sharing support for Windows®, Unix®, Linux®, Novell® and Macintosh® operating systems. Data protection is achieved by RAID-5, RAID-1 and RAID-0 options. For an extra level of data protection of the consolidated data, Sony AIT libraries can be combined with the StorStation file servers via a SCSI port. Connectivity into industry-standard networks is provided by Gigabit Ethernet or dual 10/100 Ethernet ports.

Sony's StorStation™ NAS backup servers and file servers integrate the best of high-end enterprise storage functionality into solutions that are affordable, easy to use and easy to manage. Whether for remote office, workgroup or data center deployments, all StorStation™ NAS devices are compact, 1U high, rack-mountable units designed to fit neatly into areas where space is limited.

If your business is struggling to manage multiple tape drives spread across your network, or if you need to consolidate your data and make it easily accessible to your networked clients, the time is right for Sony's Network Solutions—the smart investment.

Consolidating and Simplifying Backup and Storage



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Learn More About

Sony StorStation Solutions

Download the free white paper, "Networked Backup: The Path to Greater Efficiency and Consolidation."
Visit www.nwfusion.com/sony/NASCW

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i2 Users Concerned About Vendor's Finances, Future

Problems continue to raise doubts, despite improved relations

BY MARC L. SONGINI
LAS VEGAS

Attendees at i2 Technologies Inc.'s annual user conference last week said the struggling software vendor has made noticeable improvements during the past year in how it treats customers. But a half-dozen users expressed misgivings about the myriad financial and legal challenges facing i2.

The Dallas-based company's woes deepened just four days before the i2 Planet 2003 conference began, when Nasdaq delisted its common stock on May 9. That move followed five straight quarterly losses for i2, disclosure that the supply chain vendor is reauditing its financial results as far back as 1999 and the news that the Securities and Exchange Com-

i2 Concerns, page 16

Ameritrade's IT Integration With Datek a 'Religious War'

Postmerger CIO tells of internal debates over consolidation

BY LUCAS MEARIAN

Eight months after Ameritrade Holding Corp.'s $1.3 billion acquisition of rival online brokerage Datek, its IT department is emerging from the bruising experience of integrating some systems, ditching others and handing layoff notices to 250 IT staffers.

"It was a massive conversion effort," said Asiff Hirji, who took over as CIO of Ameritrade last month. He said the company has survived months of "religious wars" over technology choices and now runs its operations on systems spliced together by an IT staff that by September will have been reduced by about 40% — from 600 employees right after the merger to 350.

Hirji began working with Omaha-based Ameritrade last September as a consultant from Bain & Co. in Boston. His job was to find synergies between the technologies and IT staffs at Ameritrade and Jersey

Ameritrade, page 14

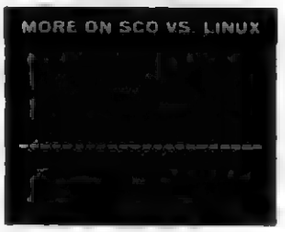
Users Outraged as SCO Stakes Linux Legal Claim

Vendor says companies using the OS may face liabilities because of Unix code infringement

BY TODD R. WEISS

In a startling development, The SCO Group last week put corporate Linux users on notice that they could become legal targets as part of its campaign to enforce intellectual property claims it has made on Unix. The threat outraged many IT managers but left some users worried about potential liabilities.

In a letter that was posted on its Web site and sent by mail to about 1,500 large companies, Lindon, Utah-based SCO claimed that Linux is "an unauthorized derivative of Unix" and that some of SCO's code has been illegally incorporated into the open-source operating system. It asserted that legal risks may extend to users that run Linux.



This is the third major punch SCO has thrown at Linux since January, when the software vendor said it was setting up a technology licensing division to ensure that users and vendors combined Unix and Linux code "legitimately." In March, SCO sued IBM, charging it with illegally using Unix technology in connection with Linux.

Joe Poole, technical support manager at Boscov's Department Store LLC in Reading, Pa., said Linux users "will not stand for this. There are just too many of us now." Boscov's uses Linux on an IBM zSeries mainframe to reduce the number of servers it has to manage (see related story, page 6).

Poole accused SCO executives of trying to use the legal maneuvers to increase Unix technology licensing revenue so they can "cash in when their company's failing." He

Linux Claim, page 57

KNOWLEDGE CENTER DEVELOPMENT

The Web Services Tsunami

PHOTO BY FREDERIQUE BERTRAND

SPECIAL REPORT

CIOs say that Web services will create a tidal wave of changes in IT projects, from application development to CRM and supply chain networks. Are you going to sink or swim? This special report explains what's coming your way.

Stories begin on page 25.

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Make testing an integral part of Web services

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i2 Concerns, page 16

"FROM THE TOP" IT
COO Sam Nakane says i2 has made "profound changes."

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MORE ON SCO VS. LINUX

- Post your opinions about SCO's threat and see what others have to say in our online discussion forum: QuickLink a3160
- Read the letter that SCO sent to corporate users: QuickLink a3159

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SPECIAL REPORT

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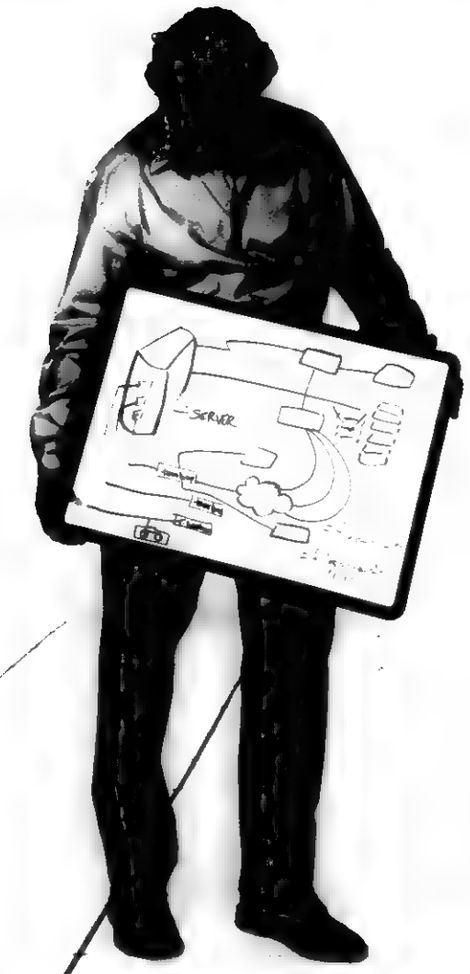

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KNOWLEDGE CENTER DEVELOPMENT

The Web Services Tsunami

Web services are already being used internally for systems integration and externally with supply chain partners. As one CIO put it, "Web services is a tsunami of technology evolution."

SPECIAL REPORT

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26 The Story So Far. Web services are built on the shoulders of earlier technologies, such as client/server, EDI and remote procedure calls.

28 Waves of Change. PBS's Andre V. Mendes (right) says Web services will hit IT like a tidal wave, affecting a range of areas, including the supply chain. **ONLINE:** A former CIO discusses "what Web services can do for business intelligence." QuickLink 37326

34 Opinion: Web services are part of a long IT standards tradition. As such, be aware that they're limited in what they can do, writes columnist Mark Hall.

36 Web Services in Action. Pioneers like Wells Fargo's Steve Ellis (left) are exploiting this new technology to make valuable connections with customers, partners and suppliers. Here's what four companies have learned out on the bleeding edge of Web services. **ONLINE:** A small medical supplier uses Web services to launch e-commerce applications and gain an advantage in the mammoth health care industry. QuickLink 37822

38 Web Services, Simply Put. Are you finding it hard to explain Web services to your executives? In this book excerpt, XML expert Frank P. Coyle provides a primer on XML, SOAP and Web services.

40 Testing Is Key to Success. Web services are computer-to-computer applications that must work flawlessly in e-business. Otherwise, a single error could propagate throughout the supply chain. Testing the software in advance can mean the difference between the success or failure of Web services.

42 The Almanac: Cobol gets freshened up for Web services, and an Antarctic data center uses ColdFusion. These items are among the tidbits in this collection of research and resources.

44 QuickStudy: A primer on Extensible Access Control Markup Language, a variant of XML designed to control access to disparate devices and applications on a network.

46 Careers: IT hiring managers say it takes a combination of new specialist skills and an aptitude for old-fashioned programming to make it in the brave new world of Web services.

48 The Next Chapter: Industry visionaries predict huge job losses for U.S. programmers and worry that a hodgepodge of Web services will increase information overload, security problems and management challenges. **ONLINE:** Industry visionaries such as Grady Booch weigh in with more predictions about the future of software development and Web services. QuickLink 39084

Testing in an Organic World
Testing should be an integral aspect of developing Web services, so that we enable not only new dimensions of functionality, but also new levels of quality and reliability, writes columnist Linda Rosen.
QuickLink 39078

Use All Three Parts Of Project Estimation
Project estimation involves some guesswork, but these techniques from columnist Johanna Rothman will help you manage the uncertainties while evaluating a project and your team's confidence in it.
QuickLink 39080

Treat IT Applications Like Employees
Once you've designed, built, tested and launched your application, the project is done, right? Not according to columnist David Vellante. He says focus instead on an application's ability to deliver incremental value. QuickLink 39084

AT DEADLINE

SEC Scrutinizes Navy/EDS Deal

The U.S. Securities and Exchange Commission last week asked Electronic Data Systems Corp. for documents related to its $6.9 billion Navy/Marine Corps Intranet contract, according to a regulatory filing by the Plano, Texas-based company. The request came after EDS reported a $334 million pretax loss on the project during the first quarter [QuickLink 36326].

Dell Sees Strong Q1

Dell Computer Corp. last week reported that its first-quarter revenue hit $8.5 billion, an 18% jump over the same period last year. The growth was largely due to a 40% increase in server shipments. Dell also announced a four-year extension to a contract with Weyerhaeuser Co. under which Dell serves as the forestry company's primary supplier of PCs, servers and storage systems.

IBM WebSphere Expands Vertically

IBM this week is expected to announce 11 new or enhanced vertical-industry offerings as part of its WebSphere Business Integration platform. The products are intended to speed up integration among partners and customers in industries such as banking, chemicals and petroleum. Prices for the products, which are already shipping, start at $225,000.

Short Takes

ORACLE CORP. appointed Charles Phillips, an experienced Morgan Stanley software industry analyst, as executive vice president in the office of the CEO, reporting directly to Larry Ellison. . . . INTEL CORP. will unveil its newest chip set for premium desktop PCs on May 21, according to a source familiar with the company's plans. . . . SUN MICROSYSTEMS INC. and Oracle are slated to make a joint "low-cost computing" announcement today in San Francisco.

IBM Adds Mainframes With Up to 32 CPUs

New models double processor count, will let users add capacity on demand

BY ROBERT McMILLAN
SAN FRANCISCO

THE MAINFRAME may be a dinosaur, but it's a carnivorous one. That was IBM's message last week when it launched a new mainframe line code-named T-Rex that is capable of supporting up to 32 processors — twice what the company's current systems can handle.

IBM said the z990 models are built around a 16-chip processing module that helps provide a nearly threefold performance improvement over its z900 machines. With 512 I/O channels, the z990 also has twice the I/O capability of existing mainframes, according to IBM.

As part of the z990 rollout, IBM said it will reduce the number of its mainframe offerings from 42 to four. The first two z990s are scheduled to become available on June 16 and will support eight and 16 processors. Models that can accommodate 24 and 32 CPUs are due in October.

In September, IBM plans to release capacity-on-demand functionality and pricing for the new mainframes that will let users turn processing engines on or off as their computing workloads change.

"The on-demand aspect is really a step in a good direction," said Fred Betito, a director in the IT architecture group at Levi Strauss & Co. "Being able to just, over the phone, increase your capacity is something that is of great value."

Betito said that San Francisco-based Levi Strauss recently switched from Unix servers to a z900 mainframe to run the databases that support its SAP back-office applications.

The z990 is the result of four years of development work, done at a cost of more than $1 billion, said William Zeitler, senior vice president of IBM's Systems Group. Zeitler said IBM has added more than 100 mainframe users since the start of last year, and he claimed that 70% of overall zSeries sales are coming from customers running new types of workloads, such as using Linux to consolidate servers on mainframes.

Harry Roberts, CIO at Boscov's Department Store LLC, said the Reading, Pa.-based company has found the mainframe to be an ideal platform for server consolidation. Boscov's cut its 90-system server farm in half by transferring applications to Linux partitions on a z900, he said.

The z990 promises even better performance for Linux-based applications, Roberts said. "This isn't the mainframe of our youth," he noted. "This is a flexible, sophisticated enterprise computing platform."

Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H., said IBM's mainframe business has gotten a boost from its recent success with Linux, which the company claims accounted for 17% of its $3 billion in zSeries sales last year.

The z990 rollout furthers IBM's attempt to convince users that mainframes are still a relevant data center technology, Haff added. "IBM's making a real effort to introduce this as something that fits into the server line as a whole and isn't arcane," he said.

McMillan is a reporter for the IDG News Service.

PRODUCT FEATURES

IBM's z990

- A peak processing rate of **9,000 MIPS** on a full **32-processor** machine.
- The ability to scale from a **single CPU to 32** without shutting down systems.
- Support for up to **30 logical partitions**, twice what current models offer.
- A **256GB memory capacity**, four times what users now have.
- Up to **512 I/O channels and 16 internal TCP/IP links** between virtual servers.

Shark Array Gets New Disaster Recovery Features

As part of last week's mainframe announcement, IBM introduced several enhancements to its flagship Shark disk array, including support for long-distance data mirroring and for configuring arrays with up to 6.9TB of standby storage capacity.

The company also cut the 25% convenience charge users had to pay to configure standby capacity on their arrays down to 10% of what it would cost to buy the disk drives outright. For example, if the list price for the disk space being put in standby mode is $100,000, the convenience charge will be $10,000.

Once standby drives are used, users pay the regular price of the purchase price, IBM said.

IBM is also adding a new version of its FlashCopy software for the Shark arrays, which are formally known as the Enterprise Storage Server product line. Version 2 of FlashCopy can transfer up to 10 times more data than the previous release, and up to 32 different target systems can receive point-in-time copies from the software, according to Jim Tuckwell, marketing manager at IBM's storage division.

The various upgrades are scheduled to become generally available June 27, IBM said.

Mike Kahn, an analyst at The Clipper Group Inc. in Wellesley, Mass., said the new features, including [illegible] on a company's needs. The upgrades further automate functions that are available with more limited functionality on older Shark models, such as sending copies of data over thousands of miles asynchronously for disaster recovery purposes, he said.

For example, instead of starting an entire data set up the existing snapshot copy capabilities require, users will now be able to copy data on a transactional basis to backup arrays in separate data centers. Sample copies of data can be transferred across the country and cascaded to a second disaster recovery site for [illegible] protection against [illegible], IBM said.

—Lucas Mearian

Corrections

The first name of Tim Stettheimer, CIO at St. Vincent's Hospital in Birmingham, Ala., was misspelled in the May 5 story "Wireless Gets Down to Business." The story also stated that United Parcel Service Inc. was planning to roll out a new handheld terminal for its drivers early this year. UPS announced the DIAD IV on April 15 but said deployments will begin next year after testing is completed. In a related move, UPS plans to start delivering higher-speed wireless services to its U.S. delivery fleet this year [QuickLink 36717].

Another story in the May 5 Special Report on mobile and wireless technology ("Working-class Wireless") misstated the size of the product library that Sears, Roebuck and Co. loads onto the laptop PCs used by its service technicians. The library contains data on about 4.5 million parts.

Rational Software Set to Roll Out Rapid Development Tool

IBM unit supports visual-model-driven development for building Java apps

BY CAROL SLIWA

IBM's Rational Software division this week will announce a rapid application development (RAD) tool that's designed to reduce the complexity of building enterprise-class Java applications.

Rational declined to discuss the product's name, price or shipment date when it previewed the tool at IBM's developerWorks Live conference last month in New Orleans. But tomorrow the Lexington, Mass.-based unit will disclose that IBM Rational Rapid Developer is due for release next month and will sell for $5,995.

The tool goes beyond traditional RAD offerings in its support for visual-model-driven development and the Unified Modeling Language (UML), its use of prebuilt patterns for building scalable multitier applications, and its ability to simplify integration with existing systems, said Arun Gupta, chief technologist of enterprise applications at Rational.

Gupta said the tool, which Rational acquired last year from NeuVis Inc. in Shelton, Conn., can generate about 90% of the code for Java applications, leaving only a small percentage of business logic to be written by developers.

Steven Edwards, a senior manager at McLean, Va.-based BearingPoint Inc., said a team of developers working on new claims software for the insurance industry was able to automatically generate 65% to 70% of the application code with Rational Rapid Developer. The tool also helped the team cut development time by 40%, he said.

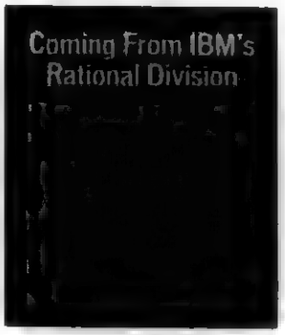
The application's size and the need to quickly get it to market prompted the development team to use the model-driven tool, Edwards said. "You can maintain consistency in your development standards, so when you make changes to your code, it will propagate through all your classes," he noted.

But how great an impact the Rational product will have among corporate developers remains unclear. Thomas Murphy, an analyst at Meta Group Inc., said developers are looking for tools that can ease the difficulty of building Java applications. But, he added, they will have to overcome fears that visual-model-driven development approaches won't scale or produce code that can be maintained.

Adoption of model-driven RAD tools has been slow because the products are just beginning to mature, said John Meyer, an analyst at Forrester Research Inc. in Cambridge, Mass. But Meyer predicted that the adoption rate will pick up as developers realize that their efficiency will be limited unless they start to rely on these types of tools to generate application plumbing code.

Rational will also introduce an automated software testing tool that is due by the end of next month and will sell for $2,995. The company also plans to announce enhancements to its XDE Professional design and development environment, which will now be called IBM Rational XDE Developer. New features include a debugging capability that will let users see application runtime errors and create UML models, plus integration of the Rational PurifyPlus runtime analysis tool.

In addition, the IBM unit will upgrade its Rational Unified Process, a framework of best practices for software development projects. Eric Schurr, vice president of marketing at Rational, said content will be added for functions like testing, data modeling and business modeling. Other features will make it easier to configure, customize and personalize the framework.



Vendors Develop Technology to Help Users Monitor Network Configurations

Software tracks changes, pinpoints errors for IT pros

BY MATT HAMBLEN

Two small vendors this week will announce network configuration management products designed to give IT managers greater control over switches, routers and other network devices made by different hardware vendors.

Rendition Networks Inc. in Redmond, Wash., today plans to launch Version 2.0 of its TrueControl configuration management software, which was initially released in December. Gold Wire Technology Inc. in Waltham, Mass., plans to follow tomorrow with the release of a pair of configuration control appliances.

Meanwhile, Austin-based AlterPoint Inc. last week announced an upgrade of its DeviceAuthority software.

Early users said the tools are helping them detect configuration problems that can lead to network downtime, which often results from human mistakes as simple as a typographical error in a router configuration command.

Jim Sherer, director of ASP operations at ADP Inc.'s Dealer Services unit in Hoffman Estates, Ill., installed Gold Wire's Formulator 200 appliance in February to manage and monitor access to systems that are maintained by 1,700 technical support workers.

Sherer said that if a network outage were to occur, he could use Formulator to track how configuration changes affected the overall network at ADP Dealer Services, which provides computer services to more than 16,000 auto and truck dealers in North America and Europe.

"Now we have the ability to say, 'We saw you came in and performed this adjustment,' " he noted.

Addressing Demand

Formulator can also be used to restrict technicians from making additional changes if they're causing network problems, Sherer said. But, he noted, one of his main goals is to educate ADP's IT workers.

"It's not a 'Big Brother is watching' kind of thing as much as a training tool," he said.

The market for configuration management technology is starting to take off because so many companies are putting more demands on their networks by adding Web services and data-rich applications such as multimedia, said Dennis Drogseth, an analyst at Enterprise Management Associates in Boulder, Colo.

Large networking vendors like Cisco Systems Inc. sell configuration management tools, but only for their own devices, Drogseth said. He added that multivendor configuration management products are currently being offered by smaller companies such as Rendition, Gold Wire, AlterPoint, Voyence Inc., Ecora Corp. and Intelliden Inc.

Chad Uretsky, a network engineer at NetIQ Corp., said the San Jose-based developer of systems and security management software this week plans to install Rendition's TrueControl 2.0 package. That should give NetIQ's IT staff the ability to automatically gather serial numbers from network devices to help with inventory audits, he said.

NetIQ has been using the initial version of TrueControl for the past four months.

"It really keeps track of configurations for easy recovery and changes if somebody makes a mistake," Uretsky said. "People are prone to make typos when configuring routers and switches, even the most experienced network engineers."

Product Details

Rendition's TrueControl 2.0 software
- Runs on Windows 2000 systems

Pricing: Starts at $20,000 for managing 75 network devices

Gold Wire's Formulator 200 product line
- Includes a 1U rack-mounted appliance with an 80GB disk drive and a cluster of two appliances with hot fail-over capabilities

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AlterPoint's DeviceAuthority 1.1 software
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Coming From IBM's Rational Division

IBM Rational Rapid Developer

IBM Rational XDE

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EMC Shifts Course, Offers Software Online

Users can purchase subscriptions for SAN design, performance analysis tools

BY LUCAS MEARIAN

STORAGE

FOR THE FIRST TIME, EMC Corp. last week made available a subscription-based software service built around its ControlCenter storage management software.

The Hopkinton, Mass.-based company unveiled two Web-based products, including a storage-area network (SAN) modeling tool that guides IT architects and administrators through the design and validation stages and provides a final blueprint or suggestions for upgrades based on user input.

"At the end of the day, the output is a complete end-to-end topology of your new SAN with proposed changes," said Pat Cassidy, director of marketing for EMC's open-software division.

Randy Carter, storage architect at Philadelphia-based mortgage insurer Radian Group Inc., has been beta-testing the SAN Architect technology and said it has cut the time it takes to map changes to his existing architecture from 24 hours to just four.

EMC also introduced AutoAdvice, which provides customized analysis of performance and resource utilization across applications, servers, databases and storage systems.

AutoAdvice is being sold under a one-year subscription that covers analysis of one to 50,000 CPUs, starting at $400 for a single processor. SAN Architect is also available on a subscription basis, with an entry-level list price of $2,400.

Others to Follow

Steve Kennison, an analyst at Enterprise Storage Group in Milford, Mass., said EMC is only the second major storage vendor to offer a diagnostic and alert tool of AutoAdvice's caliber. But Kennison said other vendors, such as Hewlett-Packard Co., Sun Microsystems Inc., Hitachi Data Systems Corp. and IBM, are likely to follow suit, because it will give them a larger software footprint in data centers.

Mountain View, Calif.-based Veritas Software Corp. in December signed a deal with Austin-based Motive Communications Inc. to resell its Enterprise Service Solution for Storage Networks, which resides on a server inside corporate firewalls and alerts IT staff to SAN problems. Veritas is bundling the tool as part of its business-critical support offering.

EMC's AutoAdvice collects information every five minutes about a company's SAN via a TCP/IP-based portal and collates that information in a database. A rules-based engine then measures best practices against what the SAN environment currently has.

The analysis takes a day, and results are returned to users in HTML-enabled e-mail messages. The reports show where current or potential problems are likely to come from and provide a graphical user interface indicating the severity of warnings from a high-level view.

They also include specific details on such things as CPU utilization and I/O throughput, Cassidy said. The analysis contains links to vendor Web sites for information on technology like host bus adapters and switches.

Cassidy said the results produced by SAN Architect can be viewed either with Microsoft Visio presentation tools or in Excel spreadsheets and can be kept online or printed out.

EMC Goes ASP

SAN Architect and AutoAdvice offer:

- Remote diagnoses
- Remote alerts
- Suggested configurations of SANs
- Tests of SAN architectures against EMC best practices

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Data Center Security Spending On the Rise, Surveys Show

Security projects get funded despite tight budgets

BY JAIKUMAR VIJAYAN

As director of global security at Hewitt Associates LLC, Dan Josephites is taking a multifaceted approach to bolstering defenses at his company, the largest human resources outsourcer in the U.S.

Firewall, antivirus and other intrusion-detection technologies are a key part of the strategy. But Hewitt is also shoring up its internal networks, performing network and application-level penetration testing and working with developers to ensure that the code on all Web-facing applications is secure. "We are spending more on security; there's no two ways about it," Josephites said.

And Hewitt isn't alone. A survey released last week by the Data Center Institute at Orange, Calif.-based AFCOM, an association for data center professionals, shows that in the face of constant terrorism alerts, the war in Iraq and proliferating cyberthreats, information security has become a bigger priority for the nation's largest data centers.

According to AFCOM, nearly half of the 257 data center managers it surveyed earlier this year said their companies had increased security budgets by 5% to 15% in the past year. AFCOM's findings are nearly identical to the results of a worldwide survey of 500 financial services firms that's being released this week by Deloitte Touche Tohmatsu. Deloitte said that despite tight IT budgets, most financial firms have maintained or increased their security spending and boosted IT security staffing levels.

The budget increases come at a time when a growing number of companies face the threat of external and internal cyberattacks, said Jill Eckhaus, AFCOM's president. "The most surprising thing in my mind was that almost 30% of the companies surveyed did have a breach of security last year," she said.

In the Deloitte survey, 40% of the respondents reported security breaches in the past year — with most of them coming from external sources.

Growing concerns about cyberattacks have made "the approval process for security spending somewhat easier," Josephites said. "It is very, very difficult to 'ROI' security, but my management understands that it is the cost of doing business these days."

"I'm not having any trouble getting money for security," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc., a Petaluma, Calif.-based maker of telecommunications equipment. The use of virtual private networks and an increase in the number of workers connecting to the company's network from outside its offices has made remote access a major security concern, Krauthamer said.

Is your IT security budget higher or lower than last year's?

Base: 257 data center managers surveyed earlier this year

SOURCE: AFCOM'S DATA CENTER INSTITUTE ORANGE, CALIF.

Securing IM

Kevin Ott, vice president of technology at Terra Nova Trading LLC, a financial services firm in Chicago, said it's not just a question of staying on top of the growing number of hacker threats. Terra Nova also has to respond to customer demand for instant messaging support on its network. That means investing in technologies to secure and archive such communications — measures the company has already invested in for internal messaging use.

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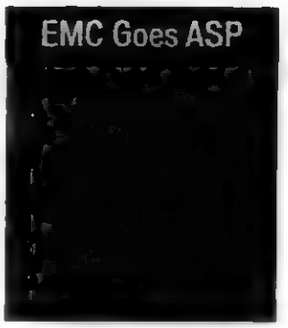

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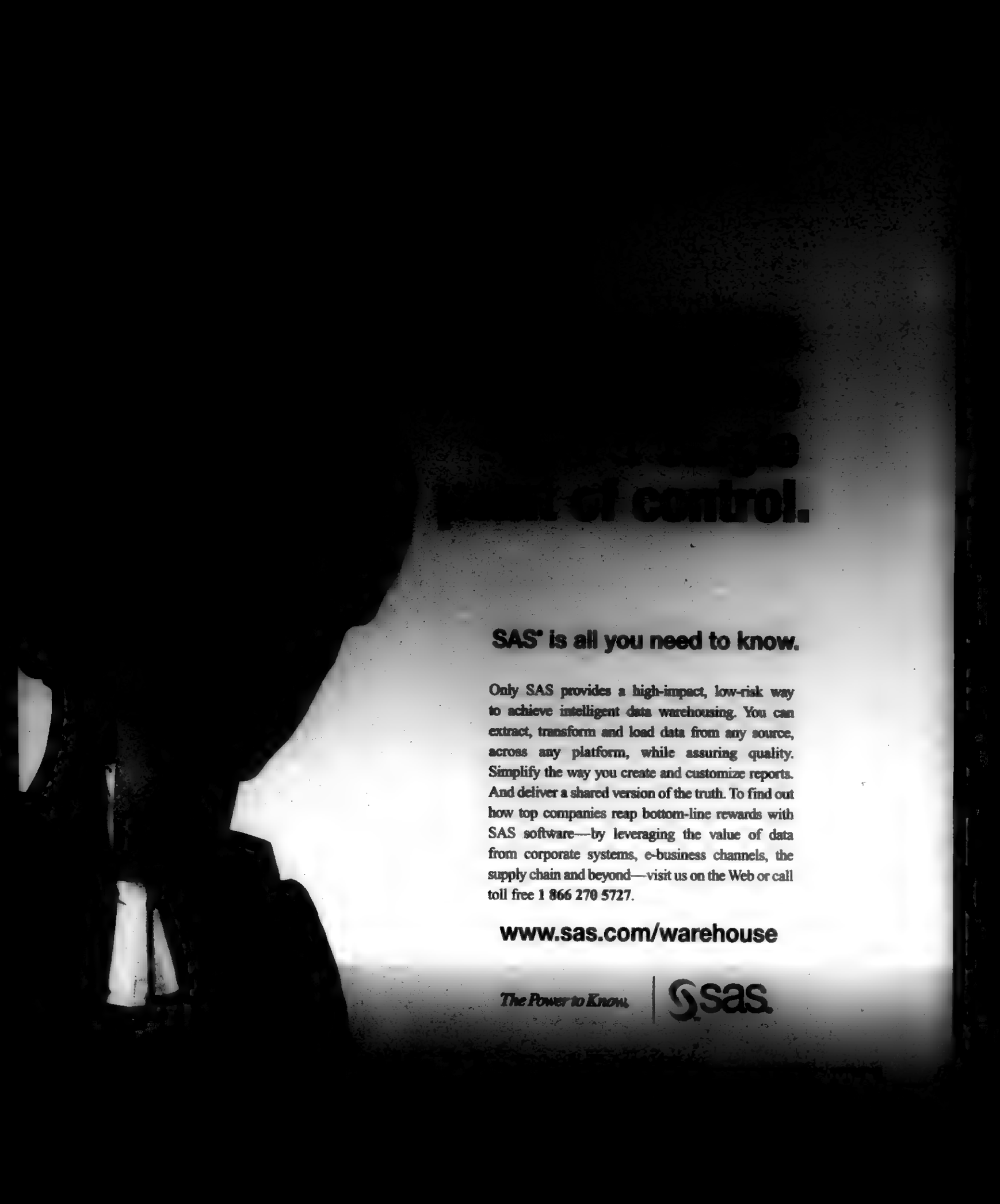
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SAS® is all you need to know.
Only SAS provides a high-impact, low-risk way to achieve intelligent data warehousing. You can extract, transform and load data from any source, across any platform, while assuring quality. Simplify the way you create and customize reports. And deliver a shared version of the truth. To find out how top companies reap bottom-line rewards with SAS software—by leveraging the value of data from corporate systems, e-business channels, the supply chain and beyond—visit us on the Web or call toll free 1 866 270 5727.
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BRIEFS

Chip Glitch Halts IBM Server Sales

After Intel Corp. disclosed that an electrical problem can cause some of its 64-bit Itanium 2 processors to shut down or behave unpredictably, IBM stopped shipments of the Itanium 2-based server it released in late April.

Hewlett-Packard Co. and Unisys Corp. plan to continue selling systems that use Itanium 2 processors. Intel said it will swap older chips for new ones upon user request.

CSC Expands IT Outsourcing Deal

Computer Sciences Corp. (CSC) said it has signed four contracts that expand a 12-year-old IT outsourcing deal with General Dynamics Corp. in Falls Church, Va. The new agreements are worth a total of $137 million, CSC said.

The El Segundo, Calif.-based company also reported a $162.7 million profit on revenue of $3.08 billion for its fourth quarter, which ended March 28.

IBM Buys Vendor of Provisioning Tools

IBM announced that it has acquired Toronto-based Think Dynamics, a developer of software that provides automated system-provisioning capabilities. The companies didn't disclose the financial terms of the deal, which is intended to augment IBM's on-demand computing strategy. IBM said Think Dynamics developers will be blended into its Tivoli management software unit.

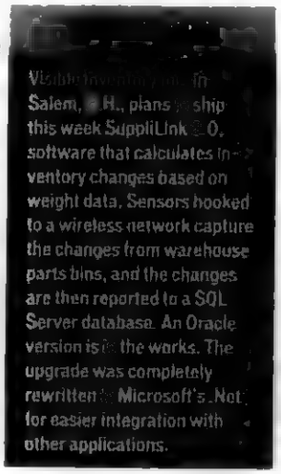
Short Takes

Blue Bell, Pa.-based UNISYS said it plans to announce next month a set of business process modeling tools that will be marketed as part of a new IT services offering called Business Blueprints. . . . GARTNER INC. predicted that 30.7 million PCs will be shipped worldwide this quarter, up 6.4% from a year ago.

MARK HALL • ON THE MARK

IT Infrastructure 'Game' All but Over . . .

. . . for vendors seeking high growth, claims ex-Lotus exec Steve Layne, who's now CEO of Malvern, Pa.-based Entigo Corp. The new game, he says, is identifying areas long neglected by IT pros and then delivering a "targeted fix." For Entigo, the target is automating the handling of product warranties. According to generally accepted accounting principles — **you know, the ones so highly prized at the former Arthur Andersen** — companies must reserve funds on their balance sheet to cover warranty liabilities. So, having precise data on a company's financial exposure in this area is vital to a CFO. And managing warranties isn't cheap. Layne points out that 80% of warranty processing currently requires human intervention because the aging mainframe or minicomputer home-brewed programs that keep track of faulty-product claims lack the refined rules engines available now. His company will replace Version 3.5 of its software with Entigo Warranty 4.0 in late June, adding features for handling multiple warranties in a supply chain, plus more out-of-the-box reports and analytics on all manner of warranty statuses. Entigo also has a deal to output data to SAS Institute Inc.'s analytical tools. To improve its workflow automation, which Layne implies could **reverse the manual review of warranty claims** to a mere 20%, Entigo tossed aside its own rules engine in the 4.0 release and integrated one developed by Paris-based Ilog SA. The price tag for an Entigo implementation isn't cheap, reaching up to $1 million. So **read the software warranty carefully.** • "Clients have ceased believing the claims of vendors," says Mark Ruddock, CEO of Toronto-based software vendor Inea Corp. Whether or not you believe that statement **will depend on how much you trust vendors**, of course. Nevertheless, Ruddock says a vendor's credibility, such as it may be, remains vital — especially when the software selection process "in the last 12 months has become the most onerous I can remember." So, he noted, Inea "does not try and overhaul the future" for everyone. Instead, the company is focusing on the financial services arena with its Inea Performance Management Suite. The software is now in incarnation 2.4, but Version 3.0 is in beta-testing with a **goal to go gold** by summer's end. It measures corporate performance in areas such as budgeting, planning and forecasting, and produces reports for internal users as well as financial regulators. Ruddock says that among other new goodies in 3.0, you can expect to see improvements to the software's capital planning functions and new tools for compensation management. Believe him or not. • Today, **the Eclipse open-source development framework** is due to get a boost when Instantiations Inc. in Portland, Ore., ships its CodePro Express package for developers who work at companies with fewer than 1,000 employees. The new product complements the company's CodePro Studio for large organizations. The difference between the two is price — $199 for Express and $599 for its big brother — and the number of functions in their various features. For example, in Express you get 150 audit rules for checking the quality of your code, vs. 300 in Studio. You can expect more from Instantiations soon. The company has a seat on the Eclipse board and **is leading an open-source effort called Koi**, which is building developer collaboration tools into Eclipse. The company will add instant messaging and peer-to-peer tools to its products by the end of September. • Tired of fielding requests from **tech-impaired execs who can't keep track of their files?** Punch Networks Corp. thinks it may have a fix for you. Next week, the Seattle-based company plans to ship Punch WebDrive Sync Engine, client-level code that works with the company's online storage service. The software will synchronize the most recently modified files for up to 10 Windows devices on a single account. It encrypts the data for transmission and keeps all files up to date in the My Documents folder of the devices at a cost of $99 per year for 100MB, which should be adequate for most suits. Engineers and field-support staffers might prefer the $800-per-year 1GB plan. **Companies that want to talk at the terabyte level** can negotiate their own contracts.



Visible Inventory Inc. in Salem, N.H., plans to ship this week SuppliLink 2.0, software that calculates inventory changes based on weight data. Sensors hooked to a wireless network capture the changes from warehouse parts bins, and the changes are then reported to a SQL Server database. An Oracle version is in the works. The upgrade was completely rewritten in Microsoft's .Net for easier integration with other applications.

MatrixOne Upgrades PLM Suite

BY JAIKUMAR VIJAYAN

MatrixOne Inc. this week plans to upgrade its product life-cycle management (PLM) software by adding two new applications and other features such as improved end-user collaboration capabilities.

PLM products like the new Matrix10 software from Westford, Mass.-based MatrixOne are attractive to manufacturers because they can help companies achieve significant product-development efficiencies, users said. But they added that deploying the tools can be complex and time-consuming.

Jeff Davey, manager of integrated engineering at Siemens Dematic AG, a maker of factory automation systems with its U.S. headquarters in Grand Rapids, Mich., said the company is using MatrixOne's applications to set up a centralized repository of project, configuration, design and other product-related data that can be simultaneously accessed by all of its design teams.

The cross-functional view provided by PLM can improve time to market, said Mark Brewer, vice president of IT at H.B. Fuller Co., a maker of specialty chemical products in St. Paul, Minn.

H.B. Fuller uses Electronic Data Systems Corp.'s Teamcenter PLM software to manage the design of its chemical formulations. The software is expected to help the company better control both raw and formulated materials, Brewer said. "It's been controlled chaos without it," he said, adding that the lack of well-defined processes has resulted in product overlaps.

But deploying PLM applications can be a big challenge for IT managers from both a technology and business process standpoint, according to Davey. "Whatever time you think it will take to deploy PLM, just triple it," he said.

BRIEFS

Chip Glitch Halts IBM Server Sales

After Intel Corp. disclosed that an electrical problem can cause some of its 64-bit Itanium 2 processors to shut down or behave unpredictably, IBM stopped shipments of the Itanium 2-based server it released in late April.

Hewlett-Packard Co. and Unisys Corp. plan to continue selling systems that use Itanium 2 processors. Intel said it will swap older chips for new ones upon user request.

CSC Expands IT Outsourcing Deal

Computer Sciences Corp. (CSC) said it has signed four contracts that expand a 12-year-old IT outsourcing deal with General Dynamics Corp. in Falls Church, Va. The new agreements are worth a total of $137 million, CSC said.

The El Segundo, Calif.-based company also reported a $162.7 million profit on revenue of $3.08 billion for its fourth quarter, which ended March 28.

IBM Buys Vendor of Provisioning Tools

IBM announced that it has acquired Toronto-based Think Dynamics, a developer of software that provides automated system-provisioning capabilities. The companies didn't disclose the financial terms of the deal, which is intended to augment IBM's on-demand computing strategy. IBM said Think Dynamics developers will be blended into its Tivoli management software unit.

Short Takes

Blue Bell, Pa.-based UNISYS said it plans to announce next month a set of business process modeling tools that will be marketed as part of a new IT services offering called Business Blueprints. . . . GARTNER INC. predicted that 30.7 million PCs will be shipped worldwide this quarter, up 6.4% from a year ago.

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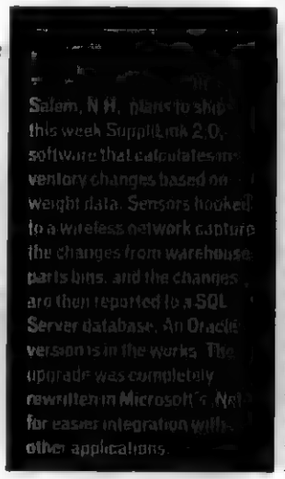

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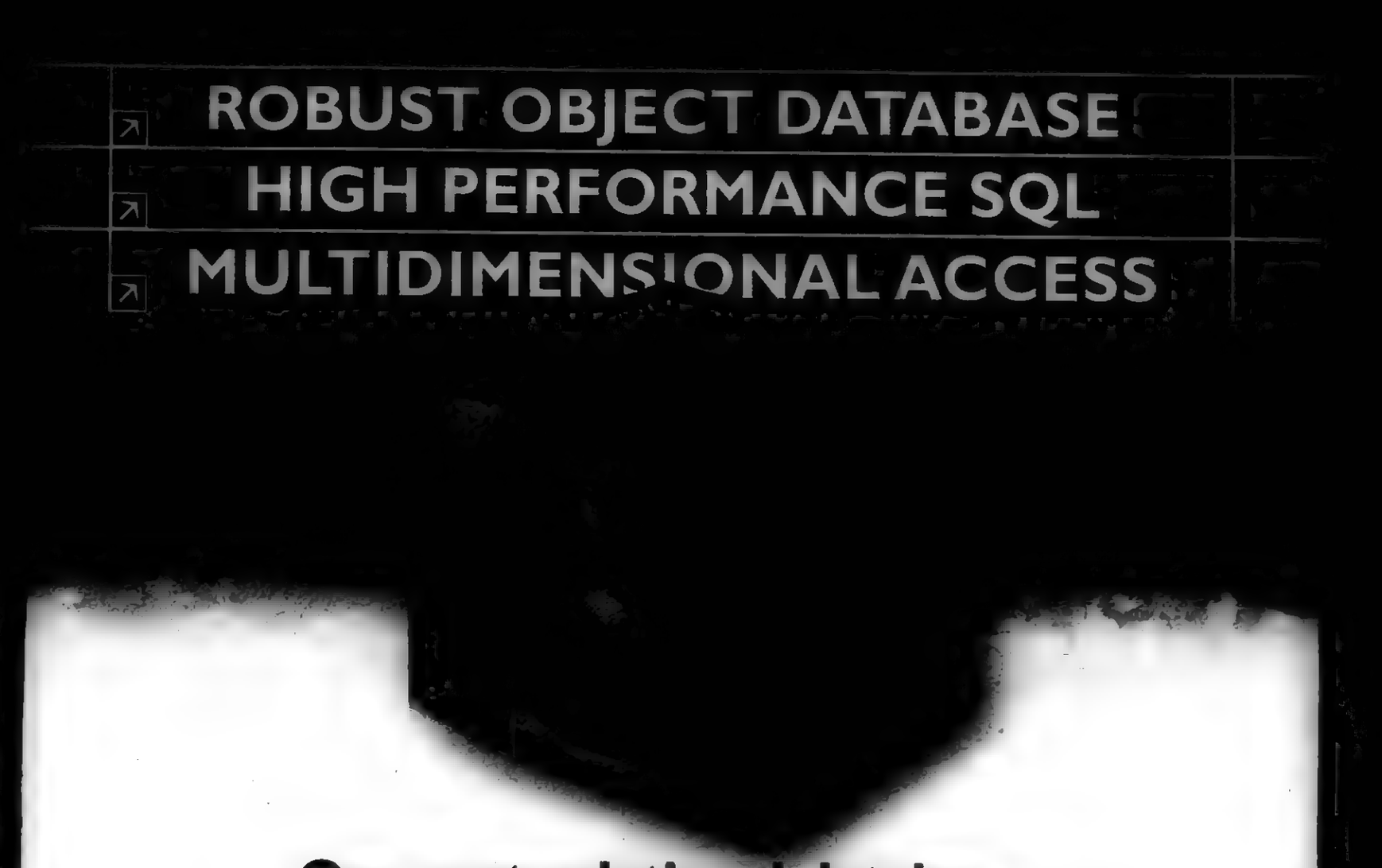

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BRIEFS

Automakers Plan Messaging System

Covisint LLC, a business-to-business exchange, said it's working with the Big Three automakers and three suppliers of automotive parts to develop an XML-based data messaging system. The system is due late this year and will be marketed as an alternative to electronic data interchange technology for the auto industry, according to Southfield, Mich.-based Covisint.

CA Narrows Loss, Has Higher Sales

Computer Associates International Inc. reported a $106 million loss on revenue of $801 million for its fourth quarter, which ended March 31. That compares with a year-earlier deficit of $236 million on $772 million in revenue. CA said software license fees under its subscription-based pricing model totaled about $392 million in the fourth quarter, up from $270 million a year ago.

Judge Calls for Microsoft Reports

The federal judge overseeing the Microsoft Corp. antitrust case ordered the U.S. Department of Justice and the states involved in the case to file reports every six months detailing what the software vendor is doing to comply with the terms of a settlement deal approved last fall. The first report is due to be filed in U.S. District Court Judge Colleen Kollar-Kotelly by July 3.

Short Takes

ORACLE CORP. this week plans to announce an upgrade of its sales management application with new templates for creating sales proposals. . . . GATEWAY INC. disclosed that the U.S. attorney for Southern California has opened a preliminary inquiry into alleged accounting improprieties at the Poway, Calif.-based PC maker.

W3C Readies New Tech Patent Policy

Aims to prevent vendors' patent claims from blocking Web standards work

BY CAROL SLIWA

THE World Wide Web Consortium (W3C) is poised to unveil a formal policy for dealing with technology patents that have the potential to block the development of interoperable Web standards.

Tim Berners-Lee, director of the Cambridge, Mass.-based W3C, said a decision on the patent policy is due to be announced "very shortly," now that the organization's management team has reviewed feedback collected during a public comment period that ended April 30. He declined to disclose details of the new policy.

A W3C working group has spent more than three years developing a precisely defined patent policy to replace the "minimalistic" and "very loose" provisions that currently require members who know of patent claims relevant to ongoing standards work to disclose them, said Daniel Weitzner, chairman of W3C's patent policy working group.

Bridging a Gap

Weitzner said the policy drafted by the working group reflects the "overwhelming goal" of producing standards that can be implemented royalty-free. But the group also included an exception provision that will make it possible for members to consider alternate licensing terms when it's deemed impossible to meet the royalty-free goal, he said.

That reflected a desire for flexibility as well as the group's attempt to acknowledge the concerns of those who favor a so-called reasonable and nondiscriminatory model that permits the collection of patent licensing fees, Weitzner said.

The need to establish a formal policy became apparent as some patent holders started to assert claims to technology being used as part of proposed Web standards. One notable case involved a claim from Seattle-based Intermind Corp., now known as OneName Corp., that the W3C's Platform for Privacy Preferences might infringe on a patent it held.

More recently, the W3C's patent policy became a hot topic of discussion among some W3C members who have speculated why IBM, Microsoft Corp. and other vendors have been submitting some key Web services standards proposals to the Organization for the Advancement of Structured Information Standards (OASIS) instead of the W3C.

IBM and Microsoft insisted that their decision to propose a Business Process Execution Language (BPEL) specification within Billerica, Mass.-based OASIS had nothing to do with patent issues — a claim they backed up when they submitted BPEL to OASIS under royalty-free terms [QuickLink 38188]. The companies said they chose OASIS because they felt it was the more appropriate standards body for high-level business specifications.

Karla Norsworthy, director of dynamic e-business technologies at IBM, said IBM's intention in the core Web services space is to submit only proposals for which it would provide a royalty-free license, since there's a need for broad adoption of Web services standards.

But Norsworthy said she can see a need for the exception provision in the patent policy proposed by the W3C to allow a working group to decide to publish a specification, even if a patent claim is raised. "I think the W3C is being practical in allowing a specification to go forward and working out the [intellectual property] from some third party as they go," she said.

Don Deutsch, vice president of standards strategy at Oracle Corp., said the provision was a last-minute compromise designed to address the concerns of IBM and Microsoft. Deutsch added that he expects it to be approved.

Weitzner said the exception provision "was an effort to address the concerns of a number of members." He added that the proposed exception procedure was designed to be hard to use "because the working group didn't want it to be used often."

Berners-Lee: Standards Groups Are 'Very Different Places'

Tim Berners-Lee, director of the W3C, spoke with *Computerworld* this month about recent moves by technology vendors to submit Web services standards proposals to OASIS instead of his organization.

What are your thoughts about that trend? OASIS and the W3C are very different places altogether. The rules are very different. [At the W3C,] a lot of that has to do with getting everybody on board, making sure everything is coordinated and trying to get the standard very widely deployed. [We require] a demonstration of implementation, of interoperability, before something can become a standard. We have public review. We have requirements that the groups be chartered to liaise with groups which have related technology.

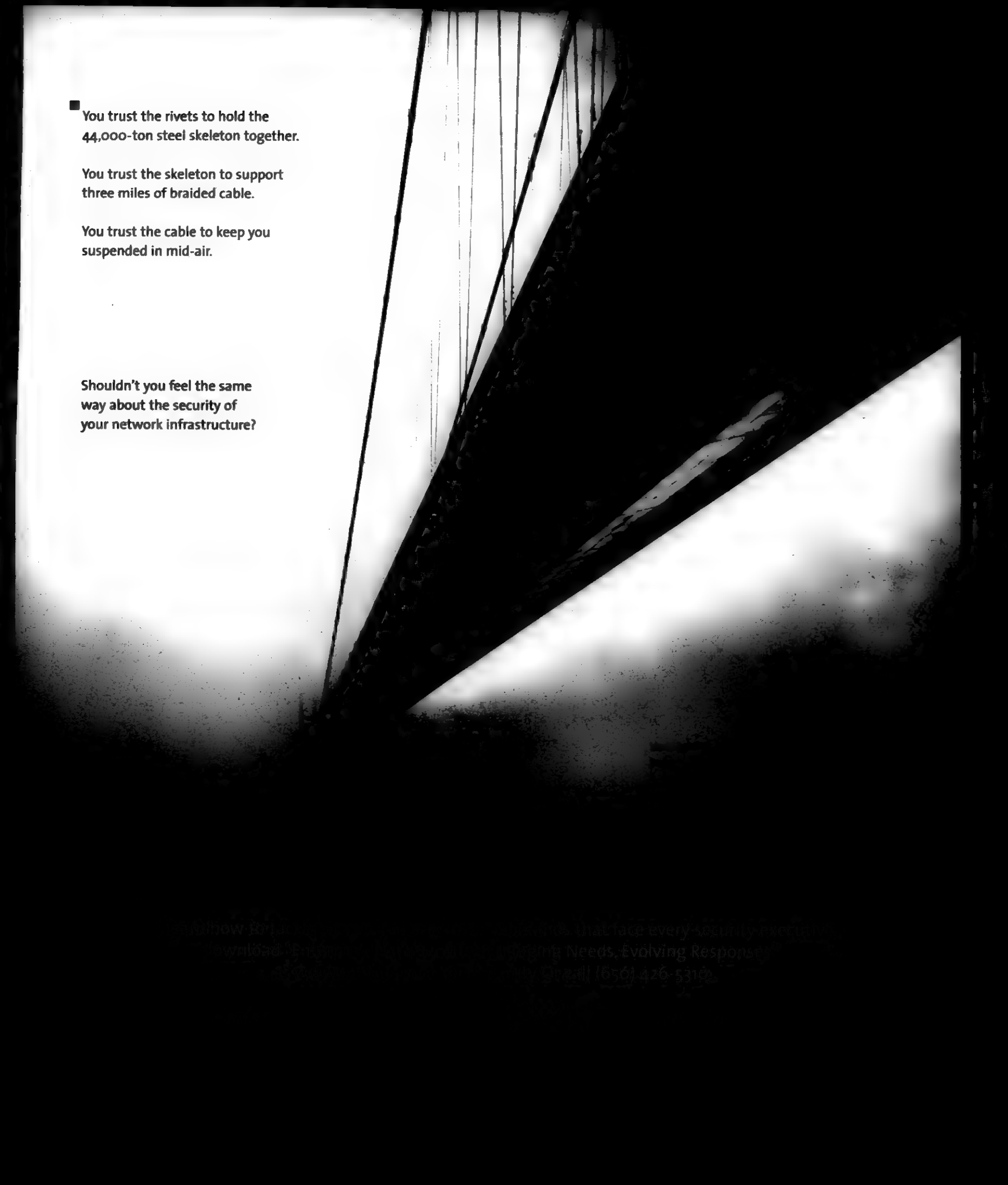
What OASIS provides is somewhere you can start an activity with no prior requirements. Three companies can just get together, they can start a group, and there's nothing to prevent the same thing [from] being done in different organizations. There's nearly no management control at all. It's faster.

Do you think it's a dangerous trend? For core standards for a big new market area, I think it's very important that they are widely accepted by everybody. . . . For an application-level specification or for something like a programming language, you can have three, four, five, eight of those around and mix them together to a certain extent. So in some areas, it doesn't hurt. But for the foundational specs of the Web services architecture, I feel that it's important to have the W3C.

Do you have concerns about what's happening with the BPEL specification within OASIS and the W3C's similar standards efforts on choreographing Web services? I do have concerns about that. I feel that's an area where it's not obvious how things are going to work out for the best, because there's no mechanism for W3C and OASIS to coordinate.

Some vendors say that the W3C is concentrating too much on the Semantic Web initiative and not enough on Web services. Do you think that's a misguided impression? Obviously, there are some members for whom Web services are absolutely the thing. We try to keep it balanced. There are other people who tell us, "Why are you wasting your time on all this Web services garbage? If [companies] would just use the Semantic Web, it would all happen so easily."

– *Carol Sliwa*



You trust the rivets to hold the 44,000-ton steel skeleton together.

You trust the skeleton to support three miles of braided cable.

You trust the cable to keep you suspended in mid-air.

Shouldn't you feel the same way about the security of your network infrastructure?

Continued from page 1

Ameritrade

City, N.J.-based Datek Online Holdings Corp. There weren't many. So Hirji said it came down to choosing the best of each company's staff and technology — and getting rid of the rest.

The biggest technology challenge to date, he said, was consolidating three data centers into two, and two back-end systems into one.

Previously, Datek used Windows NT servers that ran homegrown middleware plus Linux servers from IBM, whereas Ameritrade used Sun Microsystems Inc. Unix servers and BEA Systems Inc.'s Tuxedo middleware [QuickLink 34203]. Ameritrade wouldn't say how many servers, disk arrays and network devices were culled as part of the consolidation effort, nor would it specify which systems are still in use.

But Hirji said the project included detaching the front end of Datek's trading system and then connecting it to Ameritrade's back-end system. "We did that over a weekend in March, and we did that without impairing any existing accounts, any of the balances, any of the trades," he said.

Now, both the Ameritrade and Datek online trading sites run on Ameritrade's back-end technology. The only thing left to do is merge the two front ends into a single Web site. That's expected to be done by September, Hirji said.

Ameritrade has shut down its data center in Omaha and combined operations into two others: its main IT facility in Kansas City, Mo., and Datek's data center in Secaucus, N.J.

On Track

Paul Cantwell, a financial services consultant at Accenture Ltd., said the Ameritrade/Datek integration effort is above average because it's ahead of schedule. Most merger-related integration projects drift on without end because of loose management and unrealistic expectations, he said.

Hirji said it was a challenge dealing with two rival IT teams, each of which thought its homegrown software was better than the other's. He added that he overcame the internal battles by quickly establishing a clear, objective methodology for choosing technology. "We made sure that the broad organization had input and buy-in into that process," he said.

Hirji said his job now is to build a single company that's more efficient and profitable than the two former companies were — in the midst of a dreadful economy. Fortunately, he said, Ameritrade's focus on online trading gives it a lower IT cost structure than brokerages that diversify into businesses like banking, mortgages and insurance.

"So if it sucks for everyone else right now, it sucks less for us," Hirji said. "The converse is also true. When it gets better for everyone else, it gets even better for us, given our cost margin."

CIO Gives Notice of Layoffs

When Ameritrade brought him in as a consultant last September to consolidate its IT systems and staff after the Datek acquisition, Asiff Hirji decided it would be better to take his time and carefully choose the best talent, instead of, as he put it, "firing 90% and you're done."

"Some CIOs will tell you technology is a competitive advantage," said Hirji, who now is CIO. "I don't believe in that at all. I think technology by and large is a commodity. The only differentiating factor, the only thing you can build sustainable competitive advantage around, is people."

Every working moment that he's not actively involved in a project, Hirji is thinking about how to attract, retain and develop the best IT talent, he said.

But Hirji is making deep cuts because of the merger. Most of the 250 workers being let go were laid off late last year, but a significant number will stay until September. They also were told in December that they would be cut, which Hirji said was the "honorable thing" to do.

Hirji acknowledged that providing advance notice of the planned layoffs increases the chance that disgruntled employees could take revenge. But he said some laid-off workers will strike back at the company no matter what, and the rest are more likely not to retaliate if he's open about the layoffs and treats them fairly.

Just in case, though, Hirji has put additional safeguards in place, such as monitoring tools and restricted access to systems, for the employees who are being let go in September.

– Lucas Mearian

Fizzer Worm Sparks Concern About Remote Security Risks

Damage to corporate networks is minor, but remote users aren't fully protected

BY JAIKUMAR VIJAYAN

Last week's Fizzer worm appears to have had little impact on corporate networks, according to IT managers and analysts. But the malicious code and spyware that such viruses leave behind on unprotected systems could prove to be a long-term headache for companies, they said.

Fizzer represents an emerging class of worms that try to circumvent increasingly sophisticated corporate defenses in a variety of ways. The worm was contained in executable attachments embedded in e-mail messages with innocuous-sounding subject headers.

In general, companies that keep their antivirus software up to date and have policies for filtering executable attachments would have been protected against Fizzer, said Russ Cooper, an analyst at TruSecure Corp. in Reston, Va.

> **"I think the biggest security threat today is remote users."**
>
> DAVID KRAUTHAMER, DIRECTOR OF IS, ADVANCED FIBRE COMMUNICATIONS INC.

Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa., said IT and security managers who haven't yet taken such basic defense measures are simply being "derelict in their duty."

But workers who dial into corporate networks from their homes and other remote locations may not have full-blown defenses available to them and are therefore more vulnerable to having their PCs infected by such viruses, said Michael Allgeier, data security officer at the Lower Colorado River Authority in Austin, Texas.

That could prove dangerous because of the payload carried by worms like Fizzer. According to F-Secure Corp., a Helsinki, Finland-based antivirus software vendor, Fizzer contains a built-in Internet Relay Chat back door, a denial-of-service attack tool, a keystroke-logging Trojan, an HTTP server and other components.

Facts About Fizzer

- The worm spreads via e-mail and the Kazaa P2P file-sharing network.
- It contains a back door, a denial-of-service tool and a keystroke-logging Trojan.
- It generates e-mail subject headers that are completely random.

Such capabilities could allow hackers to remotely control compromised machines and steal data from them or mine them for passwords, analysts said. And connecting a compromised system to a corporate network might let hackers burrow past other defenses.

"I think the biggest security threat today is remote users," said David Krauthamer, director of information systems at Advanced Fibre Communications Inc. in Petaluma, Calif. "It's becoming easier to gain an access foothold to a corporate network."

"We don't have any control over remote workstations or home PCs or kiosks or wherever it is that people access our networks from," Allgeier said. "We can't really rely on personal firewalls and antivirus software to detect Trojans and keystroke-loggers."

The Lower Colorado River Authority has begun to roll out software developed by Austin-based WholeSecurity Inc. that scans individual desktop PCs for malicious code. Allgeier said it's looking to deploy the tool for remote users as well.

LEARN MORE ONLINE

Go to our Security Knowledge Center for additional information and resources:

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TrendLabs
Los Angeles,
Joseph Miller, Ph.D.,
joins a team
of antivirus experts
working worldwide
to uncover data
security answers
enterprise-wide.

Vendors Need to Find New Ways To Work With Users, Zander Says

Former Sun exec remains 'bullish' about IT industry

BY MARYFRAN JOHNSON

Ed Zander, former president and chief operating officer at Sun Microsystems Inc., last week said he will become a managing director at Silver Lake Partners, a Menlo Park, Calif.-based investment firm. Earlier this month, Zander spoke with Computerworld about the IT industry and his time at Sun, which he left last July.

How can technology vendors dig themselves out of the mess they're in now? We as an industry have to demonstrate to IT professionals and CIOs what we're going to do for them to reduce their IT costs. There's a significant backlog of applications, but budgets are frozen or reduced, and people are stuck with an IT infrastructure that's way too expensive.

When you get back to the business side of the house, they're all tired of hearing about all this technology. The company that gives them an IT advantage to design cars more quickly or reduce supply chain costs, that's what matters. They're not interested in hearing about 48-way servers.

What was really behind your decision to leave Sun? With the No. 2 position, you do those jobs for three or four years, and then you either get the CEO job — like Sanjay Kumar at CA — or you exit. Sometimes on good terms, sometimes not. With me, it was friendly. Scott [McNealy] wants to run the company for another 10 years. But if you do the president's job, eventually you want to make the CEO decisions. You're so close to that office, and you're running the company from day to day, but the CEO still gets to make the big strategy calls.

What do you think were the best decisions you made at Sun? One of my best was branding Solaris, which was very controversial inside Sun at the time. That was a first in the mainstream computer market, taking an OS and making it a brand. It basically made Solaris what it is today. Another great decision was around the whole Internet and dot-com era, seizing that opportunity and driving the company around it. We were the "dot" in "dot-com," and any new start-up was using Sun.

What were your worst decisions? In 1992, we introduced a version of Solaris that was not ready for prime time. I rushed it to market too soon, and that was a disaster. More recently, I think we didn't push enough on the whole Linux question. We should have done more to understand how to embrace it within [Sun's] strategy, to "own" that whole developer community. The third thing was not moving to [downsize] the company properly once the market started coming apart in the fall of 2000.

What do you think the next big thing in IT will be? There's no big "next thing" on the horizon. There's nothing like the Net or PCs coming in the near future. It's going to be more about rationalization, consolidation and making sense of what people already have. But my long-term outlook is still very bullish. People say the industry is maturing, but I tend to argue that it's not, because innovation is still happening.

Continued from page 1

i2 Concerns

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But, Kresl added, he remains confident that, "in one form or another, the applications we want will keep going."

"Certainly, there is a concern about the delisting and the financial problems," said George McAfee, supply chain project manager at Cooper Tire & Rubber Co., a Findlay, Ohio-based manufacturer that runs i2's production scheduling and transportation management software. "We've put a lot of money on the line and have high expectations from [our senior] executives."

But McAfee said i2's problems won't stop him from buying more of the company's software. And like other users at the conference, he said he has seen a positive change in the way i2 operates since it overhauled its senior management in April 2002.

Before the reorganization, McAfee said, i2's leadership was "more focused on growing the business at all costs and trying to sell the software to everyone in the world, instead of nurturing the existing client base. I think the mission was very shallow, and that's why it failed."

Kresl also said i2's attitude toward users has improved. "There was a little bit of hubris [before]," he said, adding that i2 is easier to work with now and is more willing to acknowledge and address shortcomings or bugs in its applications.

"They're not looking at selling back into the company, but at making a success out of what they've already sold us," Kresl said. Southwest uses i2's parts management and demand-planning software.

"The last year has been a challenge for i2," said Janet Eden-Harris, i2's chief marketing officer, during a speech. "But it's a stronger company than it has been for the last several years," she added, referring to the management changes as well as downsizing moves, new product rollouts and improving customer-satisfaction rates on i2's surveys.

Even so, the combination of the SEC investigation, the reaudit and the stock delisting continues to weigh on i2. Some users said the reaudit process, which is due to be completed next month and is expected to lead to a restatement of i2's financial results for several years, will be a key milestone for the vendor.

"We watch our critical trusted suppliers very carefully, and at present, this is not satisfactory for anyone," said Jeff Poole, senior vice president of procurement strategy at Airbus SAS, a Toulouse, France-based aircraft maker. "We'll wait and see what happens when the [reaudit] report is issued — not that anyone is particularly expecting any difficulties around that."

J.B. Hoyt, supply chain project director at Whirlpool Corp. in Benton Harbor, Mich., said via e-mail that i2's management has said the reaudit should have a "benign" affect on the vendor. If the conclusion of the process "is negative, then we will all have to assess the outcome at that time," said Hoyt, who didn't attend last week's conference.

i2 Takes Steps to Improve Customer Loyalty

At last week's conference, i2 executives outlined a series of initiatives designed to further boost customer satisfaction.

Sam Nakane, who has been overseeing i2's reorganization efforts since being named chief operating officer 13 months ago, told conference attendees that the company is setting up a new customer organization designed to streamline communications with key users by providing them with a single point of contact.

He said account managers will be assigned to work with specific users and coordinate resources at i2 on their behalf as needed.

In addition, i2's field-service workers will chart software successes and performance gaps at the companies they perform work for and will then assess potential improvements and create 90-day action plans.

Nakane said i2 is also launching a business optimization service under which its consultants will work with users to improve their business processes after applications have gone live. Another planned step is the addition of more flexible pricing options that will let companies pay for software licenses upfront, after they start using i2's applications or when an agreed-upon amount of work is completed.

Jeff Poole, senior vice president of procurement strategy at Airbus, said the aircraft maker is already benefiting from the flexible pricing and other changes at i2.

"We've been working with i2 over the past two years and pushing them pretty hard to do things," he said. "It's worked well on both sides."

— Mary L. Songini

Vendors Need to Find New Ways To Work With Users, Zander Says

Former Sun exec remains 'bullish' about IT industry

BY MARYFRAN JOHNSON

Ed Zander, former president and chief operating officer at Sun Microsystems Inc., last week said he will become a managing director at Silver Lake Partners, a Menlo Park, Calif.-based investment firm. Earlier this month, Zander spoke with Computerworld about the IT industry and his time at Sun, which he left last July.

How can technology vendors dig themselves out of the mess they're in now? We as an industry have to demonstrate to IT professionals and CIOs what we're going to do for them to reduce their IT costs. There's a significant backlog of applications, but budgets are frozen or reduced, and people are stuck with an IT infrastructure that's way too expensive.

When you get back to the business side of the house, they're all tired of hearing about all this technology. The company that gives them an IT advantage to design cars more quickly or reduce supply chain costs, that's what matters. They're not interested in hearing about 48-way servers.

What was really behind your decision to leave Sun? With the No. 2 position, you do those jobs for three or four years, and then you either get the CEO job — like Sanjay Kumar at CA — or you exit. Sometimes on good terms, sometimes not. With me, it was friendly. Scott [McNealy] wants to run the company for another 10 years. But if you do the president's job, eventually you want to make the CEO decisions. You're so close to that office, and you're running the company from day to day, but the CEO still gets to make the big strategy calls.

What do you think were the best decisions you made at Sun? One of my best was branding Solaris, which was very controversial inside Sun at the time. That was a first in the mainstream computer market, taking an OS and making it a brand. It basically made Solaris what it is today. Another great decision was around the whole Internet and dot-com era, seizing that opportunity and driving the company around it. We were the "dot" in "dot-com," and any new start-up was using Sun.

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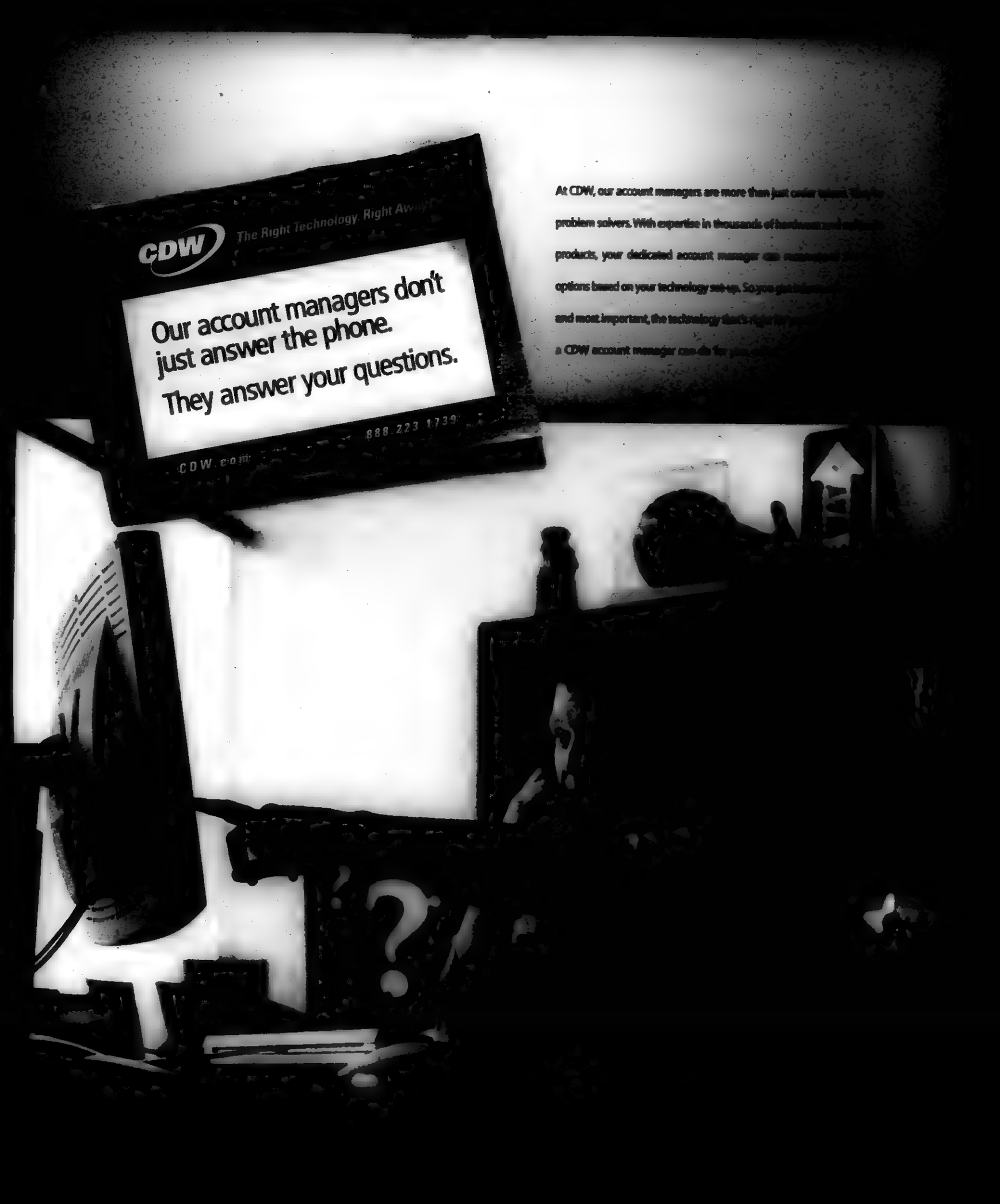
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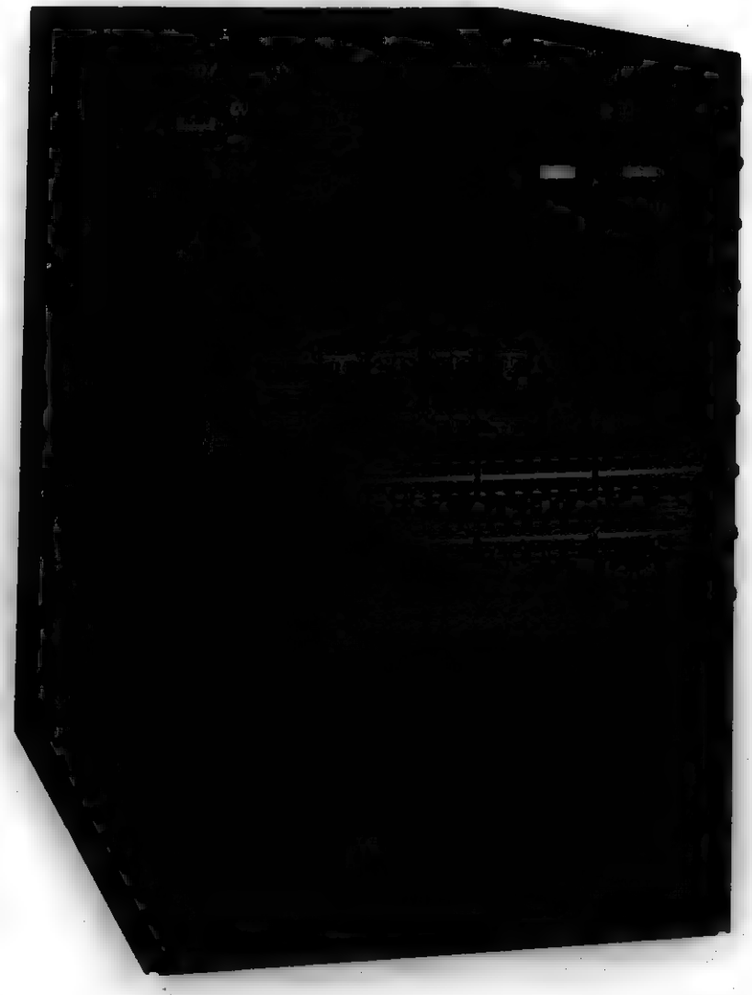

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Ariba Upgrades Corporate Spending Apps

BY MATT HAMBLEN

Ariba Inc. last week unveiled upgrades to eight of its spending management applications, with a focus on helping companies better monitor expenses for corporate services ranging from snow removal to legal help, marketing and IT consulting.

The new releases were announced at Ariba's user conference in Hollywood, Fla., and are all due to be available next month.

Martin Boyd, director of marketing at Ariba, said the Sunnyvale, Calif.-based company is adding functionality designed to support services that typically account for one-third to one-half of all expenditures within companies.

The upgraded software can manage spending in a total of 16 categories, including travel, utilities, insurance and health benefits, Boyd said. It can also be used to track staffing costs, such as expenses for temporary workers and the use of recruiters, he added.

Earlier this month, consumer electronics retailer Best Buy Co. announced that it's expanding a deployment of Ariba's products and said it wants to use the software to automate more of the process of managing contract-driven corporate services.

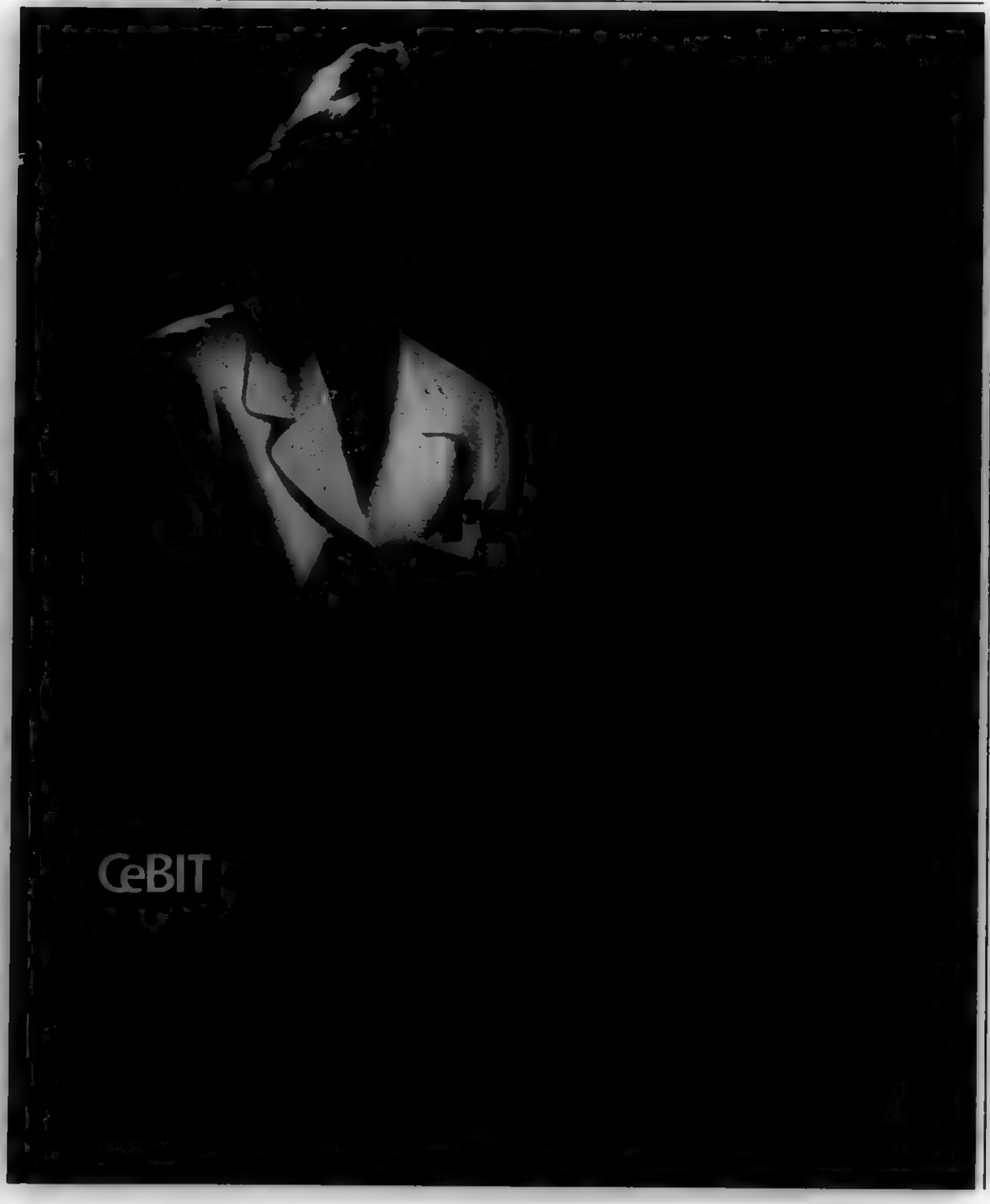
A Best Buy spokeswoman said the Eden Prairie, Minn.-based retailer has been an Ariba customer since late 2000. About 80,000 Best Buy employees use the vendor's purchasing and travel expense management tools. As part of the expansion plan, Best Buy is adding Ariba's contracting and invoicing applications.

The retailer has already gained efficiencies in procuring some services, like snow removal, the spokeswoman said. Contractors can send electronic invoices to Best Buy, allowing for automatic reconciliation and settlement of payments, she added.

Ariba's rollout includes upgrades of its purchasing, contracting and invoicing applications, plus revised versions of its sourcing and spending analysis products.

"The 'wow factor' is that Ariba is putting more functionality around services," said Christa Degnan, an analyst at Aberdeen Group Inc. in Boston. "If a company has done any e-procurement, this is the next level."

The services components are "relatively unique" to Ariba, Degnan said, citing PeopleSoft Inc. in Pleasanton, Calif., as its closest competitor. Smaller companies that specialize in spending management software include Elanoe Inc. in Sunnyvale, Calif., Fieldglass Inc. in Chicago, and IQ-Navigator Inc. in Denver.



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9:00am to 9:45am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners
9:45am to 10:15am	**Business Case Study** James Beattie, EVP and CTO, CCC Information Services
10:15am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Joe Drouin, VP and CIO, TRW Automotive ■ Tasos Tsolakis, VP of Global Technology Operations, Global Exchange Services ■ James Beattie, EVP and CTO, CCC Information Services
11:30am to Noon	Open Forum

Maryfran Johnson

Bart Perkins

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MARYFRAN JOHNSON

Credibility Challenged

THERE WAS A TIME in the late 1990s when the common workplace refrain was, "Are we having fun yet?" I don't quite remember the dot-com context (there's so much of that period I've blotted out), but the gist of it was about wondering when all the insanely long hours and maniacal workaholism were going to pay off. For the most part, they never did.

Today the question (no longer even remotely amusing) would probably be: "Are we credible yet?" On a personal level, most IT executives and managers would probably answer in the affirmative. When we surveyed 144 senior IT managers at *Computerworld*'s Premier 100 IT Leaders Conference a few months ago, only 20% of them said they thought IT had image problems "in my company." But 45% identified a lack of credibility for IT "in general."

Those image problems stem from well-known complaints about IT departments being too slow, too expensive and too geeky to communicate the business value of what they're doing. So, on a profession-wide basis, IT is lugging around a lot of baggage, as our Cover Story last week pointed out in detail ["Tarnished Image," QuickLink 38043]. There's a lingering resentment at many companies about technology dollars gone down the drain. The evidence includes chronic IT budget overruns, fizzled projects, overpriced Y2k fixes, deflated dot-com dreams (remember B2B exchanges?) and the billions spent on complex enterprise software installations that didn't quite live up to their billing — and probably never will. All of which puts your IT operation at greater risk of an unwelcome visit from the outsourcers.

Unfortunately, things have gotten worse in the past few years. The Hackett Group can prove it with performance benchmarks from some 2,000 of the nation's top companies. At average-performing companies, the IT project completion rate was 67% last year — down from 72% in 1999. Even worse, completion of short-term projects (those that are supposed to take less than a year) slipped from 58% in '99 to 51% last year.

What hurts about statistics like these is the way they paint the whole profession with the same sticky brush. That's unfair to companies like Hilton Hotels, where Corporate Systems Vice President Damien Bean can prove how IT is run like a business with a bottom-line focus. "The entire IT budget — every last cent — is funded out of the business side, and we charge back. We absolutely hit our budgets," he says, adding that "I don't think IT executives are suffering a credibility gap more than any other senior function."

Maybe so. But since the budget money for those future IT projects remains firmly in the hands of the CFOs and CEOs, any argument over who's lost more credibility is likely to end in a Pyrrhic victory.

There are winning strategies in this image makeover challenge, however.

At the companies where IT has turned its reputation back into gold, the three best practices have been to involve the business units more in planning and decision-making, prioritize projects more effectively and boost communication with the CEO and other senior executives. Sounds rather common-sensical and familiar, doesn't it? At other places, IT groups are creating marketing programs to call attention to their services. They're surveying internal and external customers for feedback and suggestions. And they're keeping it real with users by managing expectations and being honest about project delays.

So, are you credible yet? ◗

PIMM FOX

The Art Of ERP Done Right

TRYING TO JUSTIFY spending 1% to 3% of your company's annual revenue on ERP software is always going to be more art than science. This is mainly because the reasons for moving ahead with an ERP project have included the essential but difficult-to-quantify replacement of legacy systems along with the equally slippery goal of improving productivity and system reliability.

But when the CFO tells you to gauge the effect of ERP, you've got to come up with coherent metrics that are less artful and more concrete.

A new study by Meta Group might help. Meta says each company must include in its metrics its unique business, geographic and environmental context. As such, corporate location and revenue, the size of the user population and the actual ERP process must become part of your cost analysis. The report concluded that "total-cost-of-ownership metrics can be misleading when they are based on industrywide averages."

After surveying the work of six leading ERP vendors — J.D. Edwards, Lawson, Oracle, PeopleSoft, QAD and SAP — for 200 user companies in 12 industries, the results showed that ERP investments were made over three to five years. On average, 25% of the cost was spent on software, 40% on professional services and 25% on internal staff. Implementation time for these projects was approximately 20 months. Another seven months were needed before the benefits showed up. Calculating your TCO shouldn't stop when the project goes live. Also, include the first two years of operation.

Of course, part of your analysis needs to incorporate the structural changes you made to accommodate the ERP project. Indeed, the Meta report found that although smaller companies spend more as a percentage of

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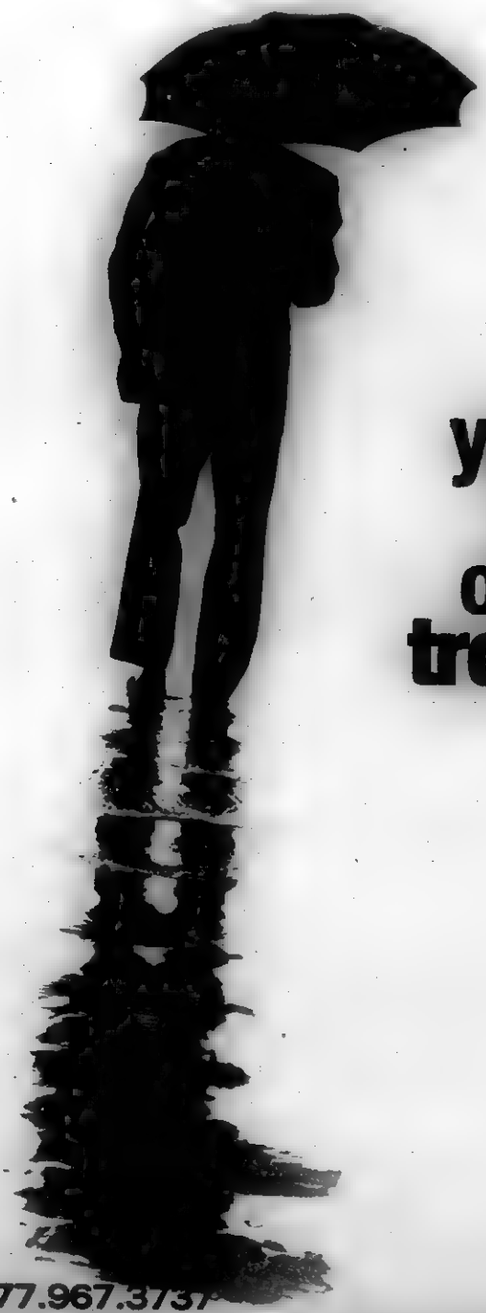

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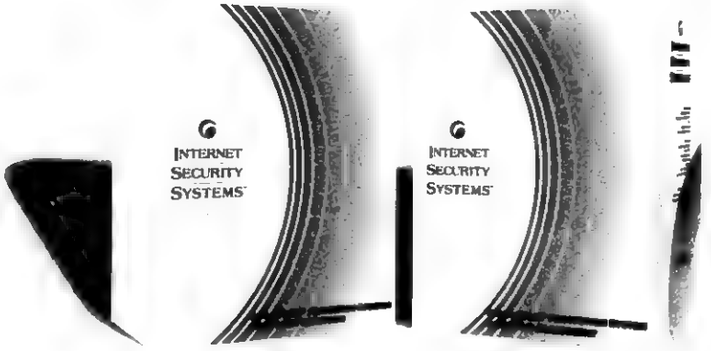

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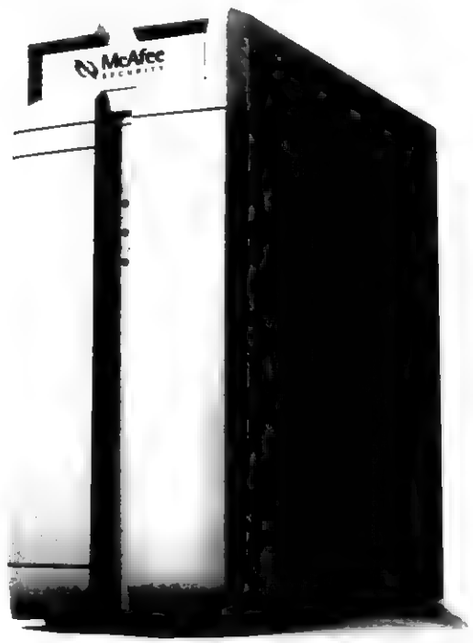

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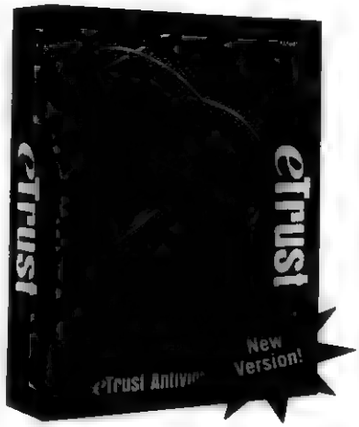

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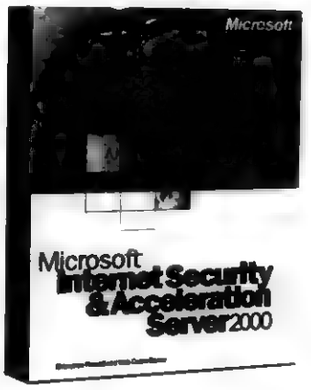

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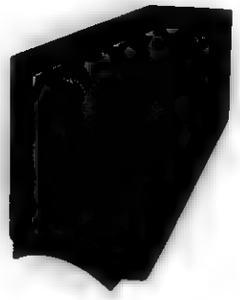

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E48323 ANTIGEN FOR MS EXCHANGE LIC 10-24 CD ROM.... **$35.00**

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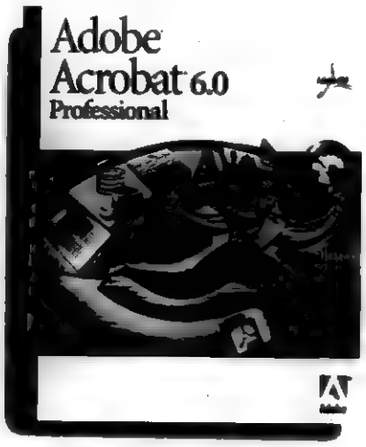

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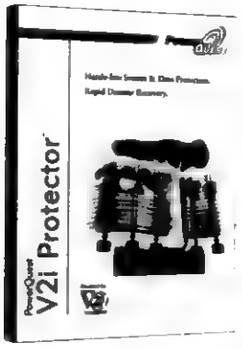

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IBM

There are licensing programs available for IBM Tivoli Access Manager & IBM Tivoli Intrusion Manager.
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Brother HL 5040

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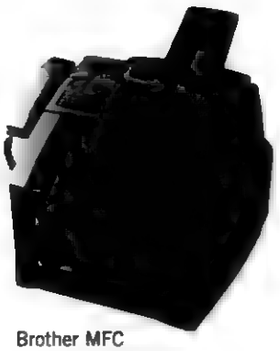

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E38836 BROTHER HL-5040 B&W 17PPM PRINTER 2400 X 600DPI/8MB PARA&USB.....**Reg. $299.00**
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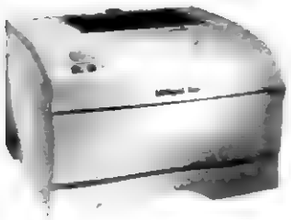

Lexmark T420d

The Lexmark T420 laser printer is an easy-to-use general-purpose printer that provides optional network capability and a space-saving design. Duplex capability and 350-sheet input are both standard features on this low-profile printer. A fast 200 MHz processor and 16MB of memory are also standard on the base model, providing exceptional print performance of 22 ppm and a 10-second time to first page at 1200 image quality resolution. Optional memory, input capacity and high-yield print cartridges are available. Excellent performance, sturdy product design and easy-to-use cartridges make the **Lexmark T420** an excellent choice for small businesses or workgroups.

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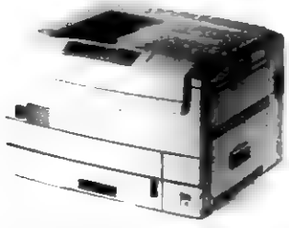

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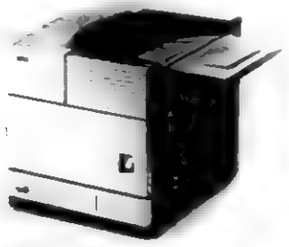
Oki Data – the productivity printers that bring cost-effective, fast, high-quality color or black and white printing in-house.



B8300

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Firewall appliance	*# of users protected*
Symantec Firewall/VPN 100	*Up to 15*
Symantec Firewall/VPN 200	*Up to 30*
Symantec Firewall/VPN 200R	*Up to 30*
Symantec VelociRaptor	*Over 30*

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revenue on ERP, the projects were more comprehensive.

Evaluating the benefits of ERP projects produced a top 10 list of intended accomplishments, according to Meta: replace outdated software, improve financials, improve analytics and decision-making, standardize cross-platform processes, improve IT performance, improve customer service, get a single-system view, improve purchasing, improve order management and reduce personnel costs. Your ERP wish list may be somewhat different, but it should be substantiated by metrics as well as testimonials from end users.

Finally, the report revealed that ERP vendor marketing efforts appear to all be for naught. Companies aren't particularly enamored of e-commerce or supply chain wizardry. Rather, IT managers said they regard long-term partner relationships as the true selection criterion, not features and functions.

And relationships are definitely an art, not a science.

DAN GILLMOR

Spam Control Is Failing

A FEW YEARS AGO, I wrote that in the unfortunate event of a global holocaust, the only survivors would be spammers and cockroaches. On reflection, I realized how unfair I'd been. I apologize to the cockroaches.

We are getting perilously close to a tipping point. As Federal Trade Commission Chairman Timothy Muris said April 30 as he welcomed experts in marketing, technology and law to a conference in Washington, unsolicited bulk commercial e-mail is threatening to wipe out the value of a communications system on which we all now rely.

The conference resolved little, except to amplify the need for some kind of fix. Rather, we need a variety of technological, social and legal fixes.

It's obvious why we still lack a legal fix. The direct marketing industry and its allies in technology don't want any serious federal laws against spam, so we don't have any. AOL Time Warner, Microsoft and several other big companies want a law that lets companies spam a recipient once. Marketers would be obliged to honor "opt-out" requests from e-mail recipients. Lousy idea. Opt-out solutions put the onus on the end user, where it doesn't belong. And given the number of businesses in the U.S. alone, we could all spend the rest of our lives opting out of unwanted e-mail.

Nobody believes that spammers, especially those from overseas, would suddenly behave under a tough federal law. But a few prosecutions and jailings would certainly have some deterrent effect. Maybe that will happen in Virginia, the first state to enact a law making some kinds of spamming a felony, with potentially severe penalties for violators.

Some technical measures can help, but only at the margins. The challenge-response systems jettison mail from people who don't respond to a simple question that a computer can't answer, but they ignore the truly serious problem — the fact that spammers misuse resources they don't own, even when the mail doesn't get delivered.

My personal solution works pretty well, though it steals several minutes from my day and doesn't solve the stolen-resources issue. I get so much spam at my public e-mail address that I've taken to selecting the (relatively) small portion of mail I want to read and deleting the rest of the new mail in my in-box. On a less public account, I use a filter and occasionally check the automatically trashed items to ensure that I'm not deleting something I want.

A notably bad idea is using the "black hole" lists that network vigilantes have created. Subscribers to these lists refuse to accept and deliver mail from domains deemed friendly to spammers. This method, of course, sweeps up the innocent along with the guilty, which is an injustice.

One of the more intriguing proposals comes from Stanford University's Lawrence Lessig. He'd like a bounty system that rewards individuals who turn in spammers. I'm not convinced his specific idea would work, but he's clearly onto something important: giving incentives and tools to people at the edges of networks to take action on their own.

IT should lobby for something along these lines. Imagine: A law that gave companies a way to sue spammers could turn e-mail into a profit center. The more successful it became, of course, the quicker the spam plague would recede. It's worth a try, anyway. Not much else is working.

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READERS' LETTERS

Novell Abdicated

I COULDN'T AGREE MORE with the users who would like to see Novell market NetWare more successfully ("NetWare Stalwarts Remain Loyal Despite Dwindling Market Share," QuickLink 37719). NetWare is vastly superior to any Windows product for most users, but the right people didn't get the message. Some technologically challenged "suit" in the boardroom is making the decision to switch from NetWare to Windows because he saw a commercial on TV. But this is happening not because Microsoft won the war, but because Novell abdicated.

Rod Anderson
Brick, N.J.

Who's in Denial?

IS IT THE USERS of NetWare who are in denial, or those who have implemented Windows NT for the same services? I think the latter users are in denial about the fact that NT isn't as stable, secure or easy to administer as NetWare.

The IT professionals who are keeping NetWare do so not because their continued use of NetWare is advantageous to their careers, but because getting things done and keeping systems up are advantageous to their careers. Three years ago, I was told that I was taking a risk by installing NetWare and eDirectory instead of moving to Windows 2000 and Active Directory from Windows NT 4.0. Now we have a stable environment, supported by fewer staffers than would have been required for the alternative, and we support workstations and servers at remote sites around the globe without a hitch. We can administer the network and directory quickly and efficiently and distribute applications at a moment's notice to anyone on the network.

Jeff Dill
Senior manager of technical architecture services, Aviall Information Services, Dallas

Forgotten Pioneer

I READ WITH INTEREST Frank Hayes' recent installment of "The Story So Far" discussing William H. Inmon's devising of and contributions to the field of data warehousing (QuickLink 37146).

There can be little doubt as to the significance of Inmon's work, but I was disappointed to see no reference to the comparably significant work of Ralph Kimball, who, building upon the practical theory of contributors like Inmon, put forth a paradigm widely recognized in the data warehousing field and used throughout the industry today.

Thomas Pellaano
Wallingford, Conn.

OS Does Matter

READER RUSSELL RUGGIERO wrote (QuickLink 37241) in response to Mark Hall's column "Does the OS Matter?" (QuickLink 36367): "Hall was right on. . . . The operating system should be transparent. Whether 31-bit, 32-bit or 64-bit – who cares, as long as the operating system is available, reliable, scalable and secure." How often have offerings from Redmond been called "available, reliable, scalable and secure"? Try telling Bill Gates that the OS doesn't matter.

Toby Fruth
Automation coordinator, Dallas

A Part of Evolution

THE ARTICLE "Microsoft Releases 64-bit SQL Database" (QuickLink 38018) quotes James Governor, an analyst at RedMonk, as saying, "It's the same as ever with 64-bit. It's a technology in search of a mass-market application." I find this to be a surprisingly old-school comment. The computer industry continues to improve performance and capability. With these improvements, we expand the realm of the possible. With every major leap forward in computer technology, applications have caught up, using more of the capability. This, in turn, fuels further improvements. Sixty-four-bit processing is the next logical step in this evolution. As it becomes more commonplace, we will utilize more and more of its capability. Just as with 16- and 32-bit technology before it, this demand won't be a linear track; at some point, the demand curve will go from a gradual increase to a near-vertical line.

Grant Carstensen
Senior systems engineer, Pratt & Whitney, East Hartford, Conn., grant.carstensen@pw.utc.com

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What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that predict, self-diagnose and fix many fault conditions. And now with hot-plug RAID memory exclusively from HP, you can add or replace DIMMs without turning your systems off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

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To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CMP's executive brief on high availability at www.hp.com/go/proliant85 or call 1-800-282-6672, option 5, and mention code YPH.

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KNOWLEDGE CENTER DEVELOPMENT

05.19.03

Waves of Change
Some CIOs say that Web services will hit IT like a tidal wave, affecting a wide swath of IT realms, from supply chains to CRM to programming tools. Page 28

OPINION
Web Services' Sharp Edge
Web services are part of a long IT standards tradition. As such, be aware that they're limited in what they can do, says columnist Mark Hall. Page 34

Web Services in Action
Four pioneers that are exploiting this new technology to make valuable connections with customers, partners and suppliers share what they have learned on the bleeding edge of Web services.
Page 36

EDITOR'S NOTE

OK, I ADMIT IT: I don't really know whether Web services will transform IT as we know it — or flop.

For one thing, Web services are based on standards, which is a good thing, except that standards have a way of getting bogged down or fragmented or polluted and then fading away.

Plus, there are serious security issues when exposing chunks of code to people outside the corporate firewall. (Just the word *expose* — common in Web services talk — is enough to give your security director the willies.) And I'm not sure that enough thought has been given to liability issues, or even to how participants are going to make money with external Web services.

My colleague Mark Hall certainly has a healthy skepticism about the grandest claims for Web services (page 34). So do I. But I think that if we tone down the hype, there are some modest expectations that have a good chance of coming true:

- XML and SOAP have a bright future. They're simple. They each do one job and do it well.
- Web services will make it easier to integrate internal systems. If nothing else happens, that will be a success story.
- Web services are likely to replace what we now call electronic data interchange. They're a powerful tool for automating supply chain activity among trusted partners.

But will we have an economy based on a giant Yellow Pages directory listing thousands of public Web services, with electronic transactions flying to and fro? Count me among the skeptics there.

Mitch Betts is features editor at Computerworld. *He can be contacted at mitch_betts@computerworld.com.*

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FREDERIQUE BERTRAND

The Web Services Tsunami

SPECIAL REPORT

Already, Web services are being used internally and externally. IT may never be the same.

The Story So Far

Web services are built on the shoulders of earlier technologies, such as client/server and EDI. By Frank Hayes

THE IDEA BEHIND WEB SERVICES is simple: Send a message across a network that triggers an action at the other end — often at another business. But getting to today's Web services has required simplifying several complex technologies: client/server, EDI and SGML.

Client/server got its start in 1981, when the founders of an early relational database company wanted to separate the database from the applications that used it. Bob Epstein, Paula Hawthorn and Mike Ubell founded Britton-Lee Inc. to make a stand-alone database server called the Intelligent Database Machine (IDM). The idea was for a large computer to send database queries to the IDM for better performance, security and simplicity.

But the IDM's proprietary hardware couldn't keep pace with the rapid performance improvements in Unix servers in the 1980s. Epstein soon helped found a new software company that used the same idea without the specialized hardware. Sybase Inc. made client/server computing both practical and popular.

Other developers took the client/server idea beyond database access. By 1983, two researchers at Xerox Corp.'s Palo Alto Research Center (PARC), Andrew Birrell and Bruce Jay Nelson, had developed a system of remote procedure calls, or RPCs, so one computer on a network could ask another to perform some of its computing work. And in 1984, Sun Microsystems Inc.'s Bill Joy led the development of Network File System, which used RPCs to give computers on the same network access to one another's files.

But sharing data, files and even computing processes within one company's network was far simpler than sharing business data among companies. That had already begun in a limited way when a group of trucking, railroad and shipping companies formed the Transportation Data Coordinating Committee in 1975 to develop standard electronic versions of shipping manifests and other documents.

By the early 1980s, electronic data interchange (EDI) was being used in the automotive, retail and transportation industries. But EDI was complicated. Far more information could go into a standard EDI document than most companies needed, so they used custom versions, and it was difficult to keep track of which suppliers and customers used what EDI subset. EDI messages were also usually sent over expensive private networks.

How could the complex EDI mess be simplified? The solution was already being developed. In 1969, three IBM developers working on a computer system for law offices came up with a way of using standard tags to identify content within documents. Charles Goldfarb, Edward Mosher and Raymond Lorie called their system the Generalized Markup Language, or GML — a name that happened to include the initials of its three inventors.

By 1980, IBM was successfully using GML in products, and standards organizations were developing a standardized version. In 1986, Standard Generalized Markup Language (SGML) became an official international standard. Like EDI, SGML was large and complex. But SGML included a system for specifying well-defined subsets of the complete set of information tags.

One such subset took off in 1991, when researcher Tim Berners-Lee at Swiss research laboratory CERN created Hypertext Markup Language (HTML) for the first Web browser. In order to send and receive HTML Web pages, Berners-Lee also devised a simplified version of the standard Internet File Transfer Protocol — which he called Hypertext Transfer Protocol, or HTTP.

And in 1996, a World Wide Web Consortium (W3C) working group created the first draft of what it called a "simplified SGML." Two years later, Extensible Markup Language, known as XML, was a standard that some IT shops began to use in e-commerce.

By 1998, researchers at Microsoft Corp. were putting the pieces together: RPCs in the form of documents tagged with XML and sent across the Internet using HTTP, doing what EDI did and much more. They dubbed their system the Simple Object Access Protocol, or SOAP.

IBM joined the effort in 2000, and the two companies defined the Web Services Description Language (WSDL) for identifying the capabilities available from a Web services provider, and the Universal Description, Discovery and Integration system, or UDDI, for directories of Web services.

And in 2002, the Web Services Interoperability Organization brought in dozens of other vendor and user companies, with the promise that Web services would simplify both e-commerce and IT services.

And now, on with the story . . .

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KATHERINE LAMBERT

Waves Of Change

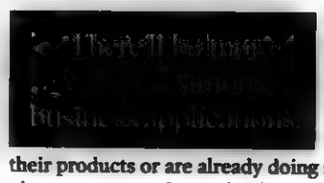
Web services could affect a wide swath of IT activities, from supply chains to CRM to programming tools. By Bob Violino

WEB SERVICES promise to be the technological equivalent of being in the right place at the right time with just the right information at your fingertips. And some say the technology will hit the IT world like a tidal wave.

"Web services is a tsunami of technology evolution," Andre V. Mendes, chief technology integration officer at Public Broadcasting Service (PBS), said at the *Computerworld* Premier 100 IT Leaders Conference in February. He said the Alexandria, Va.-based nonprofit organization uses Web services to connect upstream with content developers and producers and downstream with public TV stations and viewers. "What we're developing is a supply chain optimization that puts us right in the middle of this equation," said Mendes.

Over the next several years, Web services are likely to enable companies to get a lot more out of technologies such as supply chain systems and CRM, and they're likely to make it easier to build new applications and integrate existing ones. Here are some snapshots of how Web services are expected to change key parts of the corporate IT agenda:

Business Intelligence and CRM



Most of the major business-intelligence and CRM vendors plan to support Web services in their products or are already doing so, and Web services are expected to make those applications more

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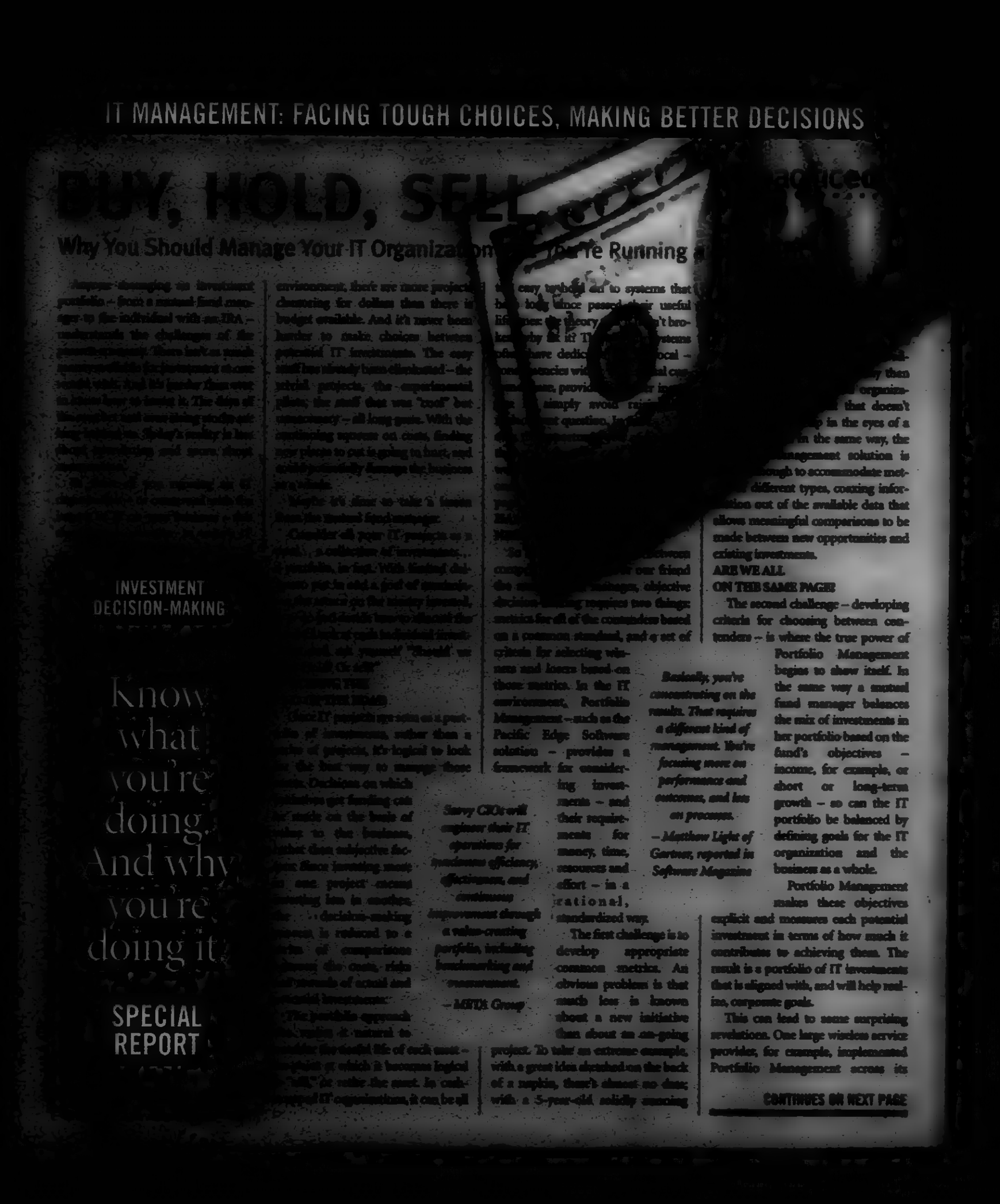
BUY, HOLD, SELL

Why You Should Manage Your IT Organization

INVESTMENT DECISION-MAKING

Know what you're doing. And why you're doing it.

SPECIAL REPORT



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...easy to point an ax to systems that ... long since passed their useful ... Efficiency theory ... don't bro... ken. Why fix it? T... systems ... have dedic... local – ... agencies wi... al cu... ... provid... ... simply avoid ... ... question, ...

...between ... our friend ... challenges, objective ... requires two things: ... for all of the contenders based on a common standard, and a set of criteria for selecting winners and losers based on those metrics. In the IT environment, Portfolio Management – such as the Pacific Edge Software solution – provides a framework for considering investments – and their requirements for money, time, resources and effort – in a rational, standardized way.

Savvy CIOs will engineer their IT operations for maximum efficiency, effectiveness, and continuous improvement through a value-creating portfolio, including benchmarking and measurement.

– META Group

The first challenge is to develop appropriate common metrics. An obvious problem is that much less is known about a new initiative than about an on-going project. To take an extreme example, with a great idea sketched on the back of a napkin, there's almost no data; with a 5-year-old solidly running ... ...y then ... organiza... ... that doesn't ... in the eyes of a ... in the same way, the ... management solution is ... ough to accommodate met... different types, coming infor... ...ion out of the available data that allows meaningful comparisons to be made between new opportunities and existing investments.

ARE WE ALL ON THE SAME PAGE?

The second challenge – developing criteria for choosing between contenders – is where the true power of Portfolio Management begins to show itself. In the same way a mutual fund manager balances the mix of investments in her portfolio based on the fund's objectives – income, for example, or short or long-term growth – so can the IT portfolio be balanced by defining goals for the IT organization and the business as a whole.

Basically, you're concentrating on the results. That requires a different kind of management. You're focusing more on performance and outcomes, and less on processes.

– Matthew Light of Gartner, reported in Software Magazine

Portfolio Management makes these objectives explicit and measures each potential investment in terms of how much it contributes to achieving them. The result is a portfolio of IT investments that is aligned with, and will help realize, corporate goals.

This can lead to some surprising revelations. One large wireless service provider, for example, implemented Portfolio Management across its

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BUY, HOLD, SELL...

Why You Should Manage Your IT Organization Like You're Running a Mutual Fund

pacificedge SOFTWARE

Anyone managing an investment portfolio – from a mutual fund manager to the individual with an IRA – understands the challenges of the present economy. There isn't as much money available for investment as one would wish. And it's harder than ever to know how to invest it. The days of the sure bet and ever-rising stocks are long behind us. Today's reality is less about speculation and more about conservation.

To those of you running an IT organization – or concerned with the impact of IT on your business – this should sound familiar. In today's IT environment, there are more projects clamoring for dollars than there is budget available. And it's never been harder to make choices between potential IT investments. The easy stuff has already been eliminated – the trivial projects, the experimental pilots, the stuff that was "cool" but unnecessary – all long gone. With the continuing squeeze on costs, finding new places to cut is going to hurt, and could potentially damage the business as a whole.

Maybe it's time to take a lesson from the mutual fund manager.

Consider all your IT projects as a pool… a collection of investments… a portfolio, in fact. With limited dollars to put in and a goal of maximizing the return on the money invested, how do you decide how to allocate the funds? Look at each individual investment and ask yourself "Should we buy? Hold? Or sell?"

REACHING THE END OF THE ROAD

Once IT projects are seen as a portfolio of investments, rather than a series of projects, it's logical to look for the best way to manage those assets. Decisions on which initiatives get funding can be made on the basis of value to the business, rather than subjective factors. Since investing more in one project means investing less in another, the decision-making process is reduced to a series of comparisons between the costs, risks and rewards of actual and potential investments.

Savvy CIOs will engineer their IT operations for maximum efficiency, effectiveness, and continuous improvement through a value-creating portfolio, including benchmarking and measurement.

– META Group

The portfolio approach also makes it natural to consider the useful life of each asset – the point at which it becomes logical to "sell," or retire the asset. In cash-strapped IT organizations, it can be all too easy to hold on to systems that have long since passed their useful lifetimes: the theory that if it isn't broken, why fix it? These legacy systems often have dedicated – and vocal – constituencies within the internal customer base, providing another incentive to simply avoid raising the replacement question. In reality, however, the opportunity cost of retaining the outdated system can often far [illegible] weigh the cost of implement[illegible] one. (See "Killing Me S[illegible] page.)

HARD CH[illegible]
NEED HA[illegible]

So how [illegible] decide between competing [illegible]atives? For our friend the mutual fund manager, objective decision-making requires two things: metrics for all of the contenders based on a common standard, and a set of criteria for selecting winners and losers based on those metrics. In the IT environment, Portfolio Management – such as the Pacific Edge Software solution – provides a framework for considering investments – and their requirements for money, time, resources and effort – in a rational, standardized way.

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ARE WE ALL ON THE SAME PAGE?

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INVESTMENT DECISION-MAKING

Know what you're doing. And why you're doing it.

SPECIAL REPORT

CONTINUED FROM PREVIOUS PAGE

entire IT activities. It quickly became apparent that while improved customer service and responsiveness was the over-arching corporate objective, very few of the company's IT initiatives were related to achieving this goal. Funding decisions were being made, not on the basis of their impact on customers, but on the IT organization's internal criteria. Portfolio Management helped reconnect the company's IT efforts to its corporate strategy.

Another common surprise is that many efforts are overlapping – or that synergies are being missed among initiatives which address common problems. One large insurance company, with several hundred projects, discovered numerous such cases and was able to streamline and consolidate many projects into one. That improves overall portfolio performance and frees up dollars for further investment.

THE TOOLS TO MANAGE – AND CREATE – CHANGE

A final characteristic of the mutual fund is that it is actively managed: the mutual fund manager is constantly adjusting the investment mix, testing different scenarios and considering new investment opportunities. In the IT environment, Portfolio Management provides the tools to facilitate the same active management – ensuring the portfolio is always delivering optimum performance. What if we cancel this project? What if we need those resources for something else? What if our objectives change? How fast could we respond to a competitive challenge?

For the mutual fund manager turned CIO, those questions are the order of the day. Trying first one option, then another, comparing the outcomes to current results, and constantly optimizing the investment mix, he or she creates a closed-loop cycle of continuous improvement – and an IT portfolio that truly creates value for the organization.

KNOW WHAT YOU'RE DOING. AND WHY YOU'RE DOING IT.

SPECIAL REPORT

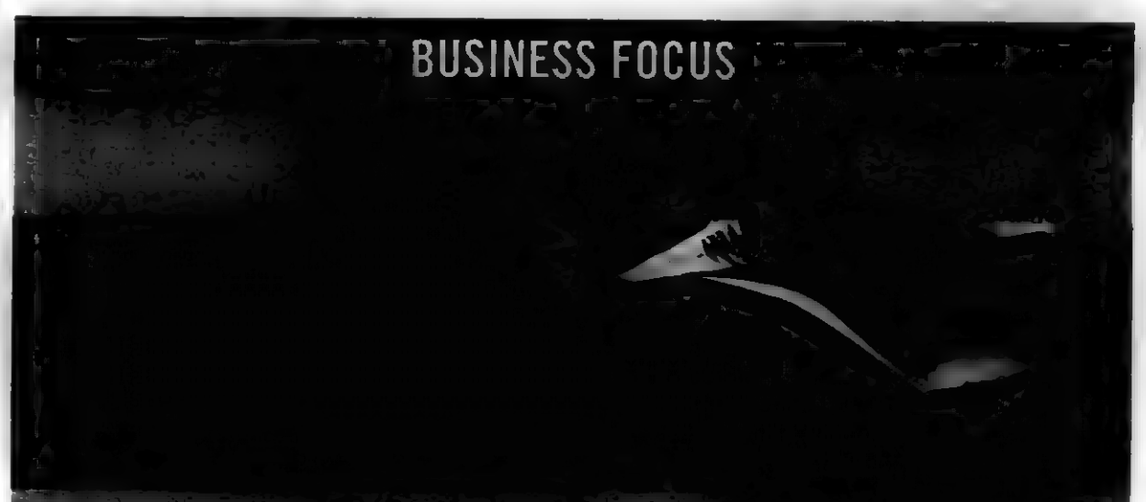
With all the projects and investments your business has going on, how do you align that portfolio with your business needs? The Pacific Edge Enterprise Portfolio Management solution is based on a powerful, but straightforward process that does just that, it transforms the way projects are evaluated, and new initiatives considered.

PHASE 1: PLANNING

The Enterprise Portfolio Management process starts by assessing each potential new investment, along with the resources that comprise the organization's portfolio.

Existing investments are modeled and captured in the portfolio inventory. Detailed information may be captured directly – or imported from other tools such as spreadsheets, accounting and project management packages.

With the portfolio of potential investments defined, each investment is categorized and qualified, based on



When it comes time to kill off an IT investment, the protests can range from the vehement to the vitriolic. The soft targets have all been picked off long ago, so whatever project you axe now, you're killing somebody's pet. Often, it's the older, legacy systems that attract the staunchest defenders. "We've paid for it already," they say. "It works. It costs us nothing to keep it." And that old favorite, "It ain't broke, so why fix it?"

It can be downright tough to get the customer to agree to turn off life support, but the truth is, keeping an old system alive does cost money. So try turning the argument around:

"Don't you think you could have it for less if we did [illegible]?"

Make the buy-/sell-off argument to the customer and let them share in the decision. Portfolio Management is an effective tool for making the true costs visible, and presenting the new opportunities in ROI terms that any manager can relate to.

If the experience of oilfield services conglomerate Schlumberger is anything to go by, a well-managed process, with analysis tools and recommendations, can reduce the frustration level and the discussion length when these decisions are being made. This helps avoid the overpro-

Online, In-Depth

The recent META Group White Paper IT Investment Management: Portfolio Management Lessons Learned provides a more in-depth look at Portfolio Management and its impact on the IT value creation process. For a complimentary copy of the interactive web demo, visit www.pacificedge.com/computerworld.

ENTERPRISEPORTFOLIOMANAGEMENT

the organization's management techniques, operational processes and best practices. Key information such as the business case, resource requirements and alignment to corporate strategy are captured.

Then, each investment is prioritized, weighted and ranked using a scorecard approach, to measure its value against standardized, objective metrics such as risk and potential return.

PHASE 2: ANALYSIS

Executives and managers can review key information from multiple perspectives, such as investment type, sponsoring organization, objectives and priority, to gain a thorough understanding of the entire portfolio.

Each existing and potential investment is examined to determine that it is:

- **achievable**, given the resource constraints of the organization
- **balanced**, in terms of potential risk compared to its value to the organization
- **aligned** with strategy and corporate objectives
- **ranked** in order of priority, based on its ability to deliver maximum business value.

PHASE 3: OPTIMIZATION

With the information quantified, standardized and accessible, it is now much easier to collaborate on selecting, prioritizing and sequencing projects.

In practice, this is done by selecting for specific combinations of variable constraints – such as investment inclusion, value, risk and cost. Selection criteria can be modified to generate alternative portfolios, which are then compared and refined.

Through this collaborative process, an optimum portfolio of investments can be defined that best matches the organization's chosen strategic planning objectives.

PHASE 4: MOBILIZATION

Now, the realigned portfolio is translated into actionable plans. Investment priorities, milestones, resource allocation, and budget information are distributed to the operational staff responsible for managing the assets, resources, projects and products.

From this point on, lifecycle management tools and status and performance management tools are used to monitor the performance and results of each initiative as it moves from initial concept to completion. In the case of assets, similar lifecycle management is applied as the asset transitions towards retirement and replacement.

GOING FORWARD, the results of each investment can be assessed in terms of its impact on the organization's overall goals.

Pacific Edge takes a "closed loop" approach to Enterprise Portfolio Management, allowing project, asset and product investments to be inventoried, analyzed, planned and tracked throughout their entire lifecycles. As progress is made, external factors change, and business objectives evolve, the portfolio information is constantly updated to reflect the new reality.

Pro-active planning can also be performed using "what if…?" analysis and "sandbox" trials to compare alternative investment scenarios and test conditions.

AT THE HEART OF THE ENTERPRISE PORTFOLIO MANAGEMENT PROCESS are the individual investments – assets, products, projects and resources – that together comprise the enterprise portfolio. Most organizations have a large number of investments, which will typically be of several different types, each mapping to different functional needs.

As a result, a complete enterprise portfolio can be highly complex, and the Pacific Edge Enterprise Portfolio Management solution includes the ability to logically group and manage "partitions" so that R&D investments, for example, can be planned and evaluated differently than IT investments.

Improving the Health of the Enterprise Portfolio

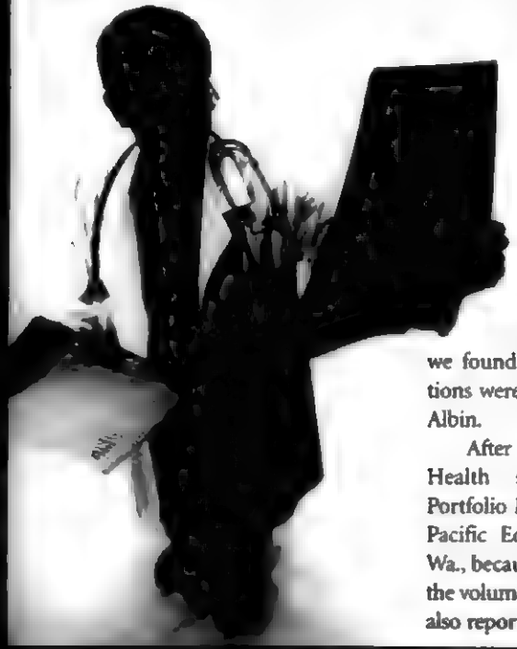
Leading healthcare provider Mercy Health Partners needed a way to balance its large, and growing, volume of IS projects against a fixed pool of resources. There was also the challenge of aligning projects with strategic business goals in a rapidly-changing industry. Enterprise Portfolio Management was a bold approach – and one which has had a positive impact beyond the IS department, maximizing value across the organization.

When James J. Albin joined Mercy Health Partners as CIO, he immediately realized his Information Services department needed a way to quickly identify what IS projects were in progress, and how they impacted the department's limited resources. A recognized leader in providing quality, cost-effective healthcare, Mercy Health encompasses six hospitals in southwest Ohio. With a medical staff of 1,600 professionals, Mercy Health is also a regional leader in collaborating with other organizations to meet community needs.

Like many IS departments in an industry where consolidations and cutbacks are commonplace, Mercy Health Partners faced many challenges – not the least of which was managing some 4,000 projects at any one time. Their project management system consisted of a trouble-ticketing system for allocating work, coupled with an internally developed accounting system based on Microsoft® Access. Clearly, there was a need for a more robust approach to managing the project portfolio and resource utilization.

HANDLING QUANTITY, DELIVERING QUALITY

James Albin recognized that a comprehensive Enterprise Portfolio Management solution was the answer – a solution that could help Mercy Health proactively plan and manage their IS portfolio, easily track where time was being spent, and ensure enough resources were available. "We needed something that could handle the large volume of projects and focus on resource utilization. But we found that not very many solutions were available for IT," says Mr. Albin.



After an extensive review, Mercy Health selected the Enterprise Portfolio Management solution from Pacific Edge Software of Bellevue, Wa., because it could not only handle the volume and details of projects, but also report on the project portfolio at a strategic level. "We use Pacific Edge to effectively prioritize and track our project portfolio, manage resources, and validate the IS department as a valuable asset to the organization," says Mr. Albin. "The healthcare industry is focused on cost consolidation, which increases demand for IT. So we needed a solution that could help us maximize the value of our IS portfolio."

"The Enterprise Portfolio Management solution from Pacific Edge was a major contributor in reducing our IT costs by $4 million."

James J. Albin,
Vice President & CIO of Mercy Health Partners

BENEFITS TO IS AND BEYOND

For Mercy Health Partners, Enterprise Portfolio Management has delivered on its promise. Besides significant improvements to productivity, the Pacific Edge solution has benefited the IS department through:

- **Aligning projects with strategic goals.** With clear visibility into project portfolios through easily accessible reports, executives and senior management can make better business decisions based on strategic goals. They analyze budget and time information, obtain project completion reports, prioritize projects based on objective criteria, and understand the impact of resource management decisions.
- **Improved resource allocation.** With 100% of resources tracking time, Mercy Health's IS department has reliable data from which to analyze how and where resources are being used. This allows the department to prioritize projects based on resource availability. Even after a 25 percent reduction in resources, there has been no reduction in customer service or project quality, thanks to this ability to prioritize.
- **Greater customer satisfaction.** Since the IS department's internal customers now have access to project information, they are accountable for the quality of their own projects. The department uses reports to clearly communicate the number of projects in a customer's queue, and the number of resources available to work on them – empowering the customer to set their own project priorities.
- **Enhanced project approval and prioritization.** Each potential project passes through an approval committee, which now has access to reports that easily identify high-priority legal and regulatory projects, as well as projects to be approved, canceled, or escalated to the executive committee. Projects stay within limits, backlogs are avoided, and project prioritization and balance is more easily maintained.

For Mercy Health, Enterprise Portfolio Management has become more than just a means of managing a large volume of projects; it is now a key tool for improving business processes to ensure an achievable investment portfolio – one with the right balance of investments to achieve the greatest return.

This special feature on Enterprise Portfolio Management was brought to you by Pacific Edge Software, the leading provider of Enterprise Portfolio Management software for global organizations. Pacific Edge delivers closed-loop management solutions that help businesses maximize value and reduce risk in their investment, project, and product portfolios.

Pacific Edge's business-critical solutions include Project Office® and Portfolio Edge™ enterprise software products, professional services, industry-specific templates, and a proven portfolio management process.

To explore how Enterprise Portfolio Management can help you align investment and development activities with business strategy, please contact us at:

Pacific Edge Software, Inc.
Phone (425) 897.8800
Fax (425) 897.8900
E-mail info@pacificedge.com
Web www.pacificedge.com

pacificedge SOFTWARE

Portfolio Management for Smarter Business™

Continued from page 28

readily available to internal users and external business partners.

Web services — with their standardized application programming interfaces — will allow analytical tools to be more easily embedded in standard applications, says Michael Corcoran, chief communications officer at Information Builders Inc. in New York. The latest release of the company's business-intelligence product supports Web services, allowing reports to be created and published as a Web service accessible from Java 2 Enterprise Edition or Microsoft Corp.'s .Net environment. "Web services will make business-intelligence components usable with many other applications," such as call center or Web customer service applications, Corcoran says.

Just imagine the systems that could be improved with real-time transactional data delivered by Web services. For example, a manufacturer could use a business-intelligence system to forecast demand for raw materials and then employ Web services to relay the data to numerous suppliers producing those materials. An insurance company could more easily and quickly send CRM information — such as a customer's previous complaint about a policy — to a call center agent to help provide better service.

"The point of Web services is to make it easier for people to construct and integrate applications," says Henry Morris, an analyst at Framingham, Mass.-based market research firm IDC. "Web services, combined with standards like XML, will make it easier for people to tie business-intelligence and CRM applications together. That's where you get the real value out of business intelligence; not just getting a report, but being able to act on it and get feedback."

Joe Wanzek, vice president of IT at American Equity Investment Life Insurance Co. in Des Moines, Iowa, says his company already has an in-house CRM application that provides transaction information to customer service representatives. But with Web services, Wanzek expects to be able to deliver that data via the Internet to customers just as quickly. That will eliminate the need for costly and time-consuming phone calls to work out customer complaints or answer queries, he says.

Supply Chain Systems

The adoption of Web services is expected to enhance the way businesses conduct transactions with one another electronically and the way information moves through the supply chain.

Mitsubishi Motors North America Inc. in Cypress, Calif., uses Web services to link 700 dealers through its portal — a single point of entry for dealers online, says CIO Tony Romero. "Anything a dealer needs to do can be done through the portal, no phone calls necessary," he says.

The key to easier integration is the fact that Web services are based on widely adopted standards such as XML. "It changes the integration game; it will be much easier to [link systems] because of the open standards," says Toby Redshaw, corporate vice president of IT strategy, architecture and e-business at Motorola Inc.

"When you map the supply chain today, starting with source material, all the way to product repair, you'll find there are 10 to 12 disconnected processes with big gaps and integration issues," such as how to handle product repairs and returns, Redshaw says. Web services will help trading partners fill those gaps by providing better communication among their supply chain applications, he adds.

In many cases, transactions among trading partners, such as ordering supplies, fulfillment, billing and inventory management, will be wholly automated, says Mike Gilpin, an analyst at Giga Information Group Inc. For example, a retailer could develop a standardized, automated program for ordering goods and then use the program to allow its purchasing applications to work with suppliers' inventory systems.

This will be a less complex and time-consuming endeavor than it would be without Web services. Automation will also help reduce costs, Gilpin says. "One of the impediments to B2B commerce has been cost, and I think costs will be reduced gradually by Web services," he says.

In addition, Gilpin says, the combination of Web services and technologies such as radio frequency identification tags will enable companies to track the location of products in real time as they move through the supply chain, while gathering data about overall demand, purchasing trends and inventory.

Within three years, Redshaw predicts, intelligent Web services will emerge that completely automate a lot of supply chain management functions, such as handling customer queries from call centers or feeding customer-retention data to salespeople in real time.

Vendor Says Mobile Apps Are Years Away

The combination of Web services and mobile devices such as cell phones, PDAs and tablet PCs will give users customized access to critical data in real time, says Joe Owen, chief technology officer at **XcelleNet Inc.** in Alpharetta, Ga., which offers software for connecting mobile users and remote sites to corporate systems. For example, he says, a sales distributor in the field could use a single application from a mobile device to access inventory data or customer profitability information – without the need for a large and costly data warehouse.

But Owen notes that many of the thin-client benefits of Web services are likely years away from commercial availability because of the limitations of current wireless network connections.

Yet the marriage of Web services and mobile devices is inevitable, he says, because on-the-go employees will need access to various types of corporate data behind the firewall. Web services will provide a means for companies to integrate enterprise applications and mobile devices without spending big bucks on integration projects.

"With Web services, you can provide access to applications [from mobile devices] without having to consolidate data from wildly different formats and databases," Owen says.

– Bob Violino

Application Development

Industry experts expect Web services to speed up and simplify application development, allowing IT departments to not only create new applications in less time, but also to deliver them to more internal and external users.

"You won't see a whole new array of things that you couldn't do before because of Web services, but you'll see application development enabled much more quickly," says Larry Calabro, a partner in the technology integration unit at Deloitte Consulting in Chicago. Calabro says Web services standards will make it easier for companies to build applications that more effectively integrate existing software packages such as CRM and ERP. "The focus of application development will be to make all those assets work together to better meet business goals and better serve customers," he says.

Web services will make it easier for less-skilled people to more rapidly build applications through their standardized application development tools, says Michael Blechar, an analyst at Gartner Inc. "Web services standards like XML and UML are providing much more automation" in the process of developing and sharing applications, Blechar says.

The ability to recycle software code is another benefit, he says, pointing out that teams of developers will be able to reuse components and place them into applications, rather than having to rewrite existing code. "The whole philosophy of Web services is based on reuse," Blechar says. "Clients, supply chain partners and people inside the organization will be able to reuse components."

Wanzek of American Equity agrees. "As XML becomes more of a common tool," he says, "it will allow us to provide quicker and more reusable application development."

Violino is a freelance writer in Massapequa Park, N.Y. Special projects editor Ellen Fanning contributed to this article.

SMART SERVICES

A former CIO discusses "what Web services can do for business intelligence"

QuickLink 37326
www.computerworld.com

Top Five Perceived Benefits

What benefits do you expect to see from adoption of Web services applications?

Improved efficiency/process speed **46%**

Cost reduction 41%

Improved customer service **25%**

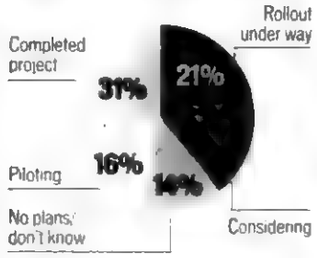
Improved connectivity **20%**

Better systems integration **20%**

Base: Survey of 262 global executives (75% were CIOs), who provided unaided responses; multiple responses allowed

Implementation Stages

At what stage of implementation are you with Web services technologies?



Base: Telephone survey of 877 IT decision-makers at North American companies

Top Seven Applications

The most common Web services applications currently being implemented:

Employee benefits 53%

E-commerce 42%

CRM 34%

Supply chain 33%

Knowledge management **32%**

Internal finance 25%

Data storage 24%

Base: Survey of 262 global executives (75% were CIOs); multiple responses allowed

MARK HALL

Web Services' Sharp Edge

WEB SERVICES AREN'T SLICED BREAD, nor are they the best things since. They're just sharper knives in your IT kitchen. And as with sharp knives, you have to be careful not to hurt yourself with them.

Web services give you a higher level of abstraction than an application server or middleware, such as CORBA. That abstraction makes it easier for software developers to program relationships among disparate systems, because Web services offer a broader (but far from complete, mind you) set of standards.

Web services are the ideal tool for tying creaky but essential mainframe software to your spunkier e-commerce applications. One integrator told me that 25% of his company's integration work is based on Web services, and that percentage is growing quickly.

No wonder. Web services make things so easy. Just output everything in XML, and you're halfway home, right?

Sorry. Not quite.

What XML format is your application asking for again? CXML, the Commerce XML? Would that be Version 1.0, 1.1 or 1.2? Or was that CML, the Chemical Markup Language? Maybe it was BPML? eXML? Or my personal favorite, YML, the Why Markup Language?

If you're using Web services, you still need to be keenly aware of the format of the services you intend to consume or share within applications. You can't simply grab the data and assume that the format makes sense for your purposes. XML is good, but it's not that good.

Mark Pezel, a senior management consultant at TUSC, a software consultancy in Lombard, Ill., eloquently summed up XML to me last month: "It's intelligent ASCII." Very cool. But not sliced bread.

In addition to the complex XML formats developers face, IT operations are forced to wrestle with the major problem of Web services management. As Web services proliferate and become easier to build and deploy, their application dependencies, their requirements for quality of service and service-level agreements, and their performance management will fall on IT's shoulders.

If you don't control the source of the service your application needs in order to be fully functional, how can you possibly make promises about quality of service or service-level agreements?

Well, you can't without ironclad agreements with your Web services provider. That's not impossible; it's just another item on your to-do list.

To further aggravate the management problem, there are no Web services management standards — only fledgling products and no best-practices track record to fall back on. You're on your own.

Then there are the vendors, which are the primary drivers behind the Web services movement. They've already begun to squabble publicly about how far to push Web services standards. Most of the smaller companies involved are in agreement that more standards are necessary; the bigger ones less so, just like with every other vendor-driven standards process, from 802.11 to database adapters.

Security is another potential problem. Although I've been assured that Web services security has been well designed, we really don't know yet because there are no significant Web services-based applications being used outside corporate firewalls. Once that happens and the crackers (virtually) get their grubby fingers on them, we'll see how strong the security really is. The fact that Web services are, to date, a behind-the-firewall technology speaks volumes on IT's wise reluctance to let them loose on the Internet before wider testing and deployment.

All that skepticism aside, I think Web services are a huge step in the direction of IT standards that will help eliminate information islands or silos (choose your favorite metaphor). They follow in the honorable tradition of Ethernet, ODBC, Java and other technologies that bridge the natural differences among computing systems. When these other standard technologies emerged, it didn't mean IT managers could sit back with a cold one in hand and ignore networking, database or application-integration problems. They just solved them with different, more advanced tools.

And that's all Web services are or ever will be: another tool for you to help users sail out to those islands or knock down those silos. Just don't cut yourself with them.

SNAPSHOTS

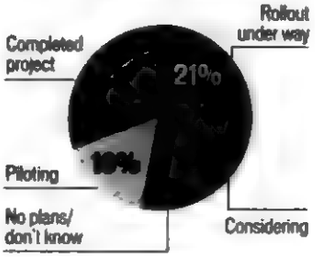
Top Five Perceived Benefits

What benefits do you expect to see from adoption of Web services applications?

SOURCE: ACCENTURE LTD., APRIL 2003

Implementation Stages

At what stage of implementation are you with Web services technologies?



SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS., FEBRUARY 2003

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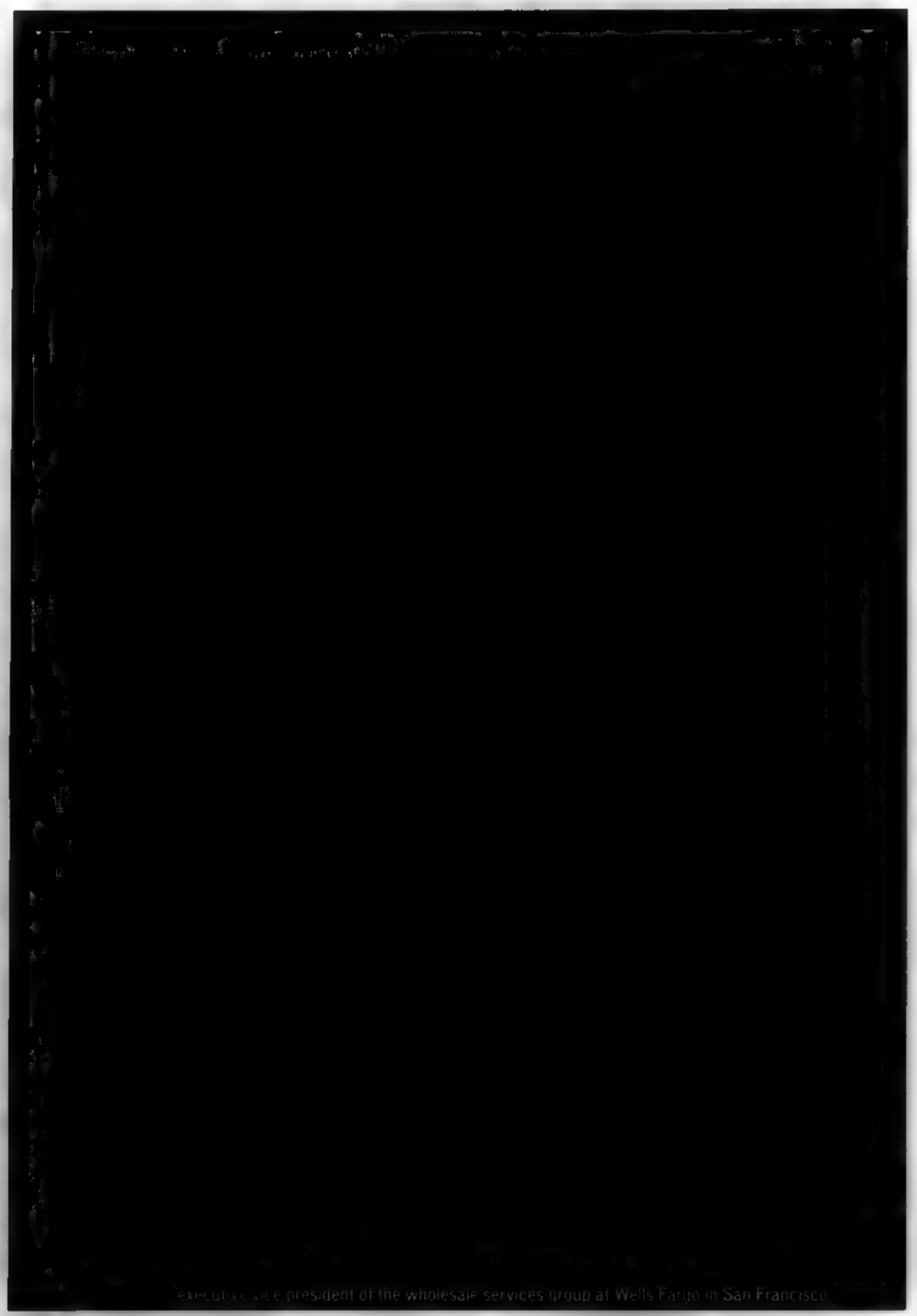
VERITAS



BETH AFFOUNADO

Executive vice president of the wholesale services group at Wells Fargo in San Francisco

Web Services

These pioneers are using Web services to make valuable connections with customers, partners and suppliers. Here's what they've learned out on the bleeding edge. By Preston Gralla

WEB SERVICES may be the latest hot topic of conversation, but for many companies, that's all the technology amounts to — talk. Not so for four pioneering companies where Web services are already in operation and paying big dividends. We talked with IT managers at these organizations about how they've learned to exploit the technology by reusing Web service modules and better integrating their own internal business processes with those of external partners.

Bank Cuts Production Time, Speeds Payment Delivery

For years, Wells Fargo & Co.'s wholesale banking operations dealt with a polyglot of methods for handling wire transfers and interbank electronic payments for its 100 largest corporate customers. Those customers sent payment instructions in formats such as EDI, flat files and XML, which forced Wells Fargo to build separate channels to tie each customer's data into the bank's back-end systems.

No longer. The banking giant's ePayment Manager Web services module now examines and parses payment data in a wide variety of formats and sends it to Wells Fargo's back-end systems, where payments are processed and customer acknowledgments are sent.

Rather than build a custom setup for each customer, existing Web service modules are snapped together in Lego-like fashion. "Using Web services reduces [account setup] times by 30% to 50% for each

new customer we add," says Steve Ellis, executive vice president of the Wells Fargo wholesale services group in San Francisco. The bank saves development time and money, and customers don't have to spend time and money altering their data formats.

The bank started work in April 2002, and the system was in operation by November of that year.

LESSONS LEARNED: Ellis' advice for others looking to build Web services has nothing to do with technology and everything to do with management. "We make the technology and the business people sit together so they understand one another before we begin," he says. "That's the most important thing you can do. You need the business people to 'get' IT, and the IT people to 'get' business."

VENDOR AND TOOL: webMethods Inc.'s webMethods Integration Platform.

Retailer Integrates With Business Partners, Cuts Telecommunications Costs

At Things Remembered Inc., the largest personalized gift retailer in the U.S., Web services are helping to speed up deliveries to customers. Before the Web services technology was in place, when a customer ordered a monogrammed vase from Things Remembered's online partner 1-800-Flowers.com Inc., the Highland Heights, Ohio-based gift retailer had to pull that order manually from the florist's Web site. That process took time and didn't tie the order into Things Remembered's real-time inventory system. To solve the problem, parent company Cole National Corp. in Mayfield Heights, Ohio, built a Web services module that directly ties the 1-800-Flowers.com site to the Things Remembered order-entry systems.

Now that the company has built a basic tool kit of Web services objects, it will reuse them as part of a larger Web services initiative, says Mark Fodor, director of e-business at Cole National. That initiative will include integrating with other online business partners, he says.

In addition, Web services will eventually be used at point-of-sale systems in the 760 Things Remembered retail stores, says Fodor. Currently, managers must dial into the Cole internal network to check on inventory. The stores also connect to the Internet through an Internet service provider. But because a Web services application has already been built that ties into the inventory system, the Internet connections will eventually be used to check on inventory. That will save telecommunications costs and reduce the time it takes to confirm customer orders, he says.

LESSONS LEARNED: The key to developing a Web services application, Fodor says, "is to make whatever you build reusable, so that you can plug it in for other purposes. We built ours with that mind-set, and it's paying off."

VENDOR AND TOOL: IBM's WebSphere.

Health System Speeds Access to Patient Information

With an enormous amount of data and disparate computing systems, the health care industry is a natural fit for Web services. Providence Health System, a $3.3 billion health care provider in Seattle, is a case in point. It uses Web services for enterprise application integration and to build small CRM systems. As a result, Providence cut its development costs, decreased the amount of time it takes to bring a new service for customers to market by 30% to 50% and now provides patients and health care workers immediate access to patient information.

Mike Reagin, Providence's director of research and development, says the company "is very distributed, and so we have many in-house legacy systems, from old Mumps systems to new Microsoft ones, and we needed a consistent way of aggregating data from all of them."

The company started development work on Web services last spring and had its first module working within four weeks — a far faster turnaround time than for projects using other types of technology, Reagin says. Patients can now look up benefits information online and use a portal for transactions. Providence has relationships with WebMD.com and Wellmed.com, so when patients log onto those Web sites, all their personal information (height, weight, date of birth) is already populated via Web services modules that link to Providence's back-end systems.

Similarly, doctors can connect to a portal that aggregates patient information from all of Providence's clinics, hospitals and offices. The portal "improves clinical care and patient care, and hopefully reduces costs and increases efficiencies," Reagin says.

> **"We make the technology and the business people sit together so they understand one another before we begin. That's the most important thing you can do. You need the business people to 'get' IT, and the IT people to 'get' business.**
>
> **STEVE ELLIS,** EXECUTIVE VICE PRESIDENT, WHOLESALE SERVICES, WELLS FARGO

LESSONS LEARNED: Reagin recommends getting the right tool set and management platform in place before launching. "Going into development we were worried, 'What if we have a hundred Web services out there, how would we manage them all? Would it get chaotic?' " he says. By first choosing a platform, he says he's been able to keep track of all the Web services modules and reuse existing ones.

VENDOR AND TOOL: Infravio Inc.'s Web Services Management System.

Student Clearinghouse Benefits From Immediate ROI

The National Student Clearinghouse (NSC) has developed Web services that significantly cut the time it takes for employers, loan providers and others to verify that job applicants hold degrees from the colleges they claim to have attended. The Herndon, Va.-based nonprofit association expects to pay back the entire cost of its Web services development in a single month.

The NSC maintains a database of student records from more than 2,700 schools and verifies student records for a fee. Its database is accessed more than 100 million times annually, mostly by large screening firms, says Mark Jones, NSC's vice president of marketing and business development.

The problem had been that those screening firms didn't have direct access to the NSC database and would open a record in their own databases and call the school directly with a verification request instead of going through the NSC. If they did contact the NSC directly, they had to call on the phone and ask staff members to verify the information, an expensive and labor-intensive process.

The solution? NSC built a Web services application that ties screening company databases directly into the NSC database. Jones estimates that development costs were $25,000, which can be recouped in one month in increased revenue and lowered costs.

LESSONS LEARNED: Jones' advice concerns business practices, not technology. "What surprised me the most is that there really haven't been technical issues — the technology itself is almost trivial," he says. "Most important is to make sure that the business model is right — make clear why you should do this with a trading partner, and calculate your ROI ahead of time."

VENDOR AND TOOL: Flamenco Networks Inc.'s Web Services Management software.

Gralla is a freelance writer in Cambridge, Mass. Contact him at preston@gralla.com.

In Action

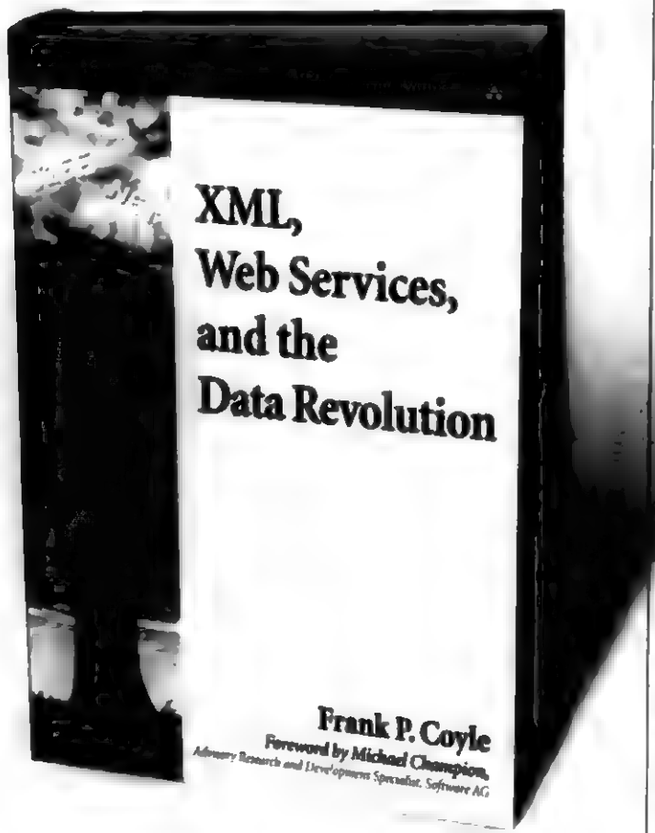
LITTLE FISH, BIG POND

A 12-person company uses Web services to launch e-commerce applications and gain an edge in the mammoth health care industry.

QuickLink: 37622
www.computerworld.com

Web Services, Si

Here's an executive guide that explains XML, SOAP and Web services — in plain English. By Frank P. Coyle



THE WEB AND XML HAVE changed our perspective about what data can do. Instead of regarding data as something to be stored in a database and shuttled across existing networks by systems locked in a tight embrace, the XML family of standards allows data to move freely about the loosely coupled Web and create new business opportunities.

XML is a meta-language (literally a language about languages) defined by the World Wide Web Consortium (W3C), one of the main organizations driving the push to open Web standards. In its simplest sense, XML is a set of rules and guidelines for describing structured data in plain text rather than in proprietary binary representations. However, as a phenomenon, XML goes beyond its technical specification. Since its standardization by the W3C in 1998, XML has been the driving force behind numerous other standards and vocabularies that are forging a fundamental change in the software world.

In XML's short history, its influence has been felt in three waves, from industry-specific vocabularies, to horizontal industry applications, to protocols that describe how businesses can exchange data across the Web. One of the key developments has been SOAP, the protocol that has opened the Web to program-to-program communication and is the basis for Web services.

The XML Advantage

XML has had an impact across a broad range of areas. Why?

- XML files are human-readable. XML was designed as text so that, in the worst case, someone can always read it to figure out the content. This isn't the case with binary data formats.
- Widespread industry support exists for XML. Numerous tools and utilities are being provided with Web browsers, databases and operating systems, making it easier and less expensive for small and medium-size organizations to import and export data in XML format.
- Major relational databases now have the native capability to read and generate XML data.
- A large family of XML support technologies is available for the interpretation and transformation of XML data for Web page display and report generation.

XML's capability to work with other technologies has opened up new possibilities for exchanging business information across the Web, essentially creating an extended enterprise. One aspect of this new extended enterprise is the emergence of Web services. For some, Web services represent the next evolutionary step for the Web, extending it from a network that provides services to humans to one that provides services to software looking to connect with other software. Web services is an ambitious initiative that is moving the Web to new levels of software-to-software interaction while trying to fulfill object technology's promise of reusable components.

Web Services 101

Web services rely on several key underlying technologies, in particular Universal Description, Discovery and Integration (UDDI); Web Services Description Language (WSDL); and SOAP.

- UDDI is a protocol for describing Web services components that allows businesses to register with an Internet directory so they can advertise their services and so companies can find one another and carry out transactions over the Web.
- WSDL is an XML format for describing how one software system can connect and utilize the services of another software system over the Internet. It supports Web-based computing services that target computer programs rather than human users.
- SOAP is the XML glue that lets clients and providers talk to each other and exchange XML data. SOAP builds on XML and common Web protocols (HTTP, File Transfer Protocol and Simple Mail Transfer Protocol) to enable communication across the Web. SOAP brings to the table a set of rules

mply Put

for moving data, either directly in a point-to-point fashion or by sending the data through a message queue intermediary.

One of the main implications of SOAP is a change in how we think about distributed computing. Prior to SOAP, there were three basic options for doing distributed computing: Microsoft Corp.'s Distributed Component Object Model, Java's Remote Method Invocation or Object Management Group Inc.'s Common Object Request Broker Architecture. These technologies are still in widespread use. Their drawback is that they limit the potential reach of the enterprise to servers that share the same object infrastructure. With SOAP, however, the potential space of interconnection is the entire Web, which is why there is such intense interest in technologies that can leverage the power of SOAP. One of these technology efforts is Web services.

The Web services framework is both a process and a set of protocols for finding and connecting to software exposed as services over the Web. By assuming a SOAP foundation, Web services can concentrate on what data to exchange instead of worrying about how to get it from Point A to Point B, which is the job of SOAP. To make things even easier, SOAP also defines an XML envelope to carry XML and a convention for doing remote procedure calls so a service can advertise "call me here," and a program will be able to do so without concern for language or platform.

A Web service can be anything, from a movie review service to a real-time weather advisory to an entire hotel- and airline-booking package. The Web services infrastructure ensures that even services from different vendors will interoperate to create a complete business process. Web services take the object-oriented vision of assembling software from component building blocks to the next level. With Web services, however, the emphasis is on the assembly of services, which may or may not be built on object technology.

Web services represent an industry-wide response to the need for a flexible and efficient business-collaboration environment. Technically, it's a way to link loosely coupled systems without binding them to a particular programming language, component model or platform. Practically, it represents a discrete business process with supporting protocols that functions by describing and exposing itself to users of the Web and being invoked by a remote user and returning a response. It includes:

- **Describing:** A Web services application describes its functionality and attributes so that other applications can figure out how to use it.
- **Exposing:** Web services register with a repository that contains a "white pages" holding basic service-provider information; a "yellow pages" listing services by category; and a "green pages" describing how to connect and use the services.
- **Being invoked:** When a Web service has been located, a remote application can invoke the service.
- **Returning a response:** When a service has been invoked, results are returned to the requesting application.

The driving force behind Web services is the desire to allow businesses to use the Internet to publish, discover and aggregate other Web services using the global underpinning of SOAP. The fact that the delivery of Web services requires only the Internet means that legacy code and data as well as object systems can plug into Web services frameworks.

Opportunity and Risk

Web services represent a new model of software distribution and interconnection based on the notion of services globally available over the Web rather than object-to-object connections over limited networks. Because of the global scope of Web-based services, the potential financial upside is extremely attractive. Financial incentives include new revenue opportunities through creation of private trading networks, increased revenue through expanded distribution channels, and reduced inventory and transaction costs.

Web services also promise improved collaboration with customers, partners and suppliers. They provide opportunities for reducing integration time and expense compared with existing enterprise application integration approaches. There is also opportunity for improved supply-chain efficiencies; quick response to changing market conditions and customer preferences by utilizing loosely coupled modular services; and improved customer service by allowing customers and trading partners access to core systems.

However, the Web services vision is still new and not without risk. Despite the significant potential, it remains to be seen how Web services will play out on a large scale. It's expected that Web services will begin to play a role in the delivery of simple services, but until the technology matures, complex trading-partner interactions will still require an upfront human element to solidify agreements.

Adapted, with permission, from the book XML, Web Services, and the Data Revolution, *by Frank P. Coyle (Addison-Wesley, 2002). Coyle is director of the software engineering program at Southern Methodist University in Dallas.*

XML BASICS

A brief excerpt of Frank Coyle's book points out that XML has been successful because it was designed to do only one thing and do it well.

QuickLink 38144
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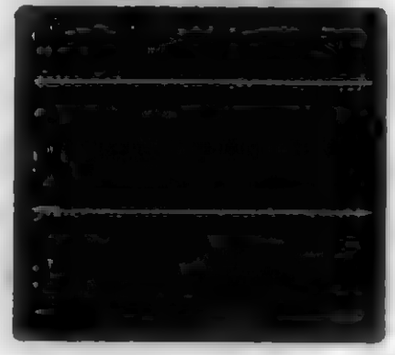
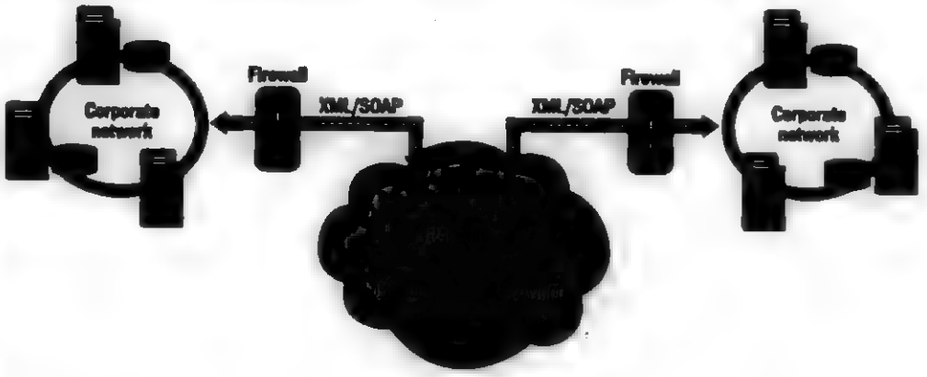
Web Services = Repository + Client + Provider

Web services provide a way for clients to discover and connect to Web-based software services. There are three major aspects to Web services:





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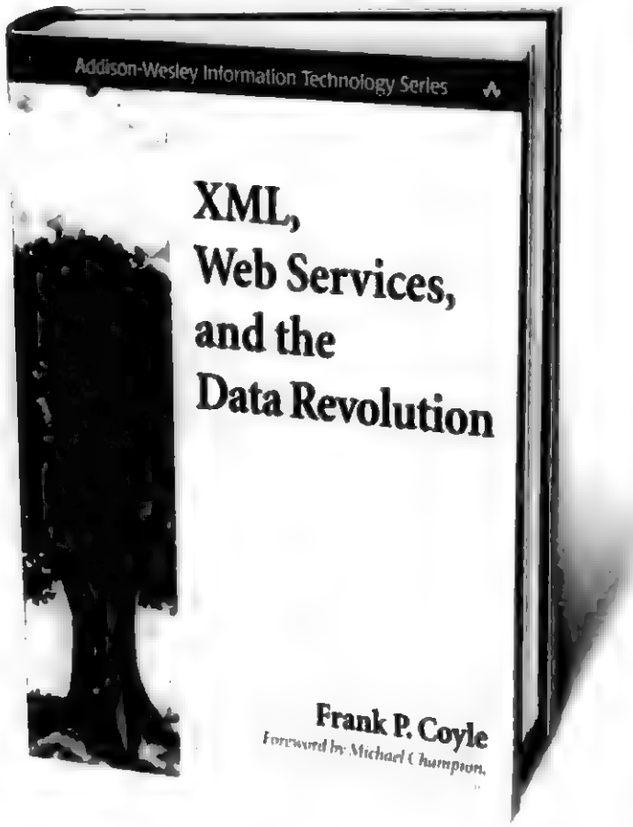

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XML is a meta-language (literally a language about languages) defined by the World Wide Web Consortium (W3C), one of the main organizations driving the push to open Web standards. In its simplest sense, XML is a set of rules and guidelines for describing structured data in plain text rather than in proprietary binary representations. However, as a phenomenon, XML goes beyond its technical specification. Since its standardization by the W3C in 1998, XML has been the driving force behind numerous other standards and vocabularies that are forging a fundamental change in the software world.

BOOK EXCERPT

In XML's short history, its influence has been felt in three waves, from industry-specific vocabularies, to horizontal industry applications, to protocols that describe how businesses can exchange data across the Web. One of the key developments has been SOAP, the protocol that has opened the Web to program-to-program communication and is the basis for Web services.

The XML Advantage

XML has had an impact across a broad range of areas. Why?

- XML files are human-readable. XML was designed as text so that, in the worst case, someone can always read it to figure out the content. This isn't the case with binary data formats.
- Widespread industry support exists for XML. Numerous tools and utilities are being provided with Web browsers, databases and operating systems, making it easier and less expensive for small and medium-size organizations to import and export data in XML format.
- Major relational databases now have the native capability to read and generate XML data.
- A large family of XML support technologies is available for the interpretation and transformation of XML data for Web page display and report generation.

XML's capability to work with other technologies has opened up new possibilities for exchanging business information across the Web, essentially creating an extended enterprise. One aspect of this new extended enterprise is the emergence of Web services. For some, Web services represent the next evolutionary step for the Web, extending it from a network that provides services to humans to one that provides services to software looking to connect with other software. Web services is an ambitious initiative that is moving the Web to new levels of software-to-software interaction while trying to fulfill object technology's promise of reusable components.

Web Services 101

Web services rely on several key underlying technologies, in particular Universal Description, Discovery and Integration (UDDI); Web Services Description Language (WSDL); and SOAP.

- UDDI is a protocol for describing Web services components that allows businesses to register with an Internet directory so they can advertise their services and so companies can find one another and carry out transactions over the Web.
- WSDL is an XML format for describing how one software system can connect and utilize the services of another software system over the Internet. It supports Web-based computing services that target computer programs rather than human users.
- SOAP is the XML glue that lets clients and providers talk to each other and exchange XML data. SOAP builds on XML and common Web protocols (HTTP, File Transfer Protocol and Simple Mail Transfer Protocol) to enable communication across the Web. SOAP brings to the table a set of rules

mply Put

for moving data, either directly in a point-to-point fashion or by sending the data through a message queue intermediary.

One of the main implications of SOAP is a change in how we think about distributed computing. Prior to SOAP, there were three basic options for doing distributed computing: Microsoft Corp.'s Distributed Component Object Model, Java's Remote Method Invocation or Object Management Group Inc.'s Common Object Request Broker Architecture. These technologies are still in widespread use. Their drawback is that they limit the potential reach of the enterprise to servers that share the same object infrastructure. With SOAP, however, the potential space of interconnection is the entire Web, which is why there is such intense interest in technologies that can leverage the power of SOAP. One of these technology efforts is Web services.

The Web services framework is both a process and a set of protocols for finding and connecting to software exposed as services over the Web. By assuming a SOAP foundation, Web services can concentrate on what data to exchange instead of worrying about how to get it from Point A to Point B, which is the job of SOAP. To make things even easier, SOAP also defines an XML envelope to carry XML and a convention for doing remote procedure calls so a service can advertise "call me here," and a program will be able to do so without concern for language or platform.

A Web service can be anything, from a movie review service to a real-time weather advisory to an entire hotel- and airline-booking package. The Web services infrastructure ensures that even services from different vendors will interoperate to create a complete business process. Web services take the object-oriented vision of assembling software from component building blocks to the next level. With Web services, however, the emphasis is on the assembly of services, which may or may not be built on object technology.

Web services represent an industry-wide response to the need for a flexible and efficient business-collaboration environment. Technically, it's a way to link loosely coupled systems without binding them to a particular programming language, component model or platform. Practically, it represents a discrete business process with supporting protocols that functions by describing and exposing itself to users of the Web and being invoked by a remote user and returning a response. It includes:

- **Describing:** A Web services application describes its functionality and attributes so that other applications can figure out how to use it.
- **Exposing:** Web services register with a repository that contains a "white pages" holding basic service-provider information; a "yellow pages" listing services by category; and a "green pages" describing how to connect and use the services.
- **Being invoked:** When a Web service has been located, a remote application can invoke the service.
- **Returning a response:** When a service has been invoked, results are returned to the requesting application.

The driving force behind Web services is the desire to allow businesses to use the Internet to publish, discover and aggregate other Web services using the global underpinning of SOAP. The fact that the delivery of Web services requires only the Internet means that legacy code and data as well as object systems can plug into Web services frameworks.

Opportunity and Risk

Web services represent a new model of software distribution and interconnection based on the notion of services globally available over the Web rather than object-to-object connections over limited networks. Because of the global scope of Web-based services, the potential financial upside is extremely attractive. Financial incentives include new revenue opportunities through creation of private trading networks, increased revenue through expanded distribution channels, and reduced inventory and transaction costs.

Web services also promise improved collaboration with customers, partners and suppliers. They provide opportunities for reducing integration time and expense compared with existing enterprise application integration approaches. There is also opportunity for improved supply-chain efficiencies: quick response to changing market conditions and customer preferences by utilizing loosely coupled modular services; and improved customer service by allowing customers and trading partners access to core systems.

However, the Web services vision is still new and not without risk. Despite the significant potential, it remains to be seen how Web services will play out on a large scale. It's expected that Web services will begin to play a role in the delivery of simple services, but until the technology matures, complex trading-partner interactions will still require an upfront human element to solidify agreements. ◗

Adapted, with permission, from the book XML, Web Services, and the Data Revolution, *by Frank P. Coyle (Addison-Wesley, 2002). Coyle is director of the software engineering program at Southern Methodist University in Dallas.*

XML BASICS

A brief excerpt of Frank Coyle's book points out that XML has been successful because it was designed to do only one thing and do it well

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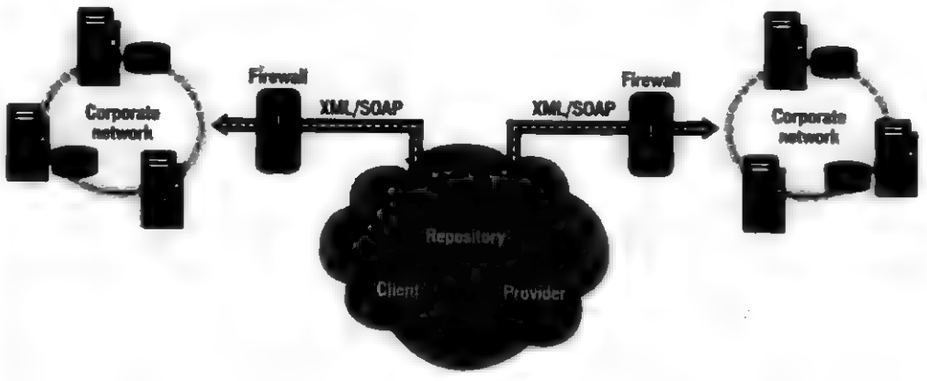
Web Services = Repository + Client + Provider

Web services provide a way for clients to discover and connect to Web-based software services. There are three major aspects to Web services:

- **A service provider** provides an interface for software that can carry out a specified set of tasks.
- **A service requester** (the client) discovers and invokes a software service to provide a business solution. The requester will commonly invoke a remote procedure call on the service provider, passing parameter data to the provider and receiving a result in reply.
- **A broker** (the repository) manages and publishes the service. Service providers publish their services with the broker. Clients then request access to those services by using the bindings defined by the service provider.



Testing Is Key To Success

Highly automated Web services must work flawlessly, or they'll cause a chain reaction of business errors. By Mark Leon

Testing Advice

- **Don't waste the work you put into testing by using it only once.** Think about how testing routines can be reused for monitoring your Web services after they're deployed.
- **Don't look at Web services testing as a one-shot deal.** Testing needs to be iterative.
- **Test frequently under a variety of conditions.**
- **Testing Web services inside the firewall** (for enterprise application integration, for example) requires knowledge of SOAP and WSDL but isn't that different from testing more traditional applications. There are tools available to help you do this.
- **Testing Web services that use UDDI to find and bind to other Web services outside your company** is a more complex undertaking and will probably require special expertise, customized testing tools or consulting help.

FREDERIQUE BERTRAND

WEB SERVICES — those loosely coupled, machine-to-machine transactions — have to work error-free, without human intervention, to achieve their much-heralded efficiency benefits. It takes only one software error to turn a Web services application into a disaster.

"The automation of Web services is definitely a two-edged sword," says Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. "There is the potential for a cascade effect. Imagine a faulty transaction linked to a complex supply chain, and consider the speed in which errors can propagate."

Therefore testing, which is always important, is even more critical for Web services.

There's already a new breed of Web services testing tools available from vendors such as Mercury Interactive Corp., Parasoft Corp., Empirix Inc. and Cape Clear Software Inc. Most are able to read Web Services Description Language (WSDL) files, which is usually the first step on the road to testing.

Venturing Outside

Testing Web services inside the firewall — for application integration projects, for example — isn't much different from testing traditional applications. But Web services that reach outside the firewall raise new testing issues.

Insurance company MetLife Inc., for example, uses Web services to connect dental providers and employers. But "with loosely coupled applications, you don't even know where all the pieces reside," says James August, vice president and chief architect for the institutional portfolio at MetLife in New York.

August worked with BearingPoint Inc. consultants to design testing processes for the new Web services applications. He says it would be nice to have more testing tools, but the market is still immature. "What we are after," he says, "is good regression testing that we can apply bottom-up and top-down." Regression testing selectively retests software that has been modified to ensure that bugs have been fixed and that no new problems have been inadvertently added. Bottom-up testing checks individual components, whereas top-down testing checks the entire set of applications.

Measured Progress Inc., an educational testing firm in Dover, N.H., uses software from Waltham, Mass.-based Empirix to help test a highly distributed Web services application. Web services link the company's .Net platform to various school testing systems across several states. Edmund Ashley, manager of software development at the company, says Web services ease the integration headaches but also introduce new levels of testing complexity.

The fact that Web services are good at linking a hodgepodge of systems also means that they deliver a more unpredictable stream of data across the company's network. "We need to be aware of the blend of data coming in," says Ashley. "Empirix helps us test mixes of SOAP and HTTP [data], for example. Understanding how this affects the system is critical, especially as our loads increase."

Loads that can increase unpredictably will be one of the biggest testing challenges for Web services that link servers to external clients, says Adam Kolawa, CEO and founder of Parasoft in Monrovia, Calif. And, Kolawa continues, "it will be more important than ever to test for the unexpected."

"We call it 'monkey testing,' " he explains. "You want to throw weird requests at the server and see how it behaves."

MIB to the Rescue?

So far, there isn't much use of the UDDI Web directory standard, except in pilot projects, says Alejandro Danylyszyn, senior manager of technology integration at Deloitte Consulting in New York. But even in the pilot phase, UDDI deployments will probably require more than a window into WSDL for testing.

Benjamin Sherman, a senior consultant at Greenwich Technology Partners Inc. in Harris, N.Y., says tools that allow developers to see how components in a Web service are performing aren't widely available. Sherman says he's alarmed that "IT shops have no way to test Web services applications with complex dependencies, so they are forced to just throw them over the wall and see how they do."

But, he adds, improvements are on the way. The Internet Engineering Task Force has proposed an application performance management Management Information Base, or APM MIB. (MIBs have been around for a long time in network operations. They're standardized databases that allow remote management and testing of IT devices.) Sherman says a Web services MIB would provide standard metrics on any Web services component.

Not everyone agrees that a new MIB is the way to go. Ido Sarig, vice president of technology strategy at Mercury Interactive in Sunnyvale, Calif., says he thinks the same testing and management functions can be added to future versions of WSDL.

In any case, users are pressing ahead with existing tools, even though the tools are still evolving and there isn't yet agreement on standards for Web services testing. Experts say that despite the uncertainty in this young market, IT managers should have an aggressive plan for testing Web services applications if they expect them to be successful.

Leon is a freelance writer in San Francisco. Contact him at mrleon@usfca.edu.

TESTING IN AN ORGANIC WORLD

Testing Web services can enable new functionality, as well as new levels of quality and reliability, writes columnist Linda Hayes.

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Integration

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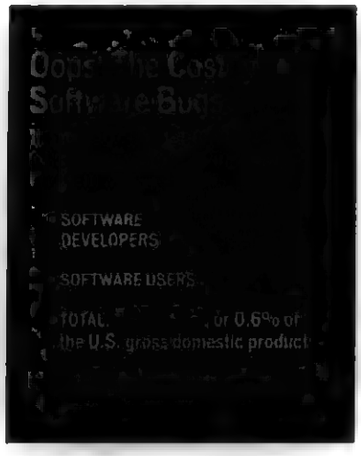
The Almanac

An eclectic collection of research and resources. By Mitch Betts



'Amazing Grace' Would Be Happy to Hear This

The Cobol programming language, developed in 1959 and based on earlier work by Rear Adm. Grace Hopper, seems to have a future even in the newfangled world of Web services. The keeper of the flame is Micro Focus International Ltd., which last week announced the first product enabling Cobol code to be deployed directly as a Web service without requiring third-party software.

The vast majority of the world's business applications are still written in older languages like Cobol. "For most banking and insurance companies, those [Cobol] systems are their business and their differentiation from the competition, and they're not about to throw them out," says Ian Archbell, vice president of product management in Micro Focus' Sunnyvale, Calif., office.

So Archbell says Micro Focus is gearing up to help companies unlock their existing software assets and "tie together the traditional world and the new world." He says Micro Focus is investing 20% of its revenue in R&D to cover three areas: making sure that Cobol is a "first-class citizen" when Web services are used to integrate applications, that Cobol and Java interoperate, and that XML support is provided.

The Language Popularity Index

The monthly Tiobe Programming Community Index shows the popularity of programming languages, based on hits at the Google search engine. It's a rating that roughly indicates the worldwide availability of skilled engineers, courses and third-party vendors for each language, the index creator says. Caution: The index doesn't say which is the best language, and it isn't based on the lines of code written.

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Java	51.2
C	37.4
C++	32.8
Perl	18.7
Visual Basic	17.2
PHP	9.4
JavaScript	6.8
SQL	5.5
C#	3.9
Delphi/Pascal/Kylix	2.2
Python	2.1
Cobol	2.0
RPG	1.9
Fortran	1.8
Lisp	1.5
Ada	1.3

For methodology: www.tiobe.com/tpci.htm

Businesses Can Capture The Open-Source 'Magic'

Corporate application-development shops can learn something from the open-source movement, says Bill Portelli, CEO of CollabNet Inc. in Brisbane, Calif. "What was the magic that made Apache and Linux work, in the absence of a company? It was a collaborative development process that includes early involvement of all of the stakeholders. And we've tried to bottle that magic," he says. CollabNet offers Web-based tools for collaborative software development that attempt to mimic the open-source world. (The company's founder, Brian Behlendorf, was co-founder of The Apache Software Foundation.)

Portelli says CollabNet tools let programmers, systems integrators and end users work together in real time — even from far-flung locations — cutting 25% to 50% off development time.

But is it possible to have too much collaboration? "You can always have too much of a good thing, if it's unmanaged," Portelli says. "So you need to establish access controls — you don't want everyone able to make changes. Sometimes unfettered collaboration needs to be cut off." In other words, in a corporate IT environment, he says, "you want a blend of the open-source practices and corporate practices."

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Antarctic Data Center Uses ColdFusion

ANTARCTICA - Storing and maintaining the mountains of scientific data that Australia's Antarctic researchers generate isn't a job for the faint hearted, but that's the challenge the Australian Antarctic Division Data Centre has undertaken.

The Australian Antarctic Treaty requires all data, such as statistics on flora, fauna, weather and marine life, to be publicly available. So the data center has developed an online central repository – actually an interconnected collection of 30 databases – that can be queried on the Web.

Based on Oracle Corp.'s database suite, the repository sits on a Sun Microsystems Inc. server running on Solaris 8.

The database holds about 500GB of data. Linkages that cross-reference the data and allow queries across all of the databases were developed using Macromedia Inc.'s ColdFusion Web application language.

Recently, the center decided to also use ColdFusion for all of its front-end database development needs, says data center manager Lee Belbin.

"[ColdFusion] is faster than PL/SQL, which is what Oracle uses, and it's faster and more robust than Java," he says.

The latest version of ColdFusion MX includes Java support, allowing the database team to write applications in the ColdFusion programming language but have them translated into Java, Belbin says.

Future plans include a field-trip database system, which will allow members of expedition parties to post information about the condition of the various base stations, such as whether they need cleaning, repairs or more toilet paper.

– *Nadia Cameron,*
Computerworld Antarctica

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SOURCE: TIOBE SOFTWARE BV, THE NETHERLANDS, MAY 2003

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XACML

DEFINITION

Extensible Access Control Markup Language (XACML) is an XML-based language, or schema, designed specifically for creating policies and automating their use to control access to disparate devices and applications on a network.

BY RUSSELL KAY

MAINTAINING security on their networks is critical for all companies. One primary tool that every network needs is access control — the ability to carefully define and enforce which users have what type of access to specific applications, data and devices.

When the network was contained within a single building or campus, the problem was relatively simple and generally handled by software that was hooked into the operating system. But today's networks involve interconnected segments distributed across the country and around the globe, and many of these are also joined to the public Internet.

The growing use of XML as the common mechanism for exchanging data makes it simpler and easier to find and use data from external sources. Applications can call upon automated, remotely based Web services to add new capabilities. But who's in charge? Access control has become harder to manage at the very time it's more important than ever.

One answer lies with two specialized variants of XML — Security Assertions Markup Language (SAML) and XACML. SAML defines how identity and access information is exchanged and lets organizations convey security information to one another without having to change their own internal security architectures [QuickLink 32137]. But SAML can only communicate information. How to use that information is where XACML comes in.

The language, which uses the same definitions of subjects and actions as SAML, offers a vocabulary for expressing the rules needed to define an organization's security policies and make authorization decisions. XACML has two basic components.

The first is an access-control policy language that lets developers specify the rules about who can do what and when. The other is a request/response language that presents requests for access and describes the answers to those queries.

XACML provides for fine-grained control of activities (such as read, write, copy, delete) based on several criteria, including the following:

- Attributes of the user requesting access (e.g., "Only division managers and above can view this document.")
- The protocol over which the request is made (e.g., "This data can be viewed only if it is accessed over HTTPS.")
- The authentication mechanism (e.g., "The requester must have been authenticated using a digital device.")

Strengths

XACML was designed to replace existing, usually application-specific, proprietary access-control mechanisms. Prior to the new language, every application vendor had to create its own custom method for specifying access control, and these typically couldn't talk to one another. The first implementation of XACML was created by Sun Microsystems Inc. in Java and is available at *http://sunxacml.sourceforge.net*. According to Sun, XACML has a number of advantages over other access-control policy languages:

- Security administrators can describe an access-control policy once, without having to rewrite it numerous times in different application-specific languages.
- Application developers don't have to invent their own policy languages and write code to support them; they can reuse existing, standardized code.
- XACML is intended to be primarily a machine-generated language. XACML creators expect that easy-to-use tools for writing and managing XACML policies will be developed, since they can be used with many applications.
- XACML can accommodate most access-control policy needs and also support new requirements as they emerge.
- A single XACML policy can be applied to many resources. This helps avoid inconsistencies and eliminates duplication of effort in creating policies for different resources.
- With XACML, one policy can refer to another. In a large organization, for instance, a policy for a specific site might reference both a company-wide policy and a country-specific policy.

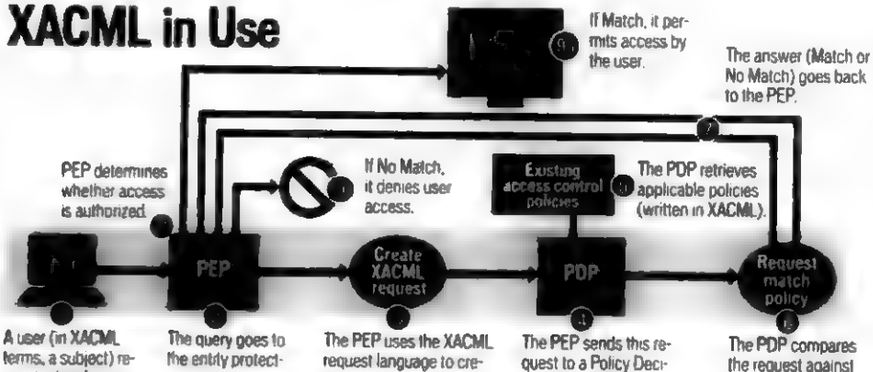
History

XACML was developed by a team that included people from Entrust Inc., IBM, OpenNetworks.org, Quadrasis Inc., Sterling Commerce Inc., Sun and BEA Systems Inc.

In February, XACML was adopted as a standard by the Organization for the Advancement of Structured Information Standards.

Kay (russkay@charter.net) is a Computerworld contributing writer in Worcester, Mass.

XACML in Use



SOURCE: SUN MICROSYSTEMS INC.

An XACML Glossary

ACTION: The type of access that is being requested (for example, read, write, create, delete, logged).
ATTRIBUTE: A specific characteristic of a subject, resource, action or environment in which the access request is made. Attributes could include a user's name, workstation identity, security clearance, the file to which access is desired and the time of day.
BAG: An unordered collection of attributes, used for matching attributes to conditions. Bags may contain duplicate attributes or be empty.
CONDITION: A simple or complex Boolean function at the heart of a rule.
EFFECT: The result of an authorization: deny or permit.
POLICY: A single access-control policy expressed through a set of rules.
POLICY SET: A container of policies, including references to remote policies.
RESOURCE: A device, data element or file for which access is requested.
SUBJECT: The person or computer making a request.
TARGET: A set of simplified conditions for the subject, resource and action that must be met for a policy set, policy or rule to apply to a given request.

RESOURCE LINKS

For a list of online resources related to XACML, visit our Web site:

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The language, which uses the same definitions of subjects and actions as SAML, offers a vocabulary for expressing the rules needed to define an organization's security policies and make authorization decisions. XACML has two basic components.

The first is an access-control policy language that lets developers specify the rules about who can do what and when. The other is a request/response language that presents requests for access and describes the answers to those queries.

XACML provides for fine-grained control of activities (such as read, write, copy, delete) based on several criteria, including the following:

- Attributes of the user requesting access (e.g., "Only division managers and above can view this document.")
- The protocol over which the request is made (e.g., "This data can be viewed only if it is accessed over HTTPS.")
- The authentication mechanism (e.g., "The requester must have been authenticated using a digital device.")

QUICK STUDY

Strengths

XACML was designed to replace existing, usually application-specific, proprietary access-control mechanisms. Prior to the new language, every application vendor had to create its own custom method for specifying access control, and these typically couldn't talk to one another. The first implementation of XACML was created by Sun Microsystems Inc. in Java and is available at *http://sunxacml.sourceforge.net*. According to Sun, XACML has a number of advantages over other access-control policy languages:

- Security administrators can describe an access-control policy once, without having to rewrite it numerous times in different application-specific languages.
- Application developers don't have to invent their own policy languages and write code to support them; they can reuse existing, standardized code.
- XACML is intended to be primarily a machine-generated language. XACML creators expect that easy-to-use tools for writing and managing XACML policies will be developed, since they can be used with many applications.
- XACML can accommodate most access-control policy needs and also support new requirements as they emerge.
- A single XACML policy can be applied to many resources. This helps avoid inconsistencies and eliminates duplication of effort in creating policies for different resources.
- With XACML, one policy can refer to another. In a large organization, for instance, a policy for a specific site might reference both a company-wide policy and a country-specific policy.

History

XACML was developed by a team that included people from Entrust Inc., IBM, OpenNetworks.org, Quadrasis Inc., Sterling Commerce Inc., Sun and BEA Systems Inc.

In February, XACML was adopted as a standard by the Organization for the Advancement of Structured Information Standards.

Kay (russkay@charter.net) is a Computerworld contributing writer in Worcester, Mass.

An XACML Glossary

ACTION: The type of access that is being requested (for example, read, write, create, delete, logged).

ATTRIBUTE: A specific characteristic of a subject, resource, action or environment in which the access request is made. Attributes could include a user's name, authentication identity, security clearance, the file to which access is desired and the time of day.

BAG: An unordered collection of attributes, used for matching attributes to conditions. Bags may contain duplicate attributes or be empty.

CONDITION: A simple or complex Boolean function at the heart of a rule.

EFFECT: The result of an authorization: deny or permit.

POLICY: A single access-control policy expressed through a set of rules.

POLICY SET: A container of policies, including references to remote policies.

RESOURCE: A device, data element or file for which access is requested.

SUBJECT: The person or application making a request.

TARGET: A set of simplified conditions for the subject, resource and action that must be met for a policy set, policy or rule to apply to a given request.

XACML in Use

SOURCE: SUN MICROSYSTEMS INC.

RESOURCE LINKS

For a list of online resources related to XACML, visit our Web site:

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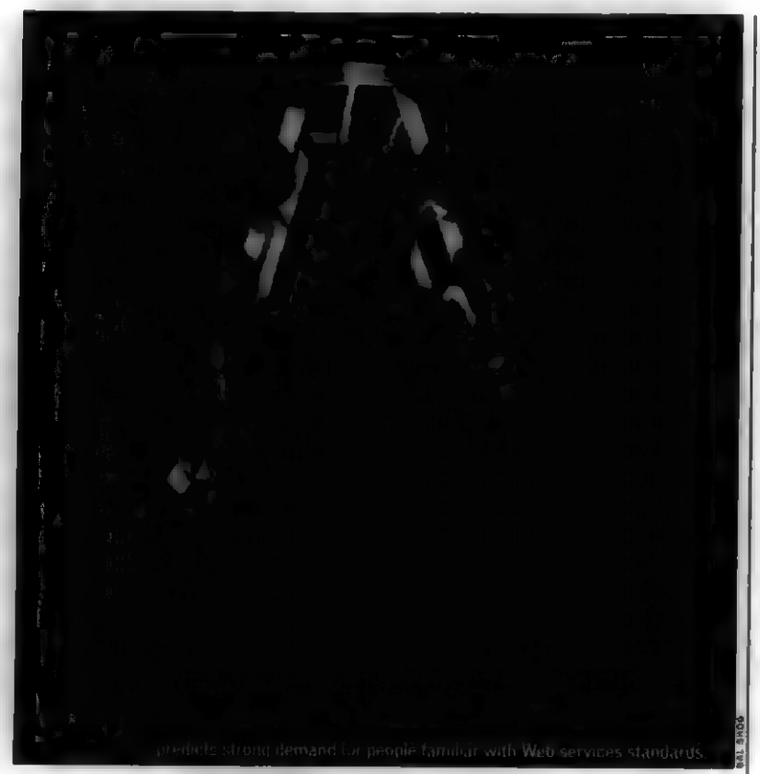

predicts strong demand for people familiar with Web services standards.

BILL JACOBS

Mixing Old and New Skills

It takes new specialist skills and old-fashioned programming to make it in Web services. By Amy Helen Johnson

IF YOU DON'T KNOW what SOAP is, you could be missing out on one of the critical new trends in application development: building Web services.

Knowledge of Simple Object Access Protocol and its extended family of protocols, languages, frameworks and tool kits is necessary for IT professionals to create these code packages, which perform real-time operations and exchange information over the Internet.

"Five years from now, it's definitely something that developers will want on their résumé," says Brent Zempel, CIO at Life Time Fitness Inc., a health and nutrition services company in Eden Prairie, Minn. "It will set them apart from other developers."

Skills

Wesley Bertch, director of information systems at Life Time Fitness, says the company looks for candidates with knowledge of Web architectures, Internet technologies and Java 2 Enterprise Edition. Those developers are familiar with component-based applications, which are the foundation of Web services, he says.

Key skills for building Web services interfaces include knowledge of XML and SOAP, Bertch says. Research from Stamford, Conn.-based Gartner Inc. adds to that list the J2EE and Microsoft .Net platforms, the Java and C# languages and the Visual Basic .Net development environment.

But these aren't the core capabilities developers need in their portfolios, according to a recent Gartner report. Many Web services components will be legacy applications wrapped in Web services interfaces. Programmers still need a firm grounding in established programming languages like C++, Cobol, Visual Basic and widely used business applications like Oracle Forms and IBM's CICS.

That need for expertise in older business technologies was important when Swiss Interbank Clearing Ltd. was developing Web services, says Thomas Grutter, head of the IT department at the intrabank services provider. The Zurich-based financial firm uses Cobol applications and newer client/server software based on object-oriented programming techniques. The diversity of the underlying programming languages meant that each Web services project required separate specialists familiar with the dissimilar technologies.

In terms of skills, Web services programmers are old-fashioned developers with extra technical knowledge, says Doug Falk, CIO at National Student Clearinghouse. The Herndon, Va.-based nonprofit consortium of colleges and universities provides an electronic registry of current student and alumni records. "One of the things we learned along the way was that once you get over the terms and standards, it really comes back to developing basic applications," he says.

Training

Falk says finding training programs that teach Web services technologies was pretty easy. He picked the top developer on his nine-person team and sent her to a three-day Java course offered by Sun Microsystems Inc. and a one-day SOAP class offered by Sys-Con Media Inc. in Montvale, N.J. Other team members engaged in informal self-education projects, using books and online materials to learn about topics such as XML schemas.

But experience trumps certifications, says Gary Lien, a systems architect at Life Time Fitness. "Having a certification doesn't mean anything in terms of real-world experience dealing with distributed applications," he says.

Job Market

There's noticeable demand for Web services managers and programmers at companies around the world. For example, some recent job postings at Monster.com included openings at a TV entertainment company in Los Angeles, a geographic information systems data provider in Dublin and a telecommunications company in Hong Kong.

CAREERS

Swiss Interbank's Grutter notes that companies have passed through the "new toy" phase of the emerging technology. The focus is now on writing production applications. "Web services must be paired with a business need," he says.

Salary

Although IT managers agree that demand for Web services programmers is rising, there's no consensus on whether these skills translate into higher salaries, only that they're "definitely valuable," says Zempel.

The European market, says Grutter, won't necessarily pay bonuses to applicants who list Web services project experience on their résumés, because unemployment has brought down salaries about 10% overall.

But in the U.S., Falk places a 10% premium on hires with Web services experience. However, he says he wouldn't offer any more than that because he places more weight on developers' core application programming skills than on knowledge of Web services. A transaction involves the Web services interface for only a short period of time, he explains. Once the data is consumed by the business application, it turns into a normal transaction, where established coding skills still mean the most, Falk says.

"When you get down to it, you need someone with good skills at designing applications," says Falk.

Johnson is a Computerworld contributing writer. Contact her at amy-helen@pobox.com.

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The Next Chapter

Predictions: U.S. programmers will be limited to sensitive, niche applications, while the bulk of programming will be done offshore. And Web services will run amok.

■ ANGST-FREE MERGERS

Within five years, Web services will become the de facto standard for dealing with systems consolidation following mergers and acquisitions. Web services have the potential to cut the time to consolidate business systems in half, thereby accelerating the expected return from the merger or acquisition. With Web services, changes to or integration of existing systems can be done in a more orderly fashion — without the user angst that usually occurs with postmerger consolidation.

■ *Norbert Kubilus, partner, Tatum CIO Partners LLP, San Diego*

■ MAINFRAME SECURITY

One unpublicized challenge for Web services is security for the mainframe, where 70% of all corporate data resides. With the advent of Web services on the host, the mainframe is much more vulnerable to corruption from outside forces. As companies realize this, or as instances of mainframe security breaches greatly increase, you'll see more companies roll out mainframe security measures before participating in Web services initiatives.

■ *Koen Bouwers, CEO, Consul Inc., Acton, Mass.*

■ THE ASTEROID HITS

Software development in the U.S. will be extinct by mid-2006, with gradual job losses much like the U.S. textile industry experienced in the last quarter of the 20th century. Better development tools, cheaper labor and quality methodologies are making it more attractive to develop software overseas. The only software development that will be left in the U.S. will be for niche applications, new products and highly sensitive strategic applications.

■ *Jon C. Piot, chief operating officer, Impact Innovations Group LLC, Dallas*

■ B2B PHOENIX

Industry-specific "Web services networks" will rise from the ashes of the e-marketplaces of the dot-com era. They'll be similar to the late, sometimes lamented e-marketplaces, only better in just about every way.

■ *Ross Altman, director of consulting, Electronic Data Systems Corp.*

■ DISRUPTIVE TECHNOLOGY

Within three years, Web services will have a highly disruptive impact on the software market. Vendors that are either unwilling or unable to componentize their applications in a flexible manner will see substantial losses of market share. Noncompliant applications will be gradually marginalized by early 2005.

■ *Bernhard Borges, Distinguished Engineer, IBM Business Consulting Services*

■ ONE MAN'S TIMELINE

2003: Application development is simplified and becomes highly automated.
2004: Software writes more lines of code than humans do.
2005: Software maintenance costs drop and no longer impede business advances.
2006: IT productivity in developing applications triples from the previous year, due to automated code generation, reallocation of staff and consulting resources, and a laser focus by senior developers on the aspects of application development that are unique and mission-critical.

■ *Alan Fisher, chairman, Iron Speed Inc., Mountain View, Calif.*

■ DATA OVERLOAD

There are two dirty little secrets about Web services. One, they'll never be the Swiss Army Knife of the enterprise. Instead, they'll be just one tool in the integrator's toolbox. Two, Web services' power to make quick connections among myriad companies will open the data floodgates and dramatically increase the problem of information overload. As a result, data integration will top every CIO's to-do list by 2005.

■ *Bob Zurek, vice president of advanced technology, Ascential Software Corp., Westboro, Mass.*

■ DIVISION OF LABOR

Over the next three to five years, IT departments will specialize more on developing Web services for specific functions such as accounting and billing, while business departments will take on development of Web services for actual applications such as order entry, inventory management or claims processing.

Why? Because Web services tools will become as simple as Microsoft Office tools are today. The high-level editor tools will evolve toward the orchestration of services and will be usable by knowledge workers.

■ *Eric Newcomer, chief technology officer, Iona Technologies PLC, Waltham, Mass.*

■ OUT OF CONTROL?

By 2004, low-level concerns about security and interoperability of Web services will be replaced by high-level concerns about organizational control. Chief technology officers will be faced with a rising tide of Web services that are different in implementation and performance, have no central point of registry and begin to duplicate functionality.

■ *Roman Stanek, CEO, Systinet Corp., Cambridge, Mass.*

■ SELF-AWARE SOFTWARE

Agents — software components with a sense of self — will replace Web services as the next layer of abstraction in software development. By 2006, agent software will be the dominant design principle for software development.

■ *Charles Stack, CEO, Flashline Inc., Cleveland*

MORE PREDICTIONS

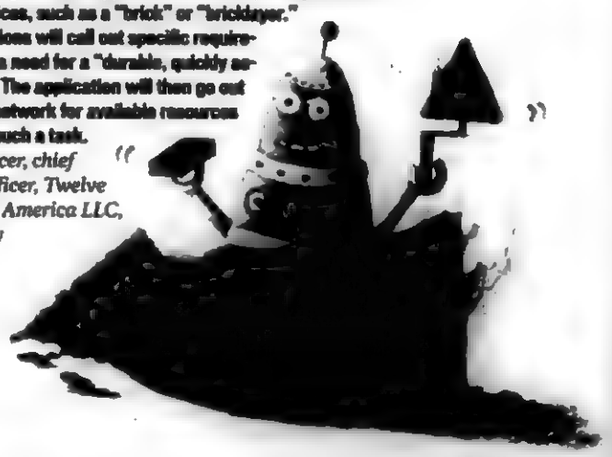
Industry expert Grady Booch says that by 2007, software "will be developed and maintained through collaborative development environments consisting of thousands of moving parts that are never turned off."

QuickLink 39054
www.computerworld.com

One Brick Wall, Please

The future of application programming is the concept of goal-based methods. No longer will an application have simple requirements for objects or services, such as a "brick" or "bricklayer." Future applications will call out specific requirements such as a need for a "durable, quickly assembled wall." The application will then go out and query the network for available resources to accomplish such a task.

— Steve Spencer, chief technology officer, Twelve Horses North America LLC, Salt Lake City



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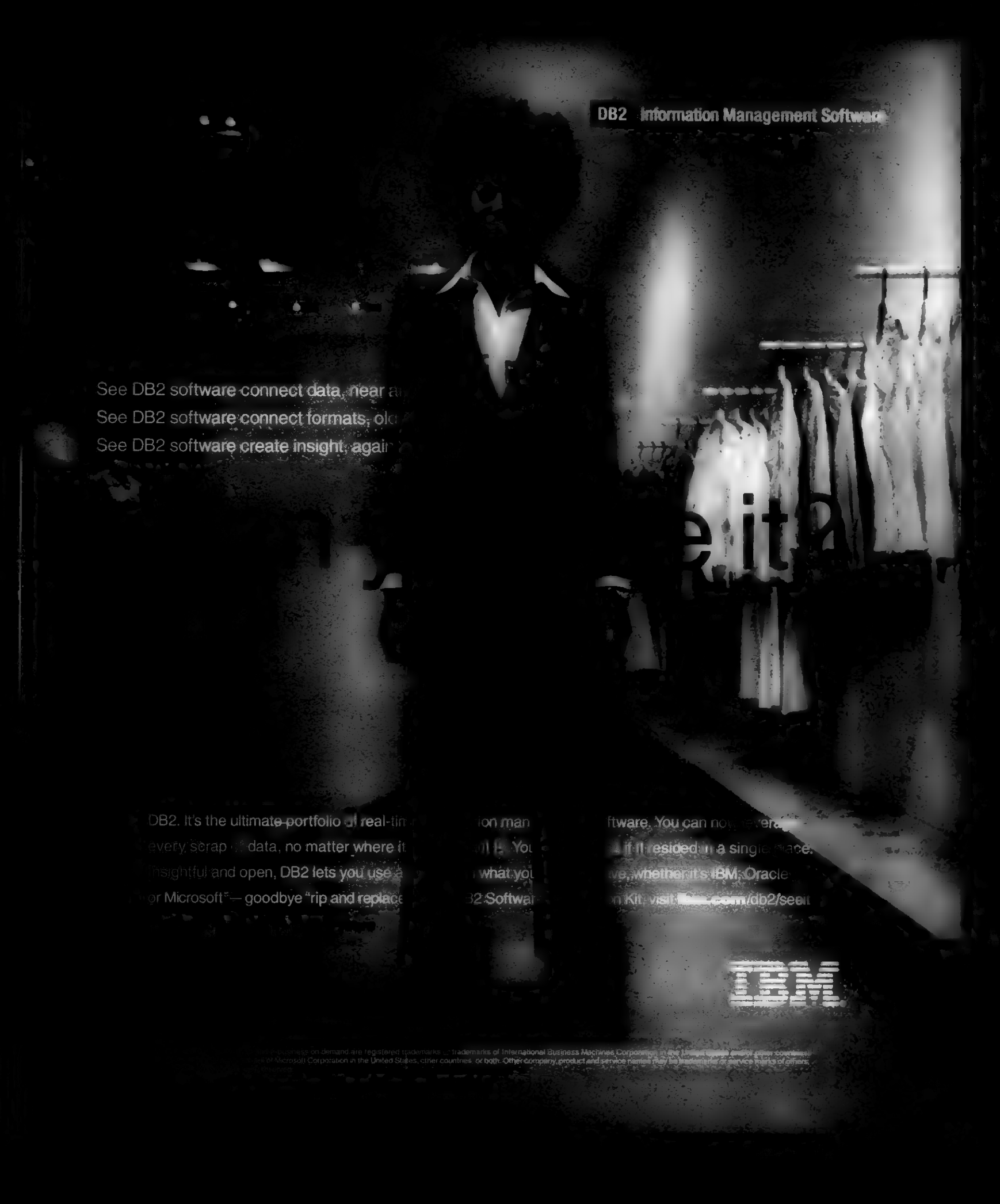

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Advertising Supplement

Diversity in IT Careers

When the Information Technology Association met earlier this month for the annual Workforce Convocation, there were two critical items for consideration – the state of the IT workforce and the report of a Blue Ribbon Panel on Diversity.

In its annual survey of 400 hiring managers, ITAA found that the employment bounce back predicted a year ago didn't bounce. However, the same hiring managers say the downsizing era seems to be at an end. At year-end 2002, 10.2 million people were employed in IT in the United States – about even with employment figures for 2000. And just over 400,000 new jobs are planned for 2003 – slow but steady growth compared to the exponential growth of the past. The key skills needed are in programming/software engineering, technical support to capitalize on new IT solutions and enterprise management implementation and improvement.

Nine of 10 workers will support banks, insurance companies, manufacturing companies or other non-IT businesses.

In the midst of this maturing of the IT workforce, the ITAA also issued three priorities with regard to diversity. According to Bob Knowling, chairman of SimDesk Technologies and chairman of the ITAA panel, the Blue Ribbon Panel's priorities aren't "very provocative." However, Knowling is challenging IT leaders and human resources professionals to take provocative action. "The only way I have ever seen a company change its face is through the will of the CEO and board," says Knowling. "The rest of the work in this report is window dressing if there isn't support and commitment at the top, including making sure you have charged executives with performance improvement in this particular area and link their pay to improvement.

"We – in this report – are on spot with the diagnoses and have to admit that these are merely practical steps," adds Knowling. "There will be more than 400,000 new jobs this year. We must have the dialogue that this is a business imperative. Left to our own devices, we fill the jobs around us with people who look like us – it's an orientation, not racism. But I've seen first-hand what can happen when the executive suite reflects that commitment to diversity. The organization grows by leaps and bounds when women and people of color show up."

The second priority in the report is to increase corporate outreach and mentoring. To assist, the Blue Ribbon Panel issued a list of best-in-class examples. Specifically, the committee called for establishing professional forums that bring together diverse IT professionals and provide support to such groups as Black Data Processing Association, Women in Technology, the National Association of Female Executives and the Society for Hispanic Professional Engineers.

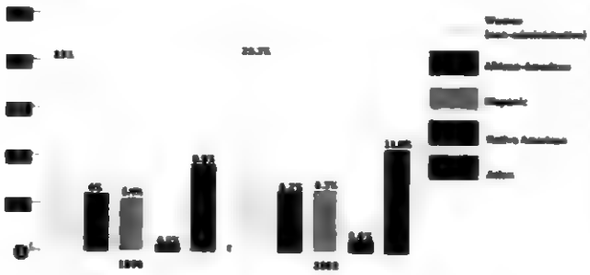
The final priority, fostering stronger partnerships with colleges and universities, deals with the pipeline of talent and the future. "We've seen some incremental improvements for women and Hispanics over the past eight years, and we've seen improvement in the number of women and minorities occupying seats in undergraduate IT-related studies," Knowling says. "However, thes enrollment figures aren't translating to placement in the professio The result is that we have a mass of people who are opting out of IT and choosing other fields not because they don't want to be an engineer but because they don't have access."

Among the barriers identified in pursuit of an IT career is th perception that the profession is one of isolation/working alone, 24/7 and instability. Reality, according to the report, is that creatin and innovating are team efforts, that there is a direct line betwee IT development and business performance, and that the majority of organizations are committed to a balance between work and personal life.

For the full report and best-in-class action steps, go to www.itaa.org/workforce.

Blue Ribbon Panel Report on Diversity

Demographic representation by percentage of total IT professionals
Source: ITAA 2003



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Logic & Physical Designer wanted to plan & dvlp s/ware projects. Will dsgn multi-dimensional analysis s/ware, provide consulting svcs to mgmt, staff, customers; dvlp, analyze, implmt analytical & computational techniques & methodologies for solution of complex problems. BS in Comp Sci reqd. Send resumes to Beniamino Barbieri, PhD, ISS (USA), Inc, 1602 Newton Dr, Champaign, IL 61826. No calls.

System Administrator. Design, implement, Intel based servers/ workstations w/OS of Windows 2000, XP. Configure & route Linksys routers and switches & Proxy Firewalls. Maintain NFS, WINS & RAID Array System. Provide maintenance & backup/restore for servers using Backup Exec. Maintain company's website and software applications. Req. Bachelor Degree or equivalent in Information Technology, CIS or related field. Must be proficient in: Backup Exec., DNS, FTP, Windows 2000 Server, XML, SQL Server, DHCP. 40hr/week, 9-5. Contact Law Offices of Jing Dong, P.C. at 1800 Century Blvd., Suite 915, Atlanta, GA 30345.

Market Research Analyst II: Conduct mkt research for computer products & svcs to determine potential, maintain & improve sales & mkt penetration. Establish, design & administer formats for research & analysis, prepare reports & analyses, & use to determine strategy & focus. Train & supervise staff & junior analysts. Follow up to determine effectiveness of methods & efforts of competitors. BA or equiv + 1 year. Respond to VP, HR, En Pointe Technologies, 100 N Sepulveda Blvd, 19th Fl, El Segundo, CA 90245.

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COMPUTER PROGRAMMERS (2D-3D GRAPHICS) - A Boston-area company engaged in the design, development, and sale of state-of-the-art software that enables the communication of 2D and 3D technical data across computer networks, has an immediate need for two (2) highly skilled Computer Programmers (2D-3D Graphics). These unsupported, mentor-level positions involve the programming and implementation of software and algorithms which simplify, compress and transmit 2D and 3D technical CAD data, from input format, specification to final presentation to the user. Minimum educational requirements include a Bachelors degree in Computer Science, Mathematics, or other relevant major. Minimum experience required is eight (8) years industry experience as a senior-level programmer/ developer of 2D-3D CAD/CAM-related systems. Specifically required is the demonstrated ability to program high quality software systems for high-cost-per-error environments (JIT supply chains, geometric surface milling, etc.). Also required is the demonstrated ability to develop algorithms which transform mathematical geometric representations into computer-manipulable tessellations. Additionally required is the demonstrated ability to develop compilers for geometric data. Further required is the demonstrated ability to develop commercial CAD/CAM-related software for UNIX-based platforms. Finally required is the demonstrated ability to optimize and configure TCP/IP network communications to deliver geometric data. Base salary of $90,100 per year, together with three (3) weeks annual vacation, full health and dental plans and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to Case # 200201322, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114. An EOE/M/F/H/V

Consultant Software Engineer to serve as an expert technical resource across functional organizations to perform functional analysis for major projects supporting several corporate initiatives by analyzing and designing these projects. Will apply in-depth understanding of the business for which the application is designed including establishing and monitoring project plans. Will oversee and establish the project development life-cycle by providing support and expertise throughout all phases of project completion. Will develop and design applications as well as work with a database team to drive data or database design for major projects and subsystems. Will also maintain external/user group relationships, manage vendor relationships, and work directly with the user community for project definition on critical projects. Will work across functional organizations to address and provide technical evaluation estimates on technology initiatives for the company. Will initiate projects or strategy discussions with users or external groups, bringing issues to resolution. Will act as a primary liaison for business units to resolve various project and technology issues. Will serve as a technical leader on resolution of corporate-wide business needs technology projects. Will be responsible for performing testing/QA, creating system test plans for complex modules and applications, and planning and conducting system testing and user acceptance testing. Requires Bachelor's degree in Computer Science, Engineering, Mathematics, or Physics and four (4) years experience in job offered OR four (4) years experience in software development. Candidate must also possess demonstrated exp in Oracle and Informix database analysis and design and demonstrated expertise developing datawarehouse applications. Salary - $80,500/yr. Mon-Fri, 9:00AM-5:00PM. Submit two copies of resume to Case # 200116228, Labor Exchange Office, 19 Stanford St., 1st fl., Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Lead Software Engineer. To lead a team of software engineers responsible for development and maintaining database products using SQL, C++ and Visual Basic to be used by Chinese and Japanese speaking customers. Will code the conversion routine between DBCS and Unicode set by using C++ to support Chinese and Japanese database systems and translate database messages from English to Chinese and Japanese. Consult with Chinese and Japanese customers with respect to the database products. Must have bachelor or foreign equivalent degree in computer science, computer engineering or related field. Must have 2 ½ years experience in writing programs in Chinese and Japanese computer codes. Fluent in spoken and written Chinese and Japanese. 40hrs/wk, 8:30 am to 5:30 pm, $83,368/yr. Employer Paid Ad. Send resumes to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170. Reference No. 210355.

Market Research Analyst sought by New Jersey-based s/ware consulting firm to research, analyze, design, and implement mktg strategies and business policies in IT sector. Must have a Bach or equiv in Comp Sci. or Electronics, with 5 yrs exp in mktg and s/ware tehnologies. Respond to: HR Dept., AK Systems, Inc., 100 Metroplex Drive, Suite 303, Edison, NJ 08817. Email: natalya@akasystems-inc.com

Software Engineer, Sr. - Project mgmt & tech. support of MS Exchange application hosting svcs, design & develop MS Exchange products, interface architecture to back-end relational server database development for front-end user interfaces for Web & Windows apps. B.S. or equiv. in Computer or related Sci + 2 yrs experience. Must be MS certified. Send resume to Software Engineer Position, Intermedia.net, Inc., 800 California St., Ste. 200, Mountain View, CA 94041.

Mechatronics seeks software developer, engineers involved in developing Knowledge Based Engineering software and tools, deploying KBE/CAD/CAM/CAE tools and methodologies. Applicants must have minimum BS with some exp. Apply at: jobs@mechatronics-us.com

IT Professionals is a small but stable company. We are looking system/programmer analysts to design & administer web applications & web enabled data analysis. Require BS. Exp. in VC++, COM, Mainframe GUI, Crystal is plus. Please send resumes to pete@itprofs.net. EOE.

SolutionsIQ seeks DB App. Engr. for HQ office in Bellevue, WA. DESC: Dsgn, dev, & impl RDBMS, UIs, components, & appls. to meet bus. reqs. & objs. Anlyz. existing sys & dev. strategies & solns. to opt bus. logic or flow. Prov configuration mngment. Conduct sys. arch. & dsgn reviews. Port & migrate data from var. d/b, & plats. Communicate functional & tech. specs reqs, & features. Write stored proc. & triggers & queries. Util SQL, VB, C/C++, C#, ASP, ASP.NET, ADO.NET, VBScript, Jscript, HTML, COM/DCOM, XML, XSLT, IIS, & Win o/s. REQS: BS in Engr, CS, Math, or Physics + 3 yrs. exp. dsgn, dev & impl. RDBMS, UIs, components, & appls. util SQL, VB, C/C++, ASP, VBScript, Jscript, HTML, COM/DCOM, XML, IIS, & Win o/s. Prem. sal + bonus. Pls reply to S. Hartschell, Job # SIQ-215, 1260-116th AVE NE, Ste. 100, Bellevue, WA 98004

Seeking qualified applicants for the following positions in Memphis, TN: Senior Systems Programmer. Serve as project/team leader. Devise procedures to solve complex problems with systems/applications. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with RDBMS; software design; and Java and/or C++ also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Programmer/Analyst needed to design and implement multi-tier applications using COM+, VC++, integrate with MS project, MSSQL server, and other RDBMS. Send resumes to IT@Shrader.net or contact Craig Shrader at Shrader Engineering Co. (713) 465-6502 Fax.

System Administrator: Install, config., manage HTTP, FTP, SQL, Mail & DNS Servers, & enterprise messaging syst. Develop & implement operating & maintenance procedures for Web-related data ctr. equip.; backup & remote monitoring procedures, using applicable network protocols. Develop, config., monitor, manage security measures for IIS & networks, incl firewalls, VPN & antivirus syst., & monitoring & mgmt tools. Oversee syst., database & metabase backup & mgmt. Must be MS Cert. Professional. Respond SysAdmin Position, Intermedia.net, Inc., 800 California St., Ste. 200, Mountain View, CA 94041

Cap Gemini Ernst & Young U.S. LLC is currently seeking individuals to fill Consultant and Manager positions in multiple locations nationwide. Please apply on-line at http://www.us.cgey.com/careers/eRecruit.asp using Job Ref#1181 for Consultant or #1182 for Manager. CGEY is an Equal Opportunity and Affirmative Action employer. All qualified applicants will be considered for employment without regard to race, religion, color, national origin, age, sex, marital status, sexual orientation, disability or status as a Vietnam-era, special disabled and other covered veteran status. NO PHONE CALLS.

Principal Software Engineer to participate in every phase of analysis, design, implementation, and integration of our proprietary systems to meet our worldwide technology strategy. Specifically, will participate in the Core Technology Group in our e-Business Division to help drive the delivery of B2B applications, infrastructure support of Encina-based applications, and guide overall architecture and design decisions. Will participate in the delivery of new authentication and authorization framework to unify several business units. Will focus on scalable and distributed systems. Will utilize C++ Java, SGML, XML, XSL-T, SOAP, IBM e WebSphere, and communication protocols like HTTP, HTTPS, and IIOP. Requires Bachelor's degree in Computer Science, Engineering, Mathematics, or Physics and three (3) years experience in job offered OR three (3) years experience in developing client/server applications. Candidate must also possess demonstrated expertise in OOD (Object Oriented Design) and Design Patterns, demonstrated expertise in architecture of scalable and distributed systems using middleware tools; and demonstrated expertise delivering B2B applications using XML over HTTP. Salary: $80,500/yr. Mon-Fri, 9:00 AM-5:00PM. Submit two copies of resume to Case #: 200118225, Labor Exchange Office, 19 Staniford St., 1st fl., Boston, MA 02114. EOE. Applicants must be eligible to accept full-time employment in U.S.

Senior Software Engineer-Work with company's marketing and technical staff to specify, design, implement, test, and document an XML storage engine built on top of the Berkeley DB embedded database engine. Design data management systems deployed by customers. Implement an XPATH query processor, optimizer, and execution engine. Design and implement XML data dictionary using embedded data management facilities provided by Berkeley DB. Work with customers and early adopters to ensure the product meets market demands. Conduct normal best-practices engineering operations, including design and code reviews and test planning and evaluation. Meet with customers, in coordination with company's sales/marketing groups, to present technical details of the XML storage system and assist in product sales and deployment. Requirements: include a Bachelor's degree or equivalent in Computer Science, an Engineering discipline or related field and six years of work experience in the job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $100,000/year. 40 hours/wk. Respond with two copies of resume to Case #200201883, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

Network & Systems Administrator needed at client sites to dsgn, implmt & maintain LAN/WAN n/works using Novell Netware, Win NT/2000, SCO Unix & configure CISCO, Extreme, Nortel, Cabletron Enterasys Make Routers/Switches, TCP/IP, Sonet, DNS, DHCP & others. Must be CNE & CCNA certified. Apply to: Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Senior Software Engineer - Burlington, MA. Perform significant software product design, developmt, implementation, & testing for eBusiness applications. Design & implement DB schema in a transactional environment for Oracle & MS SQL Server DBs. Design, implement & performance tune software to generate DB schema from models & representations of data structures, using MOF & OMG stds to implement data models, the framework to map objects to relational DBs, using UML & Design Patterns for object-oriented design, & the persistence layer to provide access in a robust, OO manner & transaction support to the DB from other product components. Use RPC & RMI to enhance the API providing remote access to other core APIs. Work closely w/product mgmt & other engineers to translate high-level customer reqmts into product functionality, involving DB systems, transaction techniques, compiler technology, multi-threaded programming in Java & C++ distributed systems computing, & other related technologies. Develop & document the reqmts in the Functional Specification. Estimate effort required to implement specified functions & track progress against the estimate. Test the software implementation to assure quality, & support the implementation during the quality assurance phase. Minimum Reqmts: Master's degree or equiv (will accept foreign Master's degree or Bachelor's degree + 4 yrs of progressive exp. as equiv. to a Master's degree) in Computer Sci or Computer or Software Engr'g, + 3 yrs of exp. in the job offered or in jobs meeting following reqmts: 3 yrs of exp. in software product developmt in multi-threaded Java & C++ for distributed systems; 3 yrs of exp. in DB schema design & implementation in a transactional envir for both Oracle & MS SQL Server; 3 yrs of OO design using UML & Design Patterns; & 1 yr implementing data models using the MOF & other OMG stds. Exper. may be gained concurrently. Hours: M-F, 9 am-5 pm. Rate of Pay: $97,000/yr. Please submit 2 copies of resume to: Case # 200201551, Labor Exchange Office, 19 Staniford St. 1st Fl. Boston, MA 02114

Support Mgr. Dallas, TX. Manage team of support consults & provide backend support in deployment, installation & troubleshooting of Amtrix & TSIB; liaison w/develop team in integration, stress & load testing of Amtrix & TSIB (TradeSync Integration Broker). Appz & tools include Weblogic, Exceed, Amtrix & TSIB, Oracle 8i & 9i on Unix & WinXX OS. Req. BS comp sc or related field & 4 yrs exp in appz consulting, incl. 2 yrs w/AMTrix appl integration, 1 yr exp leading or managing support consults. Resumes to M. Williams, Viewlocity, Inc., 3475 Piedmont Road, Suite 1700, Atlanta, GA 30305.

Software Engineer: Design, develop, implement, test and maintain software applications in business/ manufacturing systems. Expertise in Client server and web development, MS Access, SQL server database, Visual Interdev, C++, VC++, MFC, Java, Javascript, ASP, COM/DCOM, DirectX, Socket programming, UML, Rational Rose, Windows NT & Unix. Requires BS in Comp. Sc. Engg/Rel field with 2 yrs exp. Wages: $66,000/yr, 40 hrs/wk, 8am-5pm. Send 2 resumes to: Case#200201474, Labor Exchange Office, 19 Staniford St. 1st Fl., Boston, MA 02114

For over 20 years, **Syntel** employees across North America, Europe, and Asia have helped build advanced information technology systems for leading Fortune 500 companies and government organizations to improve their efficiency and competitiveness. Today, Syntel professionals are building rewarding careers by providing solutions in e-business, CRM, Web Design and Data Warehousing.

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- Focus, IDMS or SAS

DBA

- ORACLE or SYBASE
- DB2

Client-Server/WEB

- Siebel
- Websphere
- Com/DCom
- Web Architects
- Datawarehousing
- Informix, C or UNIX
- Oracle Developer or Designer 2000
- JAVA, HTML, Active X
- Web Commerce
- SAP/R3, ABAP/4 or FICO or MM & SD
- Oracle Applications & Tools
- Lotus Notes Developer
- UNIX System Administrator
- UNIX, C, C++, Visual C++, CORBA, OOD or OOPS
- WinNT
- Sybase, Access or SQL server
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- SYSTEMS PROGRAMMER
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- DATABASE ANALYST
- LAN ADMINISTRATOR
- SOFTWARE ENGINEER
- WEB DEVELOPER/ ARCHITECT
- DATA WAREHOUSING ARCHITECT
- IT PROJECT MANAGER
- BUSINESS ANALYST
- SAP FUNCTIONAL AND TECHNICAL EXPERTS
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For consideration please reference Job Code: RtRCW15 and send your resume to: RCG Information Technology, Attn: National Recruiting, 379 Thornall Street, Edison, NJ 08837. FAX: (732) 744-3583 or email to: recruit@rcgit.com We are an Equal Opportunity Employer. M/F/D/V

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RCG Information Technology

Software Professionals needed - Applicants possessing BS or equivalent and/or relevant work experience should apply. Experience in design, develop and implement custom application software solutions from concept to production is required. Duties include: review project plans to determine feasibility, budget cost and schedule. Applicant should have minimum of 4 years experience in Delphi and 1 year experience in Java, XML/XSL. Experience can be simultaneous. Work with some of the following: Delphi, Java, XML/XSL, XSLT, JDBC, Java Swing, Oracle and SQL Server. Experience in government projects is preferable. Mail resumes, references and salary requirements to: Stellar Corporation, 594 Marrett Road, Lexington, MA 02421

Programmer/Analyst - Will analyze, design, develop, test, implement and maintain customized software applications in a client/server environment. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have Bachelor of Science in Computer Science, Math, Engineering or related. Must have 2 yrs exp in job offered or 2 yrs exp in Software development. Such experience must include J2EE. Must be willing to be assigned to un-anticipated client sites throughout the United States. Salary: $75,000/yr. Hrs: 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to Case # 2002-01513, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

DATABASE ADMINISTRATOR
Database Administrator to do logical and physical design of Oracle database. Code test and implement Oracle scripts applying knowledge of Database Management Systems; Calculate optimum values for Oracle database parameters; performance tune Oracle databases; Model Oracle database security; manage backup and recovery of Oracle databases; make changes to Oracle database applications using knowledge of Oracle Applications 11i, Oracle 8i, VeritasCluster, I-Watch & AppWorx. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or DBA, expertise in Oracle database administration which includes logical design, physical design, performance tuning, backup and recovery, coding of scripts, knowledge of Oracle Applications 11i, Oracle 8i, VeritasCluster, I-Watch & AppWorx. Salary: $80,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and relocation. Apply: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201. Job No. WEB326861

Engineers - Web Hosting Infrastructure

CSC, Fortune 500 leader in management and information technology consulting, systems integration and outsourcing, is currently seeking an experienced professional for its Newark, DE office, to design and document web hosting solutions using iPlanet, Websphere and Weblogic web, portal and application server software as well as LAN networking (TCP/IP, DNS and firewalls). Establish operational specifications for the aforementioned software in a multi-platform web hosting environment. Provide a point for escalated support for the operations team on a 7x24 basis (8-10 hrs/month). Bachelor's or equivalent and 4 years of IT experience is required. Three of 4 years of required experience must include LAN networking. One of 4 years of required experience must include iPlanet web and application server and WebLogic application clusters with Apache/Tomcat servers.

CSC offers competitive salaries and excellent benefits. Please forward resumes to **CSC, Attn: Human Resources, 409 Continental Drive MS 105A, Newark, DE 19713.** Reference job code **00072003** in cover letter. EOE M/F/D/V

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ERP: SAP, Baan Implementation, Tools, Admin
UNIX: C, C++, Shell, AIX, HP-UX, Solaris Admin, Networking
AS/400: RPG/400, COBOL/400, CL, BPCS, JD Edwards, Synon
WINDOWS: VC++, VB, PB, MFC, OLE/COM, Admin
REAL TIME: Microprocessor, RTOS Programming
INTERNET: Java, Javascript, CGI, Perl, WAP, Admin, Active X, ASP
DATABASE: Oracle, Informix, Sybase, DB2 Admin, Developer 2000, Designer 2000

Sales Manager / Marketing Manager must have at least 2 years of Sales experience. BA degree or foreign equivalent degree and basic computer skills. Multiple positions exist at various sites across the US. Please mail your resume to Recruit. Dept. Ref. #CW05-03, Magna Infotech Ltd., 1 Padanaram Rd. Ste 209, Danbury, CT 06811-4833

ND based IT company has openings for Software Engineers & DBAs: (Multiple openings): Research, Analyze, Design, develop, test, diagnose, and implement various business applications.

Real time OS Vx Works, Networking Protocols, PeopleSoft, IPSEC, IKE, BAAN ERP, BAAN tools, SAP r/3 and ABAP/4, Oracle 8.x/9.x/11.x, Sun Solaris 2.8, Veritas Clustering, Oracle Utilities, Unix Shell Scripting, PL/SQL, Erwin Data Modeling/ Designing, Web Technologies like J2EE, JDBC/ODBC, Web sphere, EJB, COM/DCOM, C/C++, MS SQL Server, UNIX, J2EE Architect/Team Lead experience in implementing financial applications on HP-Tandem Non-stop systems. Product Administration System, SABRE Business Objects 5.1.5, Data Warehousing, Informatica - Power Center 5.1, SAS 8, Teradata Utilities, Erwin, Power Mart5.1 / PowerCenter 5, Data Junction, Cognos Impromptu 7.0, JD Edwards, WinRunner 6.0, Test Director 6.0, Silk, Load Runner, Rational Suite, SQA Suite.

DBAs must have experience in installation, migration, moving, set-up, monitoring and trouble shooting of various database applications. May require travel to client sites. Software Engineer $78,000 & up, DBA $80,000 and up. Mail resume to 212 South 4th Street, Suite# 202, Grand Forks, ND 58201.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in MFG/PRO, Oracle, Symix, Dispatch-1 and Axiom. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of MFG/PRO, Oracle, Symix, Dispatch-1 and Axiom. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001. Job No. WEB327611

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, install, tune and upgrade CRM applications and Oracle databases for the telecommunication industry using Clarify, UNIX Shell Scripts, C, C++, Java, JDBC, JCL, COBOL, FTP, CICS and DB2 on Windows, UNIX and mainframe platforms. Provide Tier 3 production support and resolve vendor issues for traffic mediation systems using Xacct. Require: B.S. degree in Computer Science/ Engineering, or a closely related field with two years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Shilpa Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Suite 203, Decatur, GA 30033. Attn: Job AR

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and implement n-tier web-based application software in a client/server environment using ASP, Visual Basic, COM, COM+, DCOM, Active X, ADO, RDO, JavaScript, MTS, SQL Server, Oracle, MS Access, IIS, Visual Interdev and XML under Windows NT/2000 operating systems. Provide technical support with PeopleSoft HRMS and Financials modules using PeopleTools, SQR and PeopleCode. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Sundeep Chaudhry, Elite Solutions, Inc., 1670 Reserve Way, Suite 203, Decatur, GA 30033; Attn: Job MP.

Computer Engineer - dsgn & develop financial software systems involving mgt info systems. Bch in Computer Science w/ 2yrs exp. Send resume to: Smart Solutions International, LP, 6555 N. Powerline Road, Suite 306, Fort Lauderdale, FL 33309.

SOFTWARE ENGINEER

40 hrs/week, 8:30 a.m. - 5:30 p.m. M-F. Job located in Northport, AL. Must have 5 years exp. in Job Offered. Research, design & develop computer software systems for business applications, applying principles of computer science & engineering. Analyze software requirements to determine feasibility of design. Evaluate interface between hardware & software, & between operational & performance requirements. Develop software system testing procedures. 8 yrs Grade School, 4 yrs High School; Bachelor's Degree in Computer Science or foreign equivalent. Send resume to: Mr. J. K. Goswami, Applied InfoTech, Inc., 501 Bridge Avenue, Northport, AL 35476. Phone (205) 758-1604

Communications software co. in Westborough, MA seeks Senior Staff Engineer to design, develop and implement data communication and telecommunication systems source code, including development of portable real-time protocol embedded software using tools such as C/C++, Javascript and LISP. Must have Bach in Comp. Sci or equiv. 2 yrs exp in development of telecommunications software; knowledge of C/C++, Javascript, LISP, embedded protocol software, and network protocols (including MPLS, OSPF, BGP, RIP, H.323, ATM, FR, and O-UNI). Salary $93,500/yr. Submit 2 resumes to Case #200291632, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

SOFTWARE ENGINEER to design, develop, implement and maintain web-based application software and databases using Oracle, MS SQL Server, ASP.NET, Oracle Forms, Pro*C, XML and COM+ under Windows and SUN Solaris operating systems. Require: M.S. degree in Computer Science/ Engineering, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Murli N. Reddy, President, Charter Global Services, Inc., 5445 Triangle Parkway, Suite 160, Norcross, GA 30092. Attn: Job BA.

Software Professionals:
RS Software, a leading, globally positioned software development and consulting firm needs programmer analysts willing to relocate to its client job sites nationwide with experience in analysis, design, implementation and maintenance of customer specific software using C and Assembler Languages on TPF (Transaction Processing Facility) operating systems. Send resume to HR, RS Software (India) Ltd., 1900 McCarthy Blvd. # 103, Milpitas, CA 95035.

PROGRAMMER/ANALYST

Must have Bachelors in Comp/ Electronics/MIS + 1 yr exp in Design, configure, customize CRM/eCRM applications using ORACLE, SIEBEL products: Finance/eFinancial, Call Center, Tools, EAI, EIM, Workflow Management, VBC, eScript for Windows, AS/400, OS400, MQ Series. job code: ITC #99. InfoTalent Consulting Inc., 1 Tower Ln. Suite 1700, Oakbrook Terrace, IL 60181 hr@infotalent.com

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Director ERP Applications

MBA required. Proven ERP major application implementation experience with Oracle required. Strong Manufacturing/ Financial/ HR systems experience essential. Experience building fault tolerant systems. Solid knowledge of Internet technologies and strengths in system development methodologies. Ideal candidate must be a leader with excellent communication/ interpersonal skills. Outstanding environment, benefits and compensation with this highly respected organization. Respond to Personnel Resource, Inc. via email: prinorth@perresource.com

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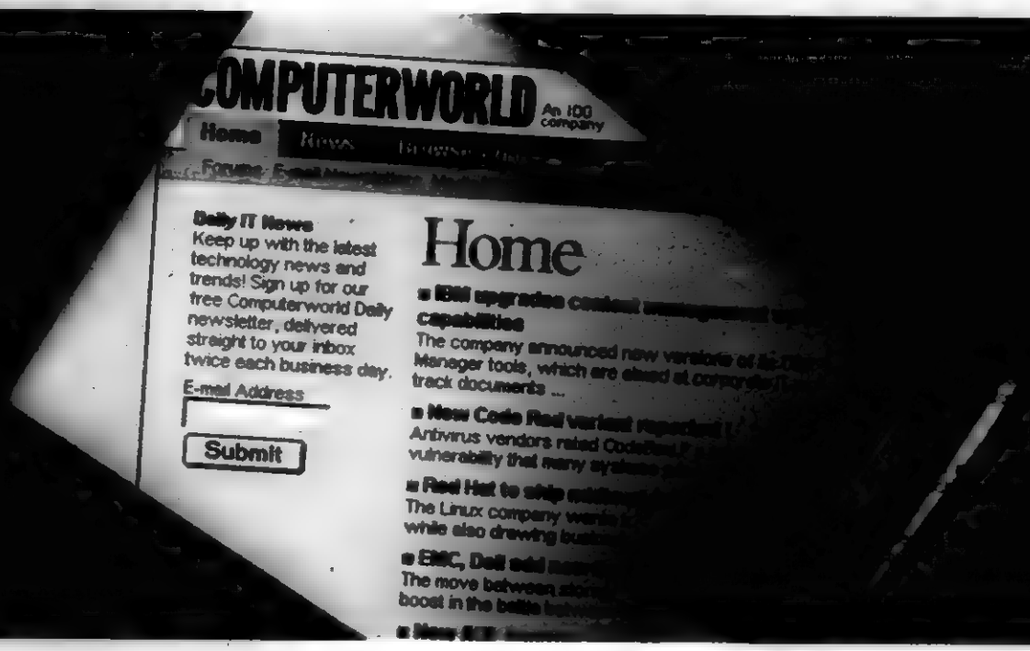

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Terror Threats Spark IT, Physical Security Changes

Lehman Brothers adds access-control systems, safety kits

BY DAN VERTON

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In another project started before Sept. 11, Lehman recently completed the installation of a global closed-circuit television (CCTV) system that transmits data across its IT network infrastructure, Damstrom said. The CCTV setup is integrated with the access-control system and lets the firm's security team monitor events at offices in real time.

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LINUX VENDORS REACT

Read about how companies like Red Hat and SuSE are assessing SCO's legal claims.

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Robert McMillan of the IDG News Service contributed to this story.

SCO's Legal Gambit

JANUARY
The company announces at the LinuxWorld conference that it's creating a new division responsible for enforcing its position as the "majority owner of Unix intellectual property."

MARCH
SCO files a lawsuit seeking $1 billion in damages from IBM for allegedly using Unix features as part of its Linux services business.

MAY
The software vendor halts its own Linux shipments and warns corporate users of the operating system that they could be using SCO's code illegally.

LINUX VENDORS REACT

Read about how companies like Red Hat and SuSE are assessing SCO's legal claim.

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FRANK HAYES ■ FRANKLY SPEAKING

IT Delivers

DOES IT MATTER? By now you've surely heard about Nicholas G. Carr's article in the May 2003 issue of *Harvard Business Review*, "IT Doesn't Matter" [QuickLink 37990]. Carr's thesis is simple: Now that the IT infrastructure has been built out, you can't get sustainable competitive advantage from IT, because anything you can buy, your competitors can buy too. So there's nothing left for IT managers to do but cut costs and manage risk.

Scary, isn't it? No, not about IT — about Carr. Here's a big-deal business pundit who not only misunderstands IT's relationship to competitive advantage, but who also thinks he's discovered something new.

Carr *is* right about one thing: You can't get sustainable competitive advantage by buying IT products, services or information. And his logic and historical analysis on this point are dead-on. Like railroads and electricity before it, IT has become infrastructure — widely available, affordably priced and standardized. That means any competitive advantage you get just from buying IT will last only until your competitors buy the same products, services and information you just bought.

But, hey — that's not news! Every experienced IT (and MIS and data processing) manager over the past 40 years has doped this out.

Sure, vendors claim that their hot new products will revolutionize your business. They always have. But we all figured out soon enough that new hardware, applications, networks, protocols and programming languages don't give you a lasting business advantage over your competitors. Whatever you buy, they can buy. Whatever you build, they can build too.

Carr's great insight was common wisdom in the mainframe 1960s, the time-sharing 1970s, the PC 1980s and the Internet 1990s. You've *never* been able to get a sustainable competitive advantage directly from IT. Yes, technology can cut costs. But real competitive advantage, just from technology? It never lasts. Heck, it barely exists.

Does that mean IT doesn't matter? Then IT hasn't mattered for 40 years — since the days when IBM's System/360 introduced standardized hardware and software, and Ross Perot's EDS invented utility computing.

But IT does matter — or at least it can. You *can* get real business advantage with technology. You just don't get it from products, services and information.

You get it from processes, skills and execution — the same things that let any business differentiate itself in ways that don't involve IT.

Retailers understand the value of processes, skills and execution. They have to — they must choose the products they sell from exactly the same pool as their competitors. So Nordstrom differentiates itself from Wal-Mart through its business processes, its employees' skills and how those employees execute on those processes. And Wal-Mart differentiates itself with its own processes, skills and execution.

When IT is used most effectively, when it's really focused on the business it serves, it reinforces and amplifies that differentiation. It maximizes the advantages a company gets from its business model. It improves processes, leverages skills and streamlines execution in ways that help a business deliver on its unique strengths. It helps Wal-Mart be Wal-Mart and Nordstrom be Nordstrom.

That's how you get competitive advantage.

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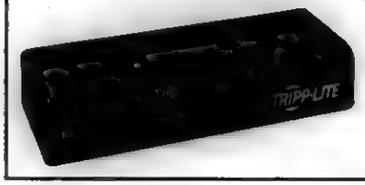

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REID HORN

Going for Br0ke

Aviall Inc. was in deep trouble, losing $70 million in sales because of a faulty financial system. But then it made the gutsy decision to plow $40 million into an IT overhaul. The payoff: Sales doubled and profits rose. Read about how the aviation parts supplier pulled off this amazing turnaround. PAGE 41

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HP Takes New Pricing Path For Utility-based Computing

Vendor develops 'computon' mechanism for on-demand IT services; some users are leery

BY THOMAS HOFFMAN

Researchers at Hewlett-Packard Co. are developing a new pricing approach for the outsourced capacity-on-demand computing services the company offers. But several IT managers said they're worried that the plan is too complex.

Under HP's scheme, prices would vary based on factors such as the overall demand placed on servers, storage devices and other IT resources, said Bernardo Huberman, an HP fellow and director of the systems research center at the company's HP Labs unit.

HP's Computon

What it is: A unit-of-computing pricing approach that would vary based on the IT service being measured (e.g., network bandwidth or server capacity).

Pricing factors: Demand for and availability of computing resources, customer usage and the potential risk that IT assets will be over- or underutilized.

When it will be commercialized: HP hopes to conduct in-house tests by early next year, with field tests to follow.

He added that a new unit-of-computing metric, which is being called a "computon" inside HP, would be akin to the pricing models that utilities use to charge customers for kilowatt-hours of electricity based on the ebb and flow of power demand.

Huberman acknowledged that the computon effort is complicated. For instance, HP will have to account for variables such as how well its data centers perform and the amount of computing resources that customers require, he said. HP also needs to figure out a way to build in pricing provisions to cover the possibility that companies will use more or less of a specific IT resource, like CPU cycles, than they have contracted for

Computon, page 57

B2B Venture Maps Rebound

Bank-owned Identrus hires CEO, sets new digital certificate plans

BY LUCAS MEARIAN

After going nearly a year without a CEO, Identrus LLC last week said it has hired a chief executive who's charged with resurrecting the developer of digital certificate technology and expanding the use of its Web-based services for certifying the authenticity of business-to-business transactions.

E-COMMERCE

New CEO Karen Wendel acknowledged that New York-based Identrus, a privately held company formed by a consortium of eight banks in 1998, has failed to effectively market its digital identity-authentication system and create applications that could generate increased demand among financial services firms and other potential users.

In addition, Identrus' system — which is based on public-key infrastructure technology — isn't tied to payment-messaging programs, supply chain management systems or other business applications.

Wendel said she plans to pursue partnerships with application vendors like SAP AG and PeopleSoft Inc. and hopes to sign some deals within the next 12 months. She added that she will also hire a new marketing team for Identrus in the near future.

One big misstep by the company was relying on its owner banks to create interest in its

Identrus, page 16

New Furor Over Visas Reaches Hill

Measure would curb L-1 program; H-1B cap decline approaches

BY PATRICK THIBODEAU

Legislation introduced in Congress last week would curb the use of the controversial L-1 visa, which, like its better-known counterpart the H-1B visa, lets U.S. companies import foreign workers.

The proposal is the first move on IT-related visa issues in what may be a pivotal year

Visas, page 57

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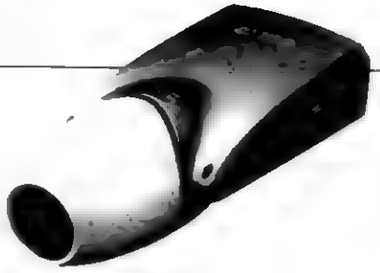

Ethernet's Power Play

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8 **Sun adds more** low-end servers to its product line, taking aim at the competition.

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Think Hard Before Starting Your Own Company

CAREERS: As tough economic times continue, some workers unhappy with conditions at their current jobs may consider striking out on their own. Here's a list of things to consider before making the leap.
Quick Link 38284

IM Secure(ity)

SECURITY: Instant messaging systems are an ideal target for fast-spreading computer worms and blended threats, says Symantec Chief Architect Carey Nachenberg. He offers advice on reducing the risk of a security attack on your company's IM systems.
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An Introduction to C++ Templates

DEVELOPMENT: How to produce fast, reusable and efficient code using C++ templates, which allow algorithms to be abstracted from their data types.
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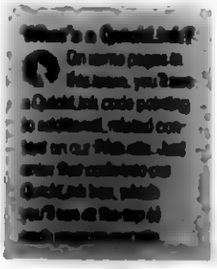
The Readers Strike Back

E-BUSINESS: Does spam deserve to be protected by the First Amendment? Readers let us know what they think. **Quick Link x3200**

Kazaa Huzzah!

SECURITY: Peer-to-peer file-sharing applications like Kazaa are as much a headache for security managers as they are for parents, says columnist Marcia J. Wilson.
Quick Link 38246



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Breaking News
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Knowledge Centers
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AT DEADLINE

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Skeptics see licensing agreement with Unix vendor as ploy to curb Linux threat

BY TODD R. WEISS

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Jeffrey Nicholas, a systems analyst at a large New York financial services firm that he asked not be identified, said he thinks Microsoft wants to help fund SCO's Linux-related legal actions. "The whole thing to me really doesn't smell right," he said. "It seems like it's all just too coincidental."

In a research note, Tony Baer, an analyst at onStrategies in New York, called SCO's actions "the software industry's equivalent of terrorism." Baer said he "can only conclude that the licensing of SCO Unix is Microsoft's strategy to drive a new wedge into the Linux community, a sector whose growth poses a far more formidable threat than the empty roars emanating out of SCO."

The Cendant Hotels division of Parsippany, N.J.-based Cendant Corp. runs about 3,700 servers based on SCO's OpenLinux operating system. David Chugg, senior director of hotel solutions at the unit, said he initially was worried about what SCO's legal campaign would mean for Cendant Hotels. But he said he was reassured when SCO said it would not target any of its own Linux customers. "Out of all the positions to be in, I think we're in the best one," Chugg said.

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Shields Up, Linux: Patricia Keefe believes that SCO, not Linux, will end up the loser. **Page 20**

SCO's Stock Plot: Frank Hayes explains why the vendor's recent moves are bad for Linux – and for end users. **Page 58**

BMC Unit Upgrades Help Desk, IT Asset Management Apps

BY MATT HAMBLEN

BMC Software Inc.'s Remedy Corp. unit this week will announce a new version of its IT service management applications that includes upgrades to tools for tracking the life cycle of IT assets and managing changes to corporate systems.

Both of those areas were neglected during Remedy's prior ownership by Peregrine Systems Inc., said John Ragsdale, an analyst at Forrester Research Inc. in Cambridge, Mass. "Change management and asset management took a back seat during Peregrine's ownership, so Remedy is correcting that," he said.

The IT Service Management 5.5 release also includes revised software for managing help desks and service-level agreements. This is the first upgrade by Remedy since Houston-based BMC bought it from Peregrine in November. Remedy remains a separate company within BMC and is based in Mountain View, Calif.

Health First Inc. in Rockledge, Fla., upgraded to Remedy's Help Desk 5.0 software in January and plans to install all four of the new modules later this year, said Jose Lanza, IT support and operations supervisor at the nonprofit health care provider.

Health First chose the Remedy software when it set up its help desk operation because of its ease of use and its integration with the other three modules, Lanza said. "This 5.5 release is going to fit just like a ring," he noted.

Heath First operates three hospitals and 65 medical clinics in Florida's Brevard County, and its IT systems support

6,500 employees and other end users. But the company's rapid expansion is causing "huge problems" for the IT staff in tracking the configurations of servers and applications, Lanza said.

Service ROI

The help desk software lets end users create their own e-mail trouble tickets for IT problems and to reassign the tickets to other help desk workers if they're not satisfied with the initial response.

"ROI for Health First is not so much dollars but customer service, and we have that," Lanza said.

Jim Grant, Remedy's general manager, said the new version also includes a Web-based user interface and support for Web services technology. The revisions let users focus not only on helping to reduce their companies' IT costs, but also on aligning corporate technology investments with goals defined by business managers, he said.

Ragsdale said the overhauled user interface in the 5.5 release creates a fully Web-based software client that should be easier for IT workers to use than Remedy's existing applications.

IBM Outlines Changes in Store for DB2

Upgrades mainframe version, adds .Net support, new OLAP features to others

BY MARC L. SONGINI
LAS VEGAS

IBM last week detailed a series of changes coming to its flagship DB2 database, including an upgrade of the mainframe version of the software that will support 64-bit addressing capabilities.

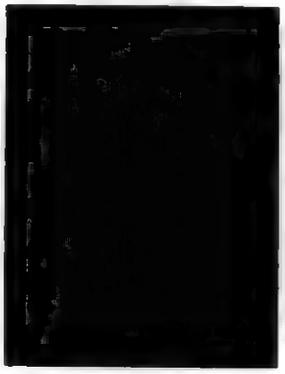
Version 8 of DB2 Universal Database for IBM's zSeries mainframes will also provide an increased number of memory buffer pools to improve system performance, said Tom Rosamilia, the company's vice president of worldwide data management development. In addition, IT managers will be able to make changes to databases without bringing systems down, Rosamilia said at the annual North American conference of the International DB2 Users Group (IDUG).

DATABASES

IBM is also adding a feature that will let mainframe systems administrators recover old data by using a combination of system memory and off-line storage. For example, the upgrade will be able to roll back to a database log from a previous day, Rosamilia said.

IBM has yet to set a shipment date for the upgrade. But initial field tests have begun, and Rosamilia said the company plans to start making the software available to more beta testers this summer.

Joe Carola, manager of database administration at Siemens Medical Solutions in Malvern, Pa., said the Siemens AG subsidiary is an early tester of DB2 Version 8 for z/OS and is eagerly awaiting its release. In particular, database managers at Siemens Medical Solutions



want to take advantage of the promised database schema evolution capabilities. Those will allow them to propagate changes on the fly to DB2-based systems at hospitals that use the company's IT products and services, Carola said.

Carola also said that the 64-bit support will let Siemens cut costs by reducing the amount of hardware it needs to run DB2 applications. He added, though, that he still wants IBM to offer easier-to-use management tools, better training and free resources to help companies migrate applications running on Oracle or SQL Server databases to DB2.

IBM has added support for Microsoft Corp.'s .Net technology to the Unix, Linux and Windows versions of DB2, enabling Microsoft tools to be used to craft applications for the database. That capability is part of a DB2 Version 8.1.2 release that's available now.

In addition, IBM is partnering with developers of business-intelligence software to deliver multivendor "cube views" as part of the online analytical processing (OLAP) capabilities in DB2. Due next month, the cube-view function will let end users access a single OLAP cube with front-end analysis tools from different vendors without having to reformat the data, said Rosamilia.

David Beulke, president of Chicago-based IDUG and a consultant at Pragmatic Solutions Inc. in Alexandria, Va., said most of the companies he works with use a mix of data analysis applications. The cube-view feature should make it easier to do so and simplify the process of integrating third-party analysis tools with DB2, he added.

Carola said the cube views could come in handy at resource-strapped companies that don't have enough CPU processing power to easily break down and reload OLAP cubes for use with different analysis tools. But he added that most of Siemens Medical Solutions' data warehousing applications are based on SQL Server, not DB2.

Cube views caught the eye of Robert Catterall, director of strategic technology for the e-commerce division of CheckFree Corp. in Norcross, Ga. Speed of development is important to the team building the company's enterprise data warehouse, he said, and the technology could help improve productivity in serving CheckFree's OLAP needs. ▶

Cisco Unleashes Cascade Of Network Security Tools

BY MATT HAMBLEN

Cisco Systems Inc. announced 14 security products and services last week, including three new products and a key revision to its flagship security management software, which now supports threat-protection technology gained in the April acquisition of Okena Inc.

The Okena technology, now known as the Cisco Security Agent (CSA), monitors user behaviors and takes steps to stop those that a company deems objectionable before they can cause harm, said Jeff Platon, senior director of product and technology marketing at Cisco.

CSA doesn't try to match signatures to prevent malicious activities, but it follows behaviors. For example, if a desktop user tried to launch a suspicious application, CSA would stop the launch, Platon said.

The technology resides on desktops and servers but is supported by the upgraded CiscoWorks VPN/Security Management Solution (VMS) 2.2, which is also being enhanced to support the Cisco Catalyst 6500 firewall and virtual private network (VPN) services modules.

Other Cisco announcements include a new one-touch router-lockdown capability and intelligent wizards for configuring firewall and IPsec VPN services on certain Cisco routers.

Centralized View

Radiology Associates of Ocala has been using the previous version of the management software, VMS 2.1, for eight months to manage security at six sites for a variety of devices that are used by hundreds of physicians and radiologists each day, said Jonathan Houghton, associate director of IT at the Ocala, Fla.-based health care provider.

"VMS gives us one place to manage all our security devices, whether they are VPN boxes or firewalls, meaning we can monitor the devices and any attempts at attacks on the network," he said. "It's loaded on a server, and you get through to any Web browser, meaning there's only one place to look, which is just beautiful."

> **"[CiscoWorks] VMS gives us one place to manage all of our security devices."**
>
> **JONATHAN HOUGHTON,** ASSOCIATE DIRECTOR OF IT, RADIOLOGY ASSOCIATES OF OCALA

Houghton said he is eager to look at the 2.2 release after having gained so much value from 2.1. "We've got to have all this security, especially with new federal privacy compliance and a lot of confidential information we have to protect," he said.

Jeff Wilson, an analyst at Infonetics Research Inc. in San Jose, said the 14 Cisco announcements are "small but important to somebody out there," but taken together, they show that the company is focusing its attention on many areas of security.

Cisco has "quietly insinuated" itself into the security market, with $1 billion in related hardware and software sales annually, Wilson noted.

The VMS upgrade is important, Wilson said, but "no vendor is good at this yet," because there are dozens of arcane security standards. "It's hard to build good security management solutions," he added. ▶

AT DEADLINE

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Microsoft "would love for corporations to believe that they will have to pay big licensing fees to SCO for using Linux," said Scott Davis, chief technology officer at Realty Times, a Dallas-based real estate Web site. "Anyone who can interpret Microsoft's announcement as anything other than a PR ploy needs a serious reality check."

Jeffrey Nicholas, a systems analyst at a large New York financial services firm that he asked not be identified, said he thinks Microsoft wants to help fund SCO's Linux-related legal actions. "The whole thing to me really doesn't smell right," he said. "It seems like it's all just too coincidental."

In a research note, Tony Baer, an analyst at onStrategies in New York, called SCO's actions "the software industry's equivalent of terrorism." Baer said he "can only conclude that the licensing of SCO Unix is Microsoft's strategy to drive a new wedge into the Linux community, a sector whose growth poses a far more formidable threat than the empty roars emanating out of SCO."

The Cendant Hotels division of Parsippany, N.J.-based Cendant Corp. runs about 3,700 servers based on SCO's OpenLinux operating system. David Chugg, senior director of hotel solutions at the unit, said he initially was worried about what SCO's legal campaign would mean for Cendant Hotels. But he said he was reassured when SCO said it would not target any of its own Linux customers. "Out of all the positions to be in, I think we're in the best one," Chugg said.

MORE THIS ISSUE

Shields Up, Linux: Patricia Keefe believes that SCO, not Linux, will end up the loser. **Page 20**

SCO's Stock Plot: Frank Hayes explains why the vendor's recent moves are bad for Linux – and for end users. **Page 58**

BMC Unit Upgrades Help Desk, IT Asset Management Apps

BY MATT HAMBLEN

BMC Software Inc.'s Remedy Corp. unit this week will announce a new version of its IT service management applications that includes upgrades to tools for tracking the life cycle of IT assets and managing changes to corporate systems.

Both of those areas were neglected during Remedy's prior ownership by Peregrine Systems Inc., said John Ragsdale, an analyst at Forrester Research Inc. in Cambridge, Mass. "Change management and asset management took a back seat during Peregrine's ownership, so Remedy is correcting that," he said.

The IT Service Management 5.5 release also includes revised software for managing help desks and service-level agreements. This is the first upgrade by Remedy since Houston-based BMC bought it from Peregrine in November. Remedy remains a separate company within BMC and is based in Mountain View, Calif.

Health First Inc. in Rockledge, Fla., upgraded to Remedy's Help Desk 5.0 software in January and plans to install all four of the new modules later this year, said Jose Lanza, IT support and operations supervisor at the nonprofit health care provider.

Health First chose the Remedy software when it set up its help desk operation because of its ease of use and its integration with the other three modules, Lanza said. "This 5.5 release is going to fit just like a ring," he noted.

Heath First operates three hospitals and 65 medical clinics in Florida's Brevard County, and its IT systems support 6,500 employees and other end users. But the company's rapid expansion is causing "huge problems" for the IT staff in tracking the configurations of servers and applications, Lanza said.

Remedy's IT Service Management 5.5 Applications

- **Available now, they start at prices ranging from $10,000 to $95,000, plus per-user fees that start at $1,600 to $29,500 for five users.**
- **They run on top of Remedy's Action Request System, a software server priced at $30,000.**

Service ROI

The help desk software lets end users create their own e-mail trouble tickets for IT problems and to reassign the tickets to other help desk workers if they're not satisfied with the initial response.

"ROI for Health First is not so much dollars but customer service, and we have that," Lanza said.

Jim Grant, Remedy's general manager, said the new version also includes a Web-based user interface and support for Web services technology. The revisions let users focus not only on helping to reduce their companies' IT costs, but also on aligning corporate technology investments with goals defined by business managers, he said.

Ragsdale said the overhauled user interface in the 5.5 release creates a fully Web-based software client that should be easier for IT workers to use than Remedy's existing applications.

IBM Outlines Changes in Store for DB2

Upgrades mainframe version, adds .Net support, new OLAP features to others

BY MARC L. SONGINI
LAS VEGAS

IBM last week detailed a series of changes coming to its flagship DB2 database, including an upgrade of the mainframe version of the software that will support 64-bit addressing capabilities.

Version 8 of DB2 Universal Database for IBM's zSeries mainframes will also provide an increased number of memory buffer pools to improve system performance, said Tom Rosamilia, the company's vice president of worldwide data management development. In addition, IT managers will be able to make changes to databases without bringing systems down, Rosamilia said at the annual North American conference of the International DB2 Users Group (IDUG).

DATABASES

IBM is also adding a feature that will let mainframe systems administrators recover old data by using a combination of system memory and off-line storage. For example, the upgrade will be able to roll back to a database log from a previous day, Rosamilia said.

IBM has yet to set a shipment date for the upgrade. But initial field tests have begun, and Rosamilia said the company plans to start making the software available to more beta testers this summer.

Joe Carola, manager of database administration at Siemens Medical Solutions in Malvern, Pa., said the Siemens AG subsidiary is an early tester of DB2 Version 8 for z/OS and is eagerly awaiting its release. In particular, database managers at Siemens Medical Solutions want to take advantage of the promised database schema evolution capabilities. Those will allow them to propagate changes on the fly to DB2-based systems at hospitals that use the company's IT products and services, Carola said.

Carola also said that the 64-bit support will let Siemens cut costs by reducing the amount of hardware it needs to run DB2 applications. He added, though, that he still wants IBM to offer easier-to-use management tools, better training and free resources to help companies migrate applications running on Oracle or SQL Server databases to DB2.

IBM has added support for Microsoft Corp.'s .Net technology to the Unix, Linux and Windows versions of DB2, enabling Microsoft tools to be used to craft applications for the database. That capability is part of a DB2 Version 8.1.2 release that's available now.

In addition, IBM is partnering with developers of business-intelligence software to deliver multivendor "cube views" as part of the online analytical processing (OLAP) capabilities in DB2. Due next month, the cube-view function will let end users access a single OLAP cube with front-end analysis tools from different vendors without having to reformat the data, said Rosamilia.

David Beulke, president of Chicago-based IDUG and a consultant at Pragmatic Solutions Inc. in Alexandria, Va., said most of the companies he works with use a mix of data analysis applications. The cube-view feature should make it easier to do so and simplify the process of integrating third-party analysis tools with DB2, he added.

Carola said the cube views could come in handy at resource-strapped companies that don't have enough CPU processing power to easily break down and reload OLAP cubes for use with different analysis tools. But he added that most of Siemens Medical Solutions' data warehousing applications are based on SQL Server, not DB2.

Cube views caught the eye of Robert Catterall, director of strategic technology for the e-commerce division of CheckFree Corp. in Norcross, Ga. Speed of development is important to the team building the company's enterprise data warehouse, he said, and the technology could help improve productivity in serving CheckFree's OLAP needs.

Cisco Unleashes Cascade Of Network Security Tools

BY MATT HAMBLEN

Cisco Systems Inc. announced 14 security products and services last week, including three new products and a key revision to its flagship security management software, which now supports threat-protection technology gained in the April acquisition of Okena Inc.

The Okena technology, now known as the Cisco Security Agent (CSA), monitors user behaviors and takes steps to stop those that a company deems objectionable before they can cause harm, said Jeff Platon, senior director of product and technology marketing at Cisco.

CSA doesn't try to match signatures to prevent malicious activities, but it follows behaviors. For example, if a desktop user tried to launch a suspicious application, CSA would stop the launch, Platon said.

The technology resides on desktops and servers but is supported by the upgraded CiscoWorks VPN/Security Management Solution (VMS) 2.2, which is also being enhanced to support the Cisco Catalyst 6500 firewall and virtual private network (VPN) services modules.

Other Cisco announcements include a new one-touch router-lockdown capability and intelligent wizards for configuring firewall and IPsec VPN services on certain Cisco routers.

Centralized View

Radiology Associates of Ocala has been using the previous version of the management software, VMS 2.1, for eight months to manage security at six sites for a variety of devices that are used by hundreds of physicians and radiologists each day, said Jonathan Houghton, associate director of IT at the Ocala, Fla.-based health care provider.

"VMS gives us one place to manage all our security devices, whether they are VPN boxes or firewalls, meaning we can monitor the devices and any attempts at attacks on the network," he said. "It's loaded on a server, and you get through to any Web browser, meaning there's only one place to look, which is just beautiful."

> **"[CiscoWorks] VMS gives us one place to manage all of our security devices."**
>
> **JONATHAN HOUGHTON,** ASSOCIATE DIRECTOR OF IT, RADIOLOGY ASSOCIATES OF OCALA

Houghton said he is eager to look at the 2.2 release after having gained so much value from 2.1. "We've got to have all this security, especially with new federal privacy compliance and a lot of confidential information we have to protect," he said.

Jeff Wilson, an analyst at Infonetics Research Inc. in San Jose, said the 14 Cisco announcements are "small but important to somebody out there," but taken together, they show that the company is focusing its attention on many areas of security.

Cisco has "quietly insinuated" itself into the security market, with $1 billion in related hardware and software sales annually, Wilson noted.

The VMS upgrade is important, Wilson said, but "no vendor is good at this yet," because there are dozens of arcane security standards. "It's hard to build good security management solutions," he added.

Cisco's New Security Products

These five offerings are available now:

- Cisco IOS AutoSecure for one-touch router lockdown. PRICING: Free to customers with SmartNet support deals
- Cisco Security Device Manager 1.0. PRICING: Free option on 800-5700 series routers
- CiscoWorks Security Information Management Solution 3.0. PRICING: Starts at $40,000
- Cisco IP Solution Center 3.0 Security Technology Module. PRICING: Starts at $8,000
- CiscoWorks VPN/Security Management Solution 2.2. PRICING: Starts at $7,995

Sun Undercuts Intel Server Competition

Price war possible, but rivals say not a fair comparison

BY PATRICK THIBODEAU

SERVER PRICE CUTS have become common since the economy and IT spending stalled, and they rarely raise eyebrows anymore. But Sun Microsystems Inc.'s decision last week to take direct aim at Dell Computer Corp. in the low-end Intel server market could force the two other full-service vendors, IBM and Hewlett-Packard Co., to act similarly.

"If you are a buyer and you got a lower price from Sun, you can absolutely use that as a negotiating point against HP and IBM," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H. Sun's move "definitely puts pressure on the other players," said Sarang Ghatpande, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y. But he also said price is more of a starting point in customer selection.

Competitors dismissed Sun's action, saying it won't ignite a server price war. Sun "lacks the staying power in this sector of the market," said Hugh Jenkins, a vice president of marketing in the industry-standard servers division at HP. "Sun would really rather sell you a great big Solaris system."

Razor-Thin Margins

"The Intel space is already a very competitive marketplace that runs on razor-thin margins," an IBM spokesman said. "We don't see Sun as being able to either start or sustain a long-term price war." Neither IBM nor HP disputed Sun's lower-cost pricing claim, but they said it wasn't a fair comparison because the products don't have identical features or warranties.

Sun said it's now making two low-end servers running one or two Intel Pentium Xeon processors with either the Solaris x86 or Linux operating system, starting at $2,450.

Sun said a comparatively priced HP server costs $3,238. But HP contended that the Sun server doesn't offer similar features, such as an embedded RAID controller.

The announcement was coupled with a move by Oracle Corp. to ensure that its products run on Sun's Solaris x86 and its other systems. Oracle believes the importance of these low-end systems is increasing.

"Big machines aren't going to disappear," said Oracle CEO Larry Ellison. "However, the future of computing [is] low-cost components being assembled into large, large, high-performance computers."

Ellison joined Sun CEO Scott McNealy only a month after appearing with Dell CEO Michael Dell, who, without naming Sun, bashed makers of what he described as proprietary Unix systems. Oracle said that there was nothing contradictory about Ellison's Dell appearance and that the database vendor is only interested in giving users choices. But the move sparked discussions between Oracle and Sun. Ellison, at the time, "may not have known we were as serious with our x86 strategy," said Souheil Saliba, a vice president at Sun.

Dell had the following reaction to Sun's move: "There is a lot of competition — and that means customers are getting a whole lot more value," said company spokesman Bruce Anderson.

Sun Backs Red Hat on Linux

Six weeks after discontinuing its own version of Linux, Sun last week said it will sell and support Red Hat Inc.'s Enterprise Linux operating systems on its Intel-based servers.

Sun stopped marketing its Sun Linux 5.0 distribution last month, after users shunned the software because they didn't want to install and support multiple versions of the open-source operating system [QuickLink 37505].

Dan Kusnetzky, an analyst at IDC in Framingham, Mass., said Sun's new strategy of partnering with Red Hat makes more sense than its attempt to go it alone on Linux. He expects Sun and Red Hat to work together to make Linux as reliable as Sun's Solaris operating system.

Bill Claybrook, an analyst at Aberdeen Group Inc. in Boston, agreed that the alliance with Red Hat is a smarter direction for Sun to take. "I don't know anybody who thought Sun having their own Linux was a good idea," he said.

Red Hat Enterprise Linux will be available from Sun by the summer and will be supported on Sun's recently announced x86-based systems, including the Sun Fire V60x and V65x, the two companies said.

– *Todd R. Weiss*

Network Associates Upgrades Sniffer Line

BY MATT HAMBLEN

Network Associates Inc. announced the Sniffer Network Protection Platform last week, which includes a new appliance and revisions of existing software that analysts said will push the vendor into a growing network security market.

The new appliance will allow the faster data monitoring needed for the largest network cores, said Christopher Thompson, vice president of product marketing of the Sniffer division at Network Associates in Santa Clara, Calif. Upgrades to three network management products were designed to work from the core to the network edge, he said. The tools will help customers save time troubleshooting network outages or preventing malicious threats, providing "dramatic ROI for customers," he claimed.

Among the products is the new Sniffer Technologies s6040 for core Gigabit networks within large organizations. It's designed to capture data for use in network management functions at up to 8Gbit/sec. The s6040 could be deployed in the core of a large institution and used to monitor performance in a branch facility, Thompson said. The company also announced new versions of its Network Performance Orchestrator products and a revision of its Sniffer Distributed RMON software for remote monitoring (see chart).

The state of Indiana is testing many of the new products and has been using more than $500,000 of Network Associates' products for more than two years to monitor and protect a network serving 40,000 users at 830 sites, said Jeffrey Duke, a senior network engineer for the state.

Duke expects to deploy the s6040 once the state converts to a Gigabit Ethernet core. He also plans to upgrade to Sniffer Distributed 4.3 because it offers more features, including the ability to analyze IP traffic passing through the network.

When the SQL Slammer virus hit, Sniffer software quickly and correctly told network managers that a virus was causing problems, although managers were mistakenly convinced that a crashed router was the source of all the network downtime, Duke said. Sniffer installations the state made two years ago paid back their costs in several months, because the monitoring has helped reduce troubleshooting time to 10% of what it was before, he added.

The new products help bring Network Associates, a traditional network management vendor, into the network security fold, said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston. With these products, Network Associates will compete against Cisco Systems Inc., Symantec Corp. and Netscreen Technologies Inc.

Sniffer Network Protection Platform

AVAILABLE IN JUNE	PRICING
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

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Price war possible, but rivals say not a fair comparison

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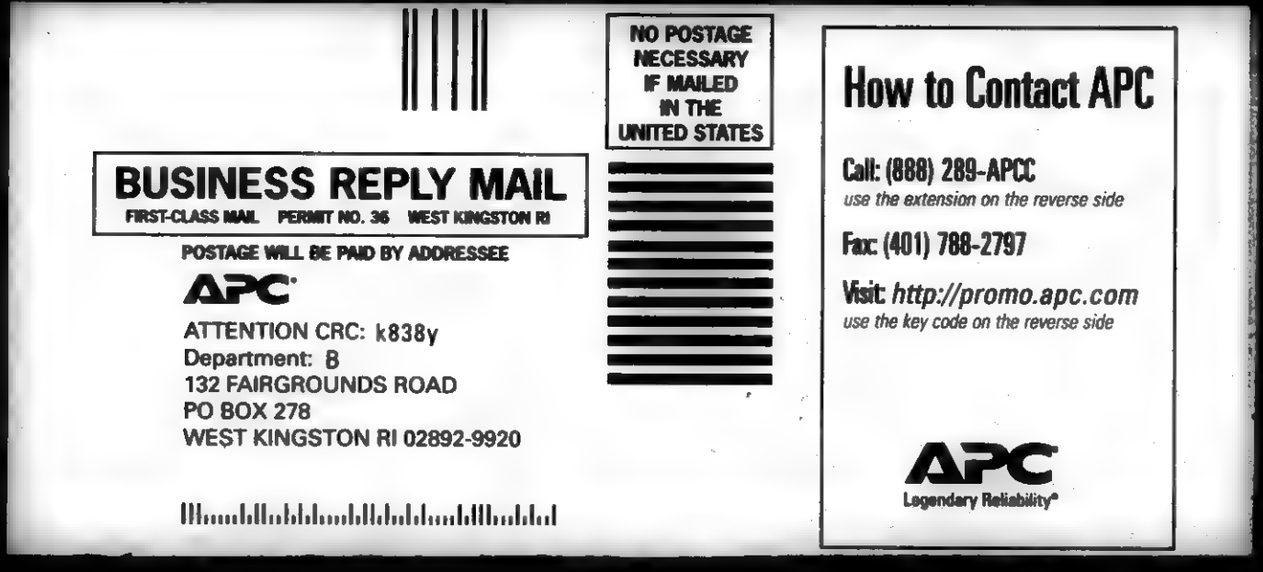

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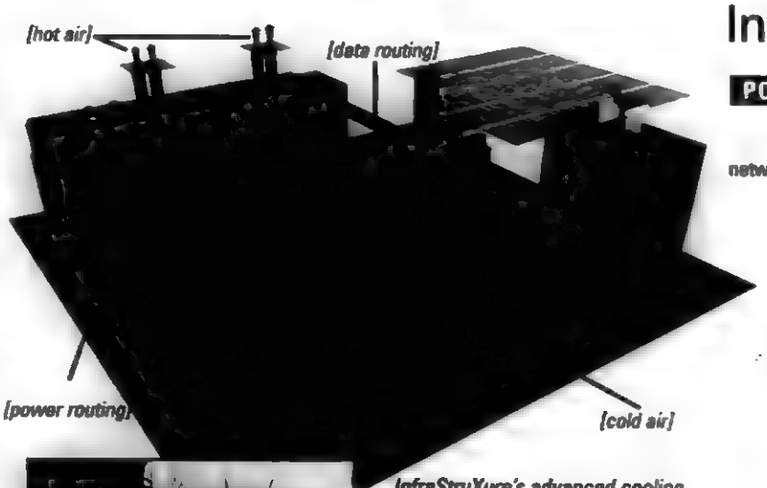

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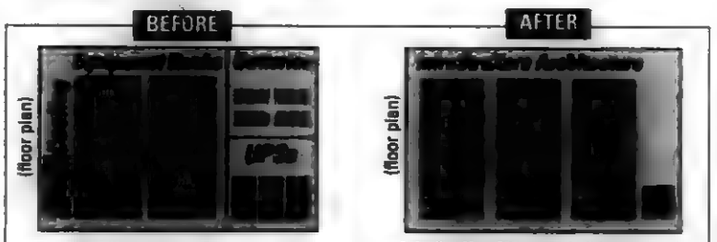
Vince Pombo
Vice President of Engineering
Rich Flanders
Director of Engineering
Time Warner Cable

"If I had purchased the incumbent vendor's 3-phase upgrade model, I would have paid 75% more in service costs over the next four years and I would have had to utilize 50% more of my precious floor space."

Captain Timothy Riley
Support Services Division
City of Newport Beach Police Department



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BRIEFS

Microsoft Warns of Spoof E-mail . . .

Microsoft Corp. warned users about an e-mail worm that began spreading last week via messages purporting to be sent from support@microsoft.com. The worm, W32/Palyh@MM, modifies the Windows registry so that the worm is launched whenever infected systems are turned on. It isn't destructive, but it will mass-mail itself to any e-mail addresses it finds on a PC.

. . . And Sets Up Virus Info Service

Microsoft also said it's working with Network Associates Inc. in Santa Clara, Calif., and Trend Micro Inc. in Cupertino, Calif., to give users more information about viruses and other Internet security threats. The companies announced a program called the Virus Information Alliance through which they plan to make threat assessments and other information available to users.

IBM PCs Get Hyperthreading

IBM announced the first models of a new PC line called ThinkCentre. The company said the systems include easy-to-remove components, tools for automating procedures like data backup, and support for hyperthreading capabilities that Intel Corp. added to its Pentium 4 chips last week. Dell Computer Corp., Gateway Inc., Hewlett-Packard Co. and Acer America Corp. also introduced PCs that utilize Intel's hyperthreading features.

Short Takes

SAP AG released an upgrade of its corporate sourcing and procurement software with support for real-time auctions and other new features. . . . GARTNER INC. said worldwide relational database sales fell 6% last year to $8.6 billion, down from $7.1 billion in 2001.

MARK HALL • ON THE MARK

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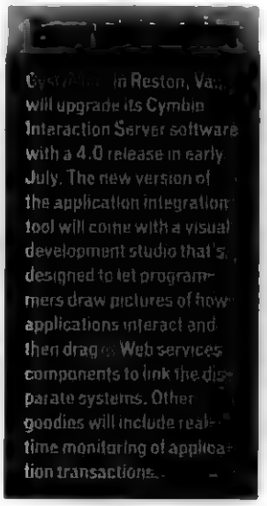

[illegible] in Reston, Va., will upgrade its Cymbio Interaction Server software with a 4.0 release in early July. The new version of the application integration tool will come with a visual development studio that's designed to let programmers draw pictures of how applications interact and then drag on Web services components to link the disparate systems. Other goodies will include real-time monitoring of application transactions.

GM Offers Wireless Options to Fleet Buyers

BY BOB BREWIN

General Motors Corp. said it plans to offer corporate buyers of its pickup trucks and vans a packaged wireless data and fleet-tracking system based on Gearworks Inc. software and Nextel Communications Inc. data phones.

GM is targeting the Etrace xt wireless option at companies that own fleets of 15 to 50 vehicles, said Tim Cavanaugh, marketing product manager for fleet and commercial operations at GM.

Couriers, cable TV companies, and plumbing and HVAC contractors are seen as the likely purchasers, he added.

Cavanaugh said he expects a "slow start" for the wireless package but anticipates that the program will grow consistently while providing GM with an edge over its rivals.

Scott Hull, vice president of marketing at Eagan, Minn.-based Gearworks, said the GM package includes Nextel phones and the company's Web-based back-office software. According to Hull, Gearworks will host GM truck-fleet customer applications on its servers, with access available over the Web. Since Nextel's phones include a built-in Global Positioning System receiver, the software will allow dispatchers to track the location of individual vehicles in the fleet, according to Hull.

Using the Java-based phones, which offer data speeds between 20Kbit/sec. and 40Kbit/sec., dispatchers and service workers in the field will be able to exchange simple text-based messages.

The GM service is free for a year, Hull said. After that, fleet owners can continue using the service under a plan with monthly fees of $34 per phone for Gearworks support and $32.99 per phone for Nextel data services.

BRIEFS

Microsoft Warns of Spoof E-mail . . .

Microsoft Corp. warned users about an e-mail worm that began spreading last week via messages purporting to be sent from support@microsoft.com. The worm, W32/Palyh@MM, modifies the Windows registry so that the worm is launched whenever infected systems are turned on. It isn't destructive, but it will mass-mail itself to any e-mail addresses it finds on a PC.

. . . And Sets Up Virus Info Service

Microsoft also said it's working with Network Associates Inc. in Santa Clara, Calif., and Trend Micro Inc. in Cupertino, Calif., to give users more information about viruses and other Internet security threats. The companies announced a program called the Virus Information Alliance through which they plan to make threat assessments and other information available to users.

IBM PCs Get Hyperthreading

IBM announced the first models of a new PC line called ThinkCentre. The company said the systems include easy-to-remove components, tools for automating procedures like data backup, and support for hyperthreading capabilities that Intel Corp. added to its Pentium 4 chips last week. Dell Computer Corp., Gateway Inc., Hewlett-Packard Co. and Acer America Corp. also introduced PCs that utilize Intel's hyperthreading features.

Short Takes

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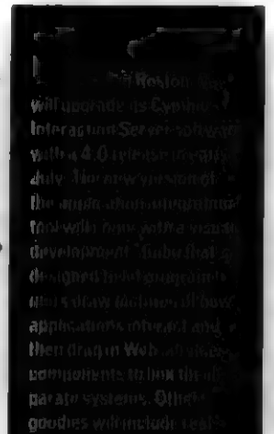

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Los Angeles
joins a team
of antivirus experts
working worldwide
to uncover data
security answers
enterprise-wide

Feds Plan Biometrics For Border Control

Technology details not finalized, but $400M system is due for use next year

BY DAN VERTON

The U.S. Department of Homeland Security (DHS) last week offered the first public details of a proposed border-control system that will use biometric technology to authenticate the identities of visitors and immigrants entering the U.S.

A request for proposals from technology vendors is scheduled to be issued by the fall, and deployment will begin by year's end, said Asa Hutchinson, undersecretary for border and transportation security at the DHS. The agency has allocated $400 million in funding for the U.S. Visitor and Immigrant Status Indication Technology (VISIT) system, Hutchinson said.

The centerpiece of VISIT, he said, will be biometric identifiers that the DHS hopes will help authorities confirm the identities of foreign visitors, check them for possible criminal histories and track their movements more closely.

Starting next January, the DHS will authenticate a visitor's identity through a minimum of two biometric identifiers and then check the identity against terrorist and criminal watch lists. Fingerprints and photographs will be used at first, Hutchinson said. As the technology is perfected, additional identifiers, such as scans of irises or facial features, may be added.

MORE ONLINE

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QuickLink 38637
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Hutchinson didn't disclose details about how VISIT will be configured. But he said the system will also capture data about visitors' immigrant and citizenship status, nationalities, countries of residence and U.S. addresses.

Eventually, that data will be integrated with information in the Student Exchange Visitor Information System, which is operated by universities to track foreign students. In addition, the data will be analyzed for visa violations and other irregularities by a new Office for Compliance within the DHS Bureau of Immigration and Customs Enforcement, Hutchinson said during a speech at the Center for Strategic and International Studies in Washington.

However, Rafi Ron, a former chief security officer for the Israeli Airport Authority, said at this month's Terror & Technology online conference that the effort to improve border security at U.S. airports is focused too heavily on technology.

Ron, who now runs a Tel Aviv-based consultancy called New Age Aviation Security, advocates a broad security program that includes human-behavior analysis techniques in addition to biometrics.

Although IT projects like the Transportation Security Administration's proposed CAPPS II data mining system will provide some passenger-profiling capabilities, Ron said their reliance on information stored in databases is a weak point. "There are no global databases that refer to . . . profiles of people who may become terrorists," he said.

At Boston's Logan International Airport, which signed a $500,000 contract with Ron's firm last year, undercover Massachusetts State Police officers now roam the terminals and parking garages looking for specific behavior patterns, said Jose Juves, a spokesman for the Massachusetts Port Authority, which manages the airport.

Asa Hutchinson (left), undersecretary for border and transportation security at the DHS, observes a U.S. Customs officer checking the paperwork of a Mexican citizen attempting to enter the U.S. in San Luis, Ariz.

IT Risks, Physical Threats Change Corporate Approaches to Security

Collaboration key to getting support

BY JAIKUMAR VIJAYAN
PHOENIX

A combination of increased IT and physical security threats and new regulatory requirements is transforming the manner in which security functions need to be viewed, implemented and managed, said attendees at the SecurIT 2003 Summit here last week.

For instance, it's becoming increasingly important for companies to look at IT and physical security threats from a unified risk-management perspective, said Dennis Treece, director of corporate security at the Massachusetts Port Authority in Boston.

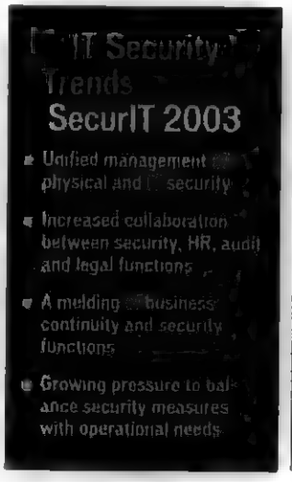
As one of the executives in charge of securing Boston's Logan International Airport, plus three seaports and a major toll bridge, Treece is focused primarily on physical infrastructure protection. But he also oversees the IT side — for example, sitting in on all meetings regarding the implementation of a new Gigabit Ethernet LAN at Logan.

Such unified oversight of security functions is not only necessary but inevitable, Treece said. "At the end of the day, the board is going to see no difference between network and physical security. There's going to be a single security budget line item. It's all the same risk," he added.

The need to comply with emerging data privacy regulations and other laws also means that IT security organizations will have to collaborate better with corporate legal, audit and human resources departments, according to Robert Degen, senior vice president of corporate security at First Data Corp. in Denver.

Such alliances will become crucial in securing the money and support needed to implement enterprisewide IT security approaches, Degen said. "You can't go it alone like a Don Quixote," said Degen, who, like Treece, oversees both IT and physical security. Degen reports to First Data's chief auditing officer, an arrangement that he said has helped to keep security a top issue at the board level.

Jude Ogunleye, a systems administrator at Cascade Natural Gas Corp. in Seattle, said he's thinking of having the company's network tested and analyzed by a third party to highlight weaknesses that could be exploited. The idea is to demonstrate "how much money you can lose with a downtime," Ogunleye said.



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To get upper management's approval for the resources needed to secure systems, Witty recommended giving demonstrations showing how easy it is to compromise data, explaining regulatory requirements and presenting internal measurements that depict infosecurity problems needing to be solved.

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AP PHOTO/THE SUN, ALFRED J. HERNANDEZ

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BRIEFS

HP Reports Q2 Profit, Plans Cuts

Hewlett-Packard Co. reported a $650 million profit on revenue of $18 billion for its second quarter, which ended April 30. CEO Carly Fiorina said all business units were profitable except for HP's Enterprise Systems Group, which lost $7 million. The company plans to lay off another 3,500 workers by October but will add 4,000 new jobs as part of several IT outsourcing contracts that it recently won.

Itanium Version of HP-UX Is Upgraded

In other HP news, the vendor released an upgrade of the HP-UX 11i operating system for its servers based on Intel Corp.'s 64-bit Itanium processors. HP said Version 2 of the operating system supports systems with up to 64 CPUs. Other features include a pair of IT security configuration tools and support for HP's workload and partition management software.

WorldCom Agrees To Pay $500M Fine

WorldCom Inc. announced a proposed deal with the U.S. Securities and Exchange Commission under which the company would pay a $500 million civil penalty to settle charges of accounting irregularities. The settlement deal still needs to be approved by U.S. District Court and U.S. Bankruptcy Court judges, said WorldCom, which is now doing business under the name MCI.

Short Takes

IBM said it plans on June 6 to ship Linux-based clustered systems built around its BladeCenter line of blade servers. . . . New York-based INFORMATION BUILDERS INC. announced WebFocus 5 Autonomic Server, a software package that monitors server clusters running data analysis applications.

WorldCom Wins $20M Bid to Build Baghdad Cell Network

GSM selected over CDMA technology to support up to 10,000 U.S. personnel

BY BOB BREWIN

THE DEPARTMENT of Defense has awarded WorldCom Inc. a contract valued at about $20 million to install a cellular communications system in Baghdad. It also has mounted a massive logistics effort to turn on limited cellular service in the Iraqi capital next month.

The system being set up by WorldCom — which is now operating under the name MCI — will be used to facilitate communications between U.S. personnel in Iraq, said Air Force Lt. Col. Ken McClellan, a Pentagon spokesman. "The ability to communicate is a crucial tool to advance security interests as well as humanitarian efforts," McClellan said. He added that the cellular system could be used by up to 10,000 people.

Sources familiar with the plan said users will include U.S. civilian and military personnel in Baghdad and possibly workers from humanitarian aid organizations. All access to the system will be controlled by U.S. officials, they added.

A WorldCom spokeswoman declined to provide any details about the planned cellular telephone system except to say that the company will meet a deadline to activate the service in June.

Mark Smith, a spokesman for the GSM Association in London, said the network being installed by WorldCom is based on the Global System for Mobile Communications (GSM) standard used by other countries in the Middle East. The GSM Association is working with WorldCom and the U.S. government to secure the Iraqi network, he said.

Technology Ties

In March, Rep. Darrell Issa (R-Calif.) introduced a bill seeking to require the Pentagon to use Code Division Multiple Access (CDMA) cellular network technology in Iraq instead of GSM. CDMA was developed by Qualcomm Inc., which is based in San Diego.

But Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said it makes more sense to install a GSM system in Baghdad because all the countries surrounding Iraq use that technology. About 80% of the world's cellular networks are based on GSM technology, Mathias added.

The sources said WorldCom has tapped Stockholm-based LM Ericsson Telephone Co. to supply the GSM equipment, including 17 cell towers and associated equipment. WorldCom has also installed a satellite earth station in Baghdad to connect the cellular system to networks it operates for the Defense Department in the U.S., according to the sources.

They said shipping all the equipment to Baghdad required a mammoth logistics effort that involved five C-5 cargo aircraft, the largest planes the Air Force operates. The equipment delivery was completed May 16. ▶

Nextel Exec Says Corporate Users Are Starting Small on Wireless Applications

BY CRAIG STEDMAN

As vice president of Internet and wireless services at Nextel Communications Inc., **Greg Santoro's** *duties include managing the rollout of the corporate wireless data services the Reston, Va., company announced last August. Santoro this month spoke with* Computerworld *about the status of that offering and other issues in the wireless market.*

Are the economy and tight IT budgets making it hard for you to convince companies to invest in wireless services? We're delivering a consistent set of new subscribers every quarter — 400,000 to 500,000 net adds. And in the enterprise space, close to 40% of the customers are signing up for a data service. It sounds funny to say it, but I think the economy is helping us. It's real easy to get these programs going without having to go through a long approval process. Most of the deployments we've been involved in have started with a clearly defined project.

Are most of the projects still small in scope? Last year was lots of little projects. This year, it's a lot of deployments within functional groups. I expect by later this year to see location-aware services and more enterprisewide deployments.

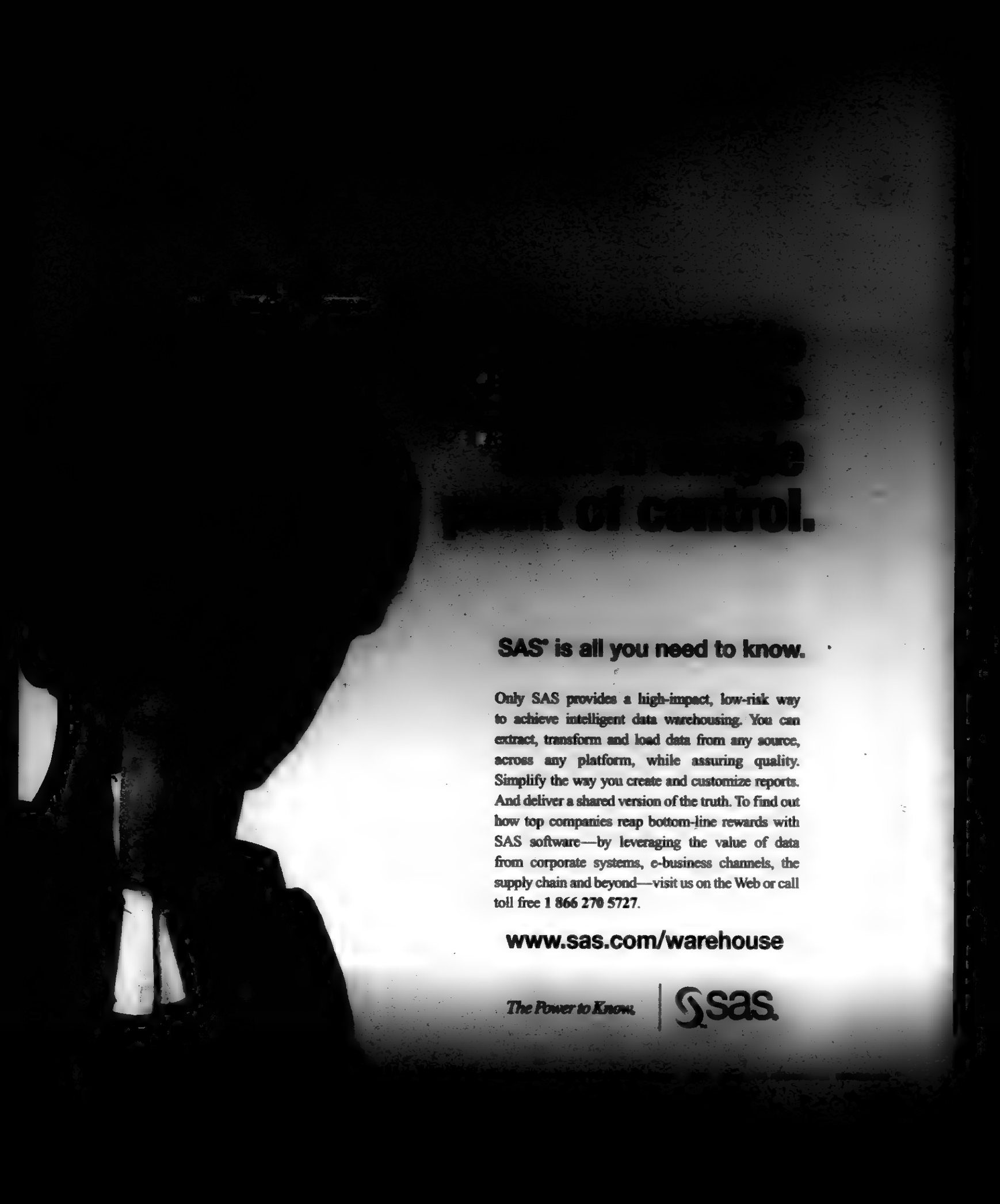
What about the issue of wireless security shortcomings? Is that affecting sales? I would say some of the black eye that wireless has on security has bled over into the more traditional mobile space. But it's very easy to encrypt information within a corporate environment and extend that to the phone — that's basically extending a VPN to the phones. Wi-Fi, on the other hand, remains a concern. Our approach to the wireless LAN is to offer it as a tool on a [corporate] campus. We don't currently offer a hotspot capability.

Are there other issues that corporate users say need to be addressed before they go ahead with wireless projects? One thing that does come up from customers — and we can prove that it's not an issue — is reliability. It's inherently difficult to guarantee [service-level agreements] on wireless networks, and corporate customers want SLAs. But our back-end connections to the Internet are redundant, and we've put a lot of energy into ensuring that our data environment is hardened and well secured. We've optimized everything that we can.

How do you think your iDen mobile network stacks up against rival ones based on GSM and CDMA technology? The biggest difference people like to talk about is speed. But frankly, to most IT people I've talked to, speed is a sexy thing but it turns out to be the fourth or fifth item on their priority lists. Coverage and the ability to deploy applications and support them are higher. When you look at all the dimensions, iDen stacks up pretty well, except that it happens to be somewhat slower.

Do you have anything in the works to boost the speed? We have an option of going to an advanced version of iDen, which would quadruple our data rate. We're currently in the process of looking at that.

Why not jump right on it? Nothing's free. It's not that hard or that expensive, but there's work to be done. If customers were breaking down the door saying they needed higher speeds, we'd be jumping on it tomorrow. But they're not. ▶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ISS Adds 'Virtual' Patching

Upgrade aims to ease IT security

BY JAIKUMAR VIJAYAN

Internet Security Systems Inc. (ISS) this week will upgrade its Dynamic Threat Protection software suite with enhanced vulnerability assessment and intrusion-detection tools.

A key capability enabled by the new technology is a "virtual patch process" that Atlanta-based ISS said will reduce the need to apply so-called hot fixes for protecting against viruses and worms that exploit system vulnerabilities.

The virtual process is designed to let security administrators block certain types of traffic and look for particular virus signatures or suspicious data patterns using vulnerability information gathered by the company's upgraded Internet Scanner 7.0 tool.

ISS also plans to soon release a Catastrophic Risk Index that lists some of the most dangerous security vulnerabilities. The index will give users more information on what to defend against and how to do it, said ISS Chief Technology Officer Chris Klaus.

The vulnerability identification and proactive defense measures being offered by ISS could save companies from having to install patches or develop manual work-arounds every time a new security flaw is found, said Andrew Plato, a principal consultant at Anitian Corp., a Beaverton, Ore.-based security consultancy.

"If nothing [else], it buys time for companies to apply patches," Plato said.

Such tools can be very useful but are not a full replacement for the patching process, said Eric Beasley, a senior network administrator at Baker Hill Corp., an application service provider in Carmel, Ind.

Baker Hill is using an application-level firewall from Teros Inc. in Santa Clara, Calif., that has functions similar to the ones developed by ISS to protect its farm of Web servers based on Microsoft's Internet Information Server software.

The firewall blocks all but a very narrowly defined set of traffic from reaching the servers. That has allowed Baker Hill to defer hot fixes and wait for Microsoft to roll out service packs incorporating patches, Beasley said. "That doesn't mean we have a policy of not keeping our Web servers updated. It just means we have a more relaxed time frame for doing so," he said.

The virtual patching features are only a part of a wider range of intrusion-prevention capabilities being touted by security vendors. Other companies, such as Sanctum Inc., Kavado Inc. and Teros, also offer tools that use behavioral rules, usage models and correlation engines to enforce authorized network behavior. In some cases, these tools can automatically prevent unauthorized or malicious code from executing on systems.

However, users have so far been cautious in their acceptance of such technologies, citing their immaturity, lack of promised functionality and tendency to block legitimate as well as malicious traffic.

Netegrity Updates Identity Management Software

Netegrity Inc. last week rolled out a new version of its IdentityMinder software featuring integrated user administration and application provisioning capabilities.

The upgrade is aimed at letting IT administrators automate the tasks of creating and managing user identities and controlling access to systems based on those identities, said Deepak Taneja, a vice president at the Waltham, Mass.-based company.

Netegrity's product is the latest in an emerging category of software from vendors such as IBM, Novell Inc. and Oblix Inc. that ties together access control, authentication, authorization and application provisioning functions.

"It is really all about service delivery and user productivity, by giving them the right access to the systems they need, much faster," said Jonathan Penn, an analyst at Forrester Research Inc. in Cambridge, Mass.

From an administrative standpoint, the centralization and automation provided by such technologies can save time and money, Penn said.

For instance, IT managers can automate the processes of adding new users or groups, changing access rights, delegating password management and deleting user accounts.

A slew of short- and long-term issues is driving the need for such products, according to Albert Braunberg, an analyst at Current Analysis Inc. in Sterling, Va. Among them are the growing adoption of Web services, the need to secure business-to-business transactions through better identity management, and corporate IT's focus on ROI, he said.

But Braunberg added that products like IdentityMinder are unlikely to appeal to anyone other than very large corporations.

Netegrity's new release integrates the company's existing access control functionality with application provisioning software developed by Business Layers Inc. in Rochelle Park, N.J. The two companies announced a partnership earlier this year.

–Jaikumar Vijayan

Continued from page 1

Identrus

products instead of doing that itself, Wendel noted.

The combination of problems has prevented Identrus from becoming a moneymaker, despite a roster of founders that includes ABN Amro Holding NV, Bank of America Corp., Citigroup Inc. and Deutsche Bank AG.

Identrus claims that more than 60 financial institutions have signed up to issue digital certificates for e-commerce transactions. But thus far, many of the banks have used the company's technology only to establish sets of PKI rules, Wendel said.

After Identrus' marketing capabilities are beefed up, Wendel plans to begin selling annual subscriptions to the company's PKI network, as well as professional services.

Five years from now, she said, "I want there to be so many digital certificates out there that if you were to count them, you'd run out of space on your calculator."

New CEO Karen Wendel said Identrus needs to do a better job of marketing its PKI-based technology.

Wendel "is interested in going after the eBays of the world, and they need this kind of technology," said Avivah Litan, a financial services analyst at Gartner Inc. in Stamford, Conn. But they're not using it now, she added.

In February, Gartner surveyed 200 business-to-business companies with $100 million or more in annual revenue and found that none were using digital certificates, Litan said.

What's more, a separate survey of 135 banks conducted last year by Gartner revealed that less than 5% of them had issued digital certificates to corporate customers, and less than 3% had done so for retail customers.

Most of the companies that responded to the two surveys expressed interest in digital certificate technology, Litan said. But none of the nonbanking businesses had even heard of Identrus, she added.

Jane Hennessy, senior vice president in charge of Wells Fargo & Co.'s international banking group, said the San Francisco-based company is close to launching a beta test of Identrus' digital certificate technology with several corporate customers.

"I think the strong rules set [and] the security processes make it about as secure as we can get to make sure documents are authentic," Hennessy said. Another expected benefit is the interoperability of Identrus' certificates among the different banks that have joined its network. "You don't have that with most other [digital certificates]," Hennessy said.

Wendel, 45, was formerly CEO of eFinance Corp., a San Mateo, Calif.-based software vendor that develops products for gauging the financial soundness of customers and business partners. She said her plan for Identrus includes the development by early next year of a digital certificate that banks, brokerages and other companies can use to authenticate retail customers.

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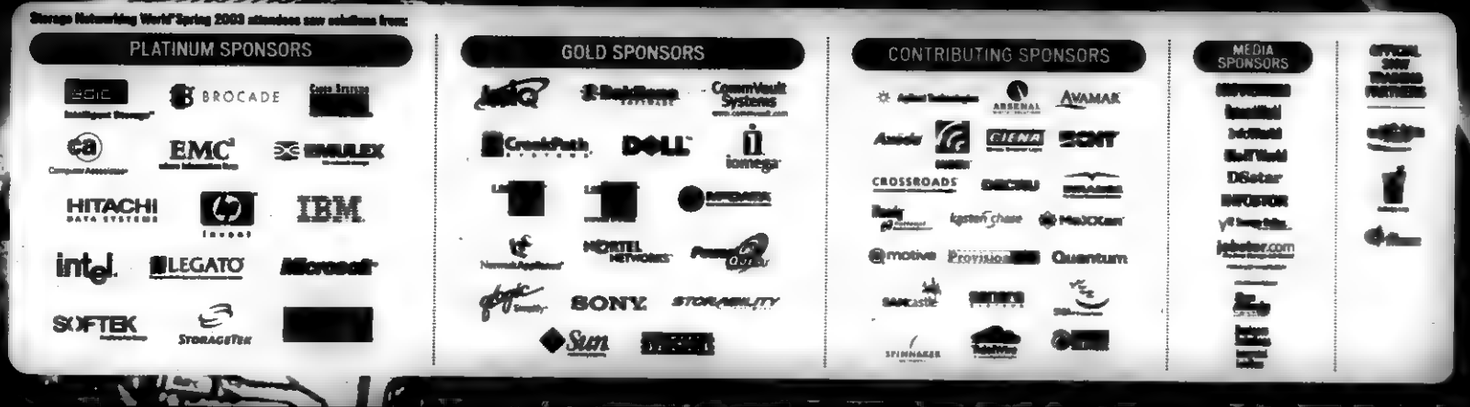

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PATRICIA KEEFE

Shields Up, Linux

DOES A DESPERATE SCO have a leg to stand on? Is a conniving Microsoft really behind The SCO Group? Is Linux headed for a deep freeze?

Those were among the questions being hurled about last week as angry users and industry observers reacted to the latest salvos fired against operating system upstart Linux.

First, B-grade vendor SCO filed a $1 billion lawsuit against IBM, charging that its intellectual property had made its way into IBM's Linux distribution. Then there was the not-so-shocking revelation last week that Microsoft, which just licensed SCO's Unix technology, has been quietly urging its sales staff to offer huge discounts to users in order to undercut Linux. Also last week, SCO suddenly dropped out of the Linux market and threatened users with intellectual property violations. That action has made a few people nervous, and ticked off many. (Mailing threatening letters to 1,358 CEOs of Fortune 2,000 companies is not on the Harvard Business School's list of top 10 ways to win new business and influence the installed base. It's a bad move in any economy, much less this one.)

The cynics say the lawsuits and threats are a last-ditch effort by a has-been company pushing its has-been version of Unix. The conspiracy theorists see Microsoft's hand behind SCO's actions. Still other observers warn against a rush to judgment, dismissing paranoia about Microsoft's shadowy role and preferring to hear SCO out before making up their minds.

If SCO were smart, it would continue to support both Unix and Linux. It's already invested in the UnitedLinux consortium to build a standard release of the operating system. Momentum is clearly behind the still-maturing Linux, which is increasingly being seen as the successor to its OS papa, Unix, and the great hope of the anti-Microsoft crowd. So why not be open to that?

Instead, SCO is cutting off its nose to spite its face. A loss or slowdown for Linux is really a win for Windows — not Unix. That's certainly the battlefield as Microsoft sees it, and it has the slush fund, er, firepower, to make that perception reality. And there's no end of online posts from users swearing they will never buy another SCO product [QuickLink a3180] and from developers seeking to expel the company from the open-source community. That's not good for a vendor hoping to maintain relationships — though perfectly fine for business executives hoping to unload a company, which is yet another theory being bandied about (see Frankly Speaking, page 58).

It's all bad for Linux in any case, and it's bad for those who want technology choices. Ultimately, it's bad for users, especially those pioneers who have taken the Linux plunge. At a minimum, it has the potential to take a lot of wind out of Linux's sails. How IT reacts to this pincer move by SCO and Microsoft should carry a lot of weight. Indeed, if SCO plans to take a page from the music industry by making an example out of a few user companies, it had better pick its targets with care.

But fear not. Open-source is here to stay. Too many people want choices, and they especially want out from under the tyranny of the Windows-only boot. And the very fact that Microsoft is openly willing to buy out users considering Linux points to two things: the strength of Linux's attraction, and the real threat posed to Microsoft by the increasing number of foreign governments that have instructed their agencies to either not buy Windows or to prove that a cheaper alternative doesn't exist. And that's getting to be a tall order as Linux tackles platform after platform.

The real page-turner here is not what Microsoft will do (we know it will do everything it can to dominate whatever market it's in), or who prevails in the SCO/IBM lawsuit. It's what the Linux camp will do. Will they fold up their tents and go home, or press on, adding to the momentum behind Linux and keeping the open-source banner flying? Stay tuned. This can only get more interesting.

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PIMM FOX

BI Software Gets Smart

BUSINESS INTELLIGENCE is an oxymoron at some companies. But others are finally getting the tools that deliver decision-critical data to the right people in the right way.

Traditional business intelligence (BI) users depend on relational data sources or applications such as ERP, CRM or supply chain management systems. However, with the changes afoot in reporting and online analytical processing (OLAP) technology, as well as trends in scorecards and dashboards, useful BI tools can reach more end users, which should change your BI operations strategy.

BI vendors such as SAS, Business Objects, SAP and Cognos are responding with suites that they claim are easier to deploy. For example, most of these suites can perform multiple functions for different applications while accessing various databases, so you don't need to force-fit the links between them. Investments in extract, transform and load technology for BI support are paying off, too. It's now possible to blend real-time information from data warehouses with enterprise applications like ERP and CRM.

Connections, whether via a relational database management system or an OLAP engine, are routine for these new types of BI suites. The reasons are clear. Decision-makers need to do ad hoc queries on relational and OLAP databases. They also need to perform calculations and create metrics to be displayed across the enterprise. And they won't jump from app to app to do it. So enterprise portals with dashboards running modeling and business-performance tools are also part of new BI offerings.

But does all that technology make BI useful? I think so. First, it helps to identify and track customer profitability and retention. Second, reductions in operational costs by rationalizing suppliers are more easily accomplished with BI. Third, companies need better financial transparency, given our current atmosphere of shareholder and regulatory scrutiny. BI can help here.

Finally, senior management no longer lets lines of business run their own shows, relying only on quarterly reports. Top managers are digging deeper into daily operations. They need access to information to make decisions before decisions are made for them. This will push companies to standardize on BI systems that offer comprehensive views of the enterprise without sacrificing or compromising data sources, reporting structures or time frames.

Smart businesses know that their data is valuable. Smarter ones are investing in the new tools so they can better make informed decisions throughout their organizations.

Squaring Off Over Offshore Outsourcing

I FIND IT OUTRAGEOUS that your April 21 publication devoted significant copy to providing instructions, points of contact and glowing testimonials from corporate bean counters regarding how corporations may best proceed with the permanent destruction of American IT jobs by moving them to places like India and the Philippines ["The Best of Both Shores"]. It is a how-to manual.

In a companion article, a corporate staffer noted in an offhand way that they laid off some of their best IT people because their jobs had been moved offshore. You casually note how Microsoft, a company with over $40 billion dollars in cash reserves, is moving jobs offshore "to cut costs."

This while the H-1B law still on the books enables huge numbers of foreign nationals to come to this country to compete for jobs against hundreds of thousands of unemployed American IT workers on their own soil.

Offshore outsourcing isn't about efficiency. It's about savage greed. Will our government make available funds to retrain laid-off software engineers in new occupations? Please, pray tell, what exactly do you retrain a permanently unemployed software engineer to do? Why don't you write a few articles about that?

J.S. Powers
Software engineer, Fairfax, Va.

HOPEFULLY, Jim Honerkamp, CIO at Clopay Corp., has had his compensation package appropriately reduced ["Surviving Offshore Cutbacks"]. His responsibility has been reduced. His head count has been reduced. Just as he is fulfilling his corporate responsibility to the bottom line, one could reasonably expect corporate officers to fulfill their responsibility by reducing his compensation. Or better still, perhaps they could find a suitable replacement for him at a reduced cost.

Rick Church
Maynard, Mass.

Welcome to the Real World

SO MARCUS COURTNEY, president of the Seattle-based Washington Alliance of Technology Workers, bemoans the current trend to take IT jobs out of the U.S. ["The New IT Worker: Angry and Proactive"]? Sorry, I had to laugh. Welcome to the real world, Mr. Courtney. This has been happening to America's blue-collar workers for the last 40 to 50 years.

Gary W. Lake
Operations shift supervisor, Edison Mission Operations & Maintenance Inc., Grant Town, W. Va.

REGARDING the well-done report "Exporting IT Jobs," this situation seems to be an example of what Adam Smith called the "invisible hand" – cheaper foreign labor replaces expensive local labor. While it is a hard pill to swallow, threatened IT workers are hardly the first to suffer from this sort of change. It seems to me that certain IT professions cannot be moved offshore – infrastructure setup requires actual presence, as does project management. Programmers, however, need to see that they are the white-collar equivalent of factory workers – the computer doesn't care about the location of the person punching the keyboard. While my sympathies go out to those caught in this difficult situation, in the grand scheme of things, there is little that can be done.

Bob Fately
Van Nuys, Calif., f8lee@mindspring.com

IN HIS COLUMN, "Magna Cum Unemployed," Donald Finley says, "When I changed my college major from mechanical engineering to computer science . . . the salaries of the two professions were comparable, and IT seemed to be thriving." Was his choice of a career based primarily on salary? As one who makes hiring decisions, I want applicants with a passion for technology, not for money. The H-1B visa program has outlived its usefulness and should be jettisoned. But H-1B is merely Finley's scapegoat. IT got fat, lazy and sloppy during the 1990s and attracted those looking for a fast buck. I, for one, am glad the economic downturn thinned the ranks of those flocking to the big bucks purportedly earned in IT careers. What we're seeing now is the pendulum swinging back toward equilibrium. It's too bad that Finley and others like him are in its path.

G. O'Hara
IT director, Chicago, garyoh@ameritech.net

U.S. Risks Losing IT Edge

STEVE ANDRIOLE is quoted in the article "The New IT Worker: Angry and Proactive" as saying, "Technological innovation is still largely U.S.-centric. In manufacturing, it's not." That's true, but what has let our leadership in manufacturing innovation slip away is the simple fact that most of it is done elsewhere. We cannot possibly remain the leader in something we don't put hands to and do ourselves. Andriole also notes that there's a much faster development cycle in IT than in manufacturing. But that faster cycle means we will likely lose our IT edge faster, too, once most IT work is done offshore.

Shawn Kelly
Solar Turbines Inc., San Diego, sdkellysdaa@yahoo.com

Security Ignored

ONE THING not considered in the article "There's More to Consider Than Cheaper Labor" is security. As an IT auditor, I would be more concerned about back doors and security weaknesses in a project programmed by an outsourced staff than I would with one programmed by staff still happily employed by my company.

Roger T. Brown
IT audit manager, Jefferson Health System, Philadelphia, brownr@einstein.edu

THE SECURITY ISSUE that was raised in "Offshore Coding Work Raises Security Concerns" not only pertains to code but to business information as well. As U.S. companies outsource application support to offshore companies, they are providing access to their core business information to the employees in these offshore providers. There is not only a risk of sabotage, but also a risk of corporate espionage.

R.B. Murphy
Framingham, Mass.

IN "Offshore Coding Work Raises Security Concerns," nobody pointed out that much of our financial code is handled overseas. I've worked for top 10 banks and large investment houses, and I know that much of their work is done overseas. Overseas workers have access to more financial information than financial companies will admit.

Brian Barrette
Boston

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WHAT THEY'RE READING

These letters are responses to several articles and columns about offshore outsourcing that have appeared in Computerworld recently, including the following:

May 5, 2003

"Offshore Coding Work Raises Security Concerns"
Quick Link: 28218

April 28, 2003

"Bank's IT Workers Threaten Strike Over Outsourcing Deal"
Quick Link: 28059

Special Report: "Exporting IT Jobs"
Quick Link: 28057

Opinion: "Magna Cum Unemployed"
Quick Link: 27945

April 21, 2003

"The Best of Both Shores"
Quick Link: 27932

Opinion: "Readying for a Trip Offshore"
Quick Link: 27946

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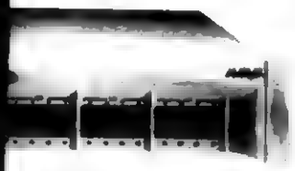


EMERGING TECHNOLOGIES

Ethernet's Power Play

Thanks to a new standard for delivering in-line Power Over Ethernet cabling via products like this Avaya switch, the corporate network will soon become a common power source for many types of network-attached devices. **Page 30**

Q&A

Avoiding Data Center Blowups

Neil Rasmussen, CTO at American Power Conversion Corp., says that despite technology advances, data centers still suffer from some basic vulnerabilities. **Page 32**

FUTURE WATCH

E-Commerce on the Fly

Mobile commerce has been slow to catch on as users balk at shopping with cell phones and PDAs. But advances in handheld devices, wireless networks and user interfaces could finally make it a reality. **Page 34**

DAVID PLUNKERT

The Price of E-PAYMENT

Business-to-business e-payment systems can slash processing costs, but they require substantial integration and business-process changes.

BY ROBERT L. SCHEIER

IMAGINE that you have to find the fraudulent calls in a 100,000-page phone bill. Or that an invoice for employee health insurance offers little more than a guess as to who is covered in a given month. Or that four out of 10 checks you receive require human assistance to figure out what the customer bought. That's reality for many business-to-business transactions today, and that's why there's so much interest in electronic invoice presentment and payment (EIPP) systems.

EIPP involves automating everything from how the seller presents an invoice to how a customer pays the bill. The most obvious savings come in staff, paper and postage, but vendors say that as much as 85% of the benefits result from eliminating manual work such as negotiating billing disputes with customers and cutting refund checks.

Last year, Stamford, Conn.-based Gartner Inc. estimated that an organization could realize a return on an investment in a system that sends business invoices over the Web in one year if just 2.3% of customers opted to view and pay invoices online. The average project costs between $130,000 and $400,000, and savings average $5.7 million annually, or $7.25 per invoice, according to Gartner's research.

Gartner estimates that about 15% of the invoices sent by large businesses result in a dispute that costs between $20 and $40 per invoice to resolve. With EIPP, customers can view bill details, submit challenges and even make partial payments online.

Health Alliance Medical Plans Inc. expects to achieve a return on its investment in an EIPP system within two and a half years, says Lynn Carroll, director of finance at the Urbana, Ill.-based managed health care provider. The savings will come from reductions in administrative expenses and a decrease in benefits paid to employees who left their jobs but whose employers didn't notify Health Alliance quickly enough.

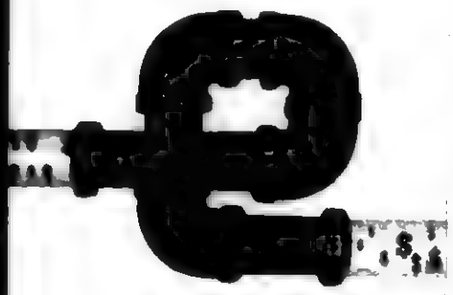
EIPP

To achieve such benefits, however, Health Alliance and other users must make their way through a thicket of products and services in a still-emerging market, link their EIPP systems to back-end systems and — most difficult of all — change their business processes to accommodate online billing, payments and problem-solving.

Software or Service?

Some vendors, such as Edocs Inc. in Natick, Mass., and Avolent Inc. in San Francisco, offer packaged EIPP software. Others, such as Xign Corp. in Pleasanton, Calif., and Metavante Corp. in Milwaukee, offer EIPP as a hosted service. Some vendors focus on billers; others focus on payers, based on the assumption that large customers can push their suppliers to adopt new online technologies.

Many billers tend to opt for packaged software, whereas payers tend to purchase EIPP as a service, says Brian Valente, vice president of marketing at Avolent. As a biller, Carroll decided against buying an EIPP service, fearing



The Price of E-PAYMENT

Continued from page 25

that it would be too hard to customize.

If customization isn't a prime requirement, however, an EIPP service can be much faster to implement than packaged software, says Penny Gillespie, an analyst at Cambridge, Mass.-based Giga Information Group Inc. She advises payers to investigate whether the per-transaction pricing of an EIPP service might become more expensive than a software purchase as transaction levels rise.

According to Xign President and CEO Tom Glassanos, payers sign up for a certain volume of transactions at a specified per-transaction price. For a large customer with more than 100,000 transactions a year, Xign charges about $1.50 to $2 per invoice and 75 cents to $1 per payment. In contrast, he says, it usually costs $8 to $10 for a payer to process an invoice and issue a paper check. Billers use the service free of charge, he says, since the payers receive most of the cost benefits.

Al Dodson, manager of electronic bill presentment and payment at Highmark

One large customer, Payless ShoeSource Inc., chose Xign's service over software-based EIPP because it will work with the shoe retailer's PeopleSoft ERP system and be easy to link with other Web-based payment systems. It will also be easy to implement with limited IT resources, says Tim Devine, director of purchasing at the Topeka, Kan.-based company.

Payless plans to use Xign to distribute invoices to about 45,000 vendors, he says. Devine expects a payback within two years from cutting administrative costs and qualifying for early payment discounts with suppliers.

Getting the Data

After deciding whether to purchase EIPP as software or as a service, customers must choose how to link the EIPP system to their existing applications and data required for automated bill payment and dispute resolution. This includes records of past bills from the billing system and past payments from the accounts receivable system, as well as product return or credit data from an inventory control system.

Customers need access to corporate systems so they can, for example, tell a supplier that they are paying only part of a bill because they are returning damaged goods or that they are paying lower health insurance premiums because some employees have left their companies.

Vendors take different approaches to this data integration problem. For example, Edocs maps data from applications that produce reports such as an analysis of monthly sales or a list of overdue accounts. Avolent, in contrast, collects that information in a database, from which it can extract data to produce different kinds of bills for different customers or allow customers with billing questions to drill down into data.

Highmark Inc., a Pittsburgh-based health insurer, tried mapping data from reports into an XML-formatted data stream that fed into its initial implementation of Avolent's BillCast software. But that required too much work for the staff supporting those applications, says Al Dodson, manager of electronic bill presentment and payment. In order to map the data from reports the application had already produced, he says, "we needed to know exactly where the data is on the report." That meant understanding details such as how many spaces wide each data element was. The support staff's reply: " 'We don't have time to tell you . . . because there could be a million variations,' " says Dodson.

This summer, Highmark plans to take a different approach: modifying its legacy billing systems so they produce an XML data stream that's exported to Avolent's newer BizCast software as part of the bill-generation process.

That way, Highmark gets the raw data from the billing application without needing to know how that data might be presented on various reports or bills, says Dodson. Having the data in one database also makes it easier to produce a consolidated bill for any Highmark subsidiary.

Other vendors argue that embedding business rules is crucial to automating complex billing relationships. For example, different individuals within a customer organization have different levels of spending authority, says Noam Potter, eCare product manager at Amdocs Ltd., a provider of billing and CRM software in Chesterfield, Mo. More-profitable customers may also be given more lenient terms in disputes. For example, they may receive an automatic credit for any dispute under $100, he says. Reflecting these differences requires flexible business logic, a workflow engine and an easy-to-manage user interface, says Potter.

"The biggest challenge in electronic bill presentment and payment is integration," says Giga's Gillespie, referring to the need to have EIPP systems work with back-office applications such as ERP and accounts payable. But most vendors and customers say business process issues are bigger hurdles.

Although Payless had a "minor challenge" linking the Xign service to its PeopleSoft system, Devine says he has had more trouble changing workflows, such as identifying a single contact person in each department who should receive electronic invoices and route them to the proper person.

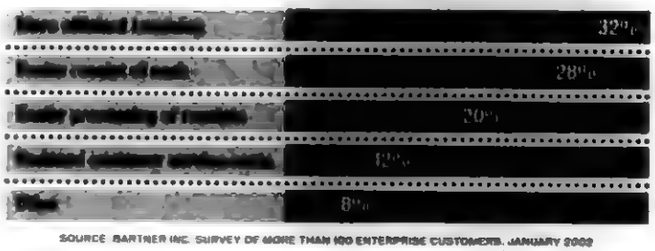
Lynn Carroll, director of finance at Health Alliance Medical Plans

Carroll says his biggest problem was "understanding who in the organization . . . really owns some of these transactions." For example, he didn't know whether the operations staff or the billing/financial staff was responsible for collecting and managing bills. That's important because Health Alliance needs to provide a single contact for employers that want to make changes such as dropping workers from their health plans.

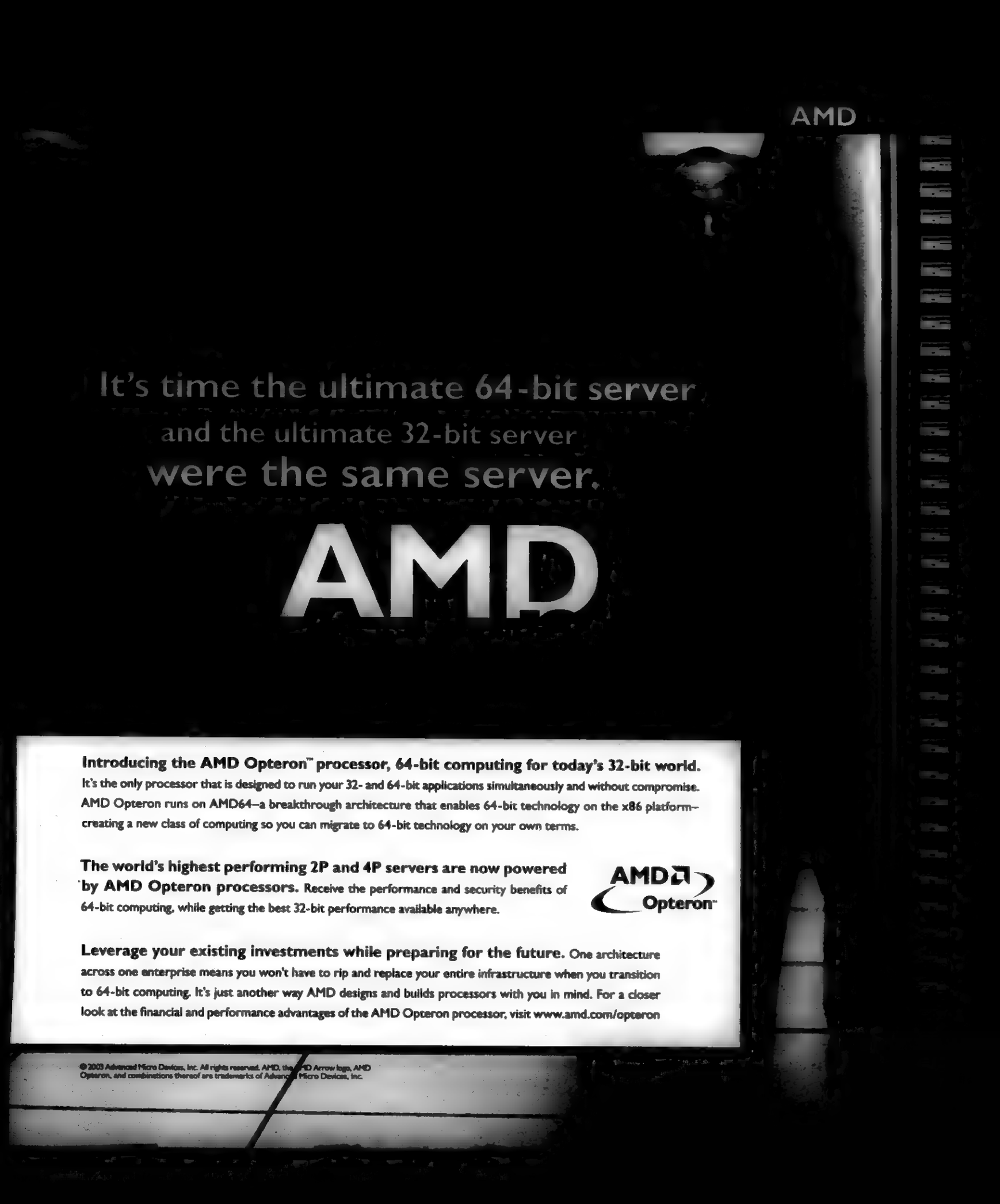
It's just as well that it takes time to deploy EIPP systems, says Valente. "People can only accept a certain amount of changes before it overwhelms them," he says. His advice: "Understand your customers, and try to deliver value in bite-size pieces."

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

Where Customers Expect Savings From EIPP



SOURCE: GARTNER INC. SURVEY OF MORE THAN 100 ENTERPRISE CUSTOMERS, JANUARY 2002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Rajiv Mistry has spent nearly a decade working in enterprise IT architecture. His expertise entails innovative enterprise information technology architectures using the latest advances in technology, data warehousing, data mining and lifecycle management of integrated product development from seed to market.

UNISYS PRESENTS

ask THE EXPERT

A few minutes with Rajiv Mistry, Director, Data Warehousing & Business Intelligence Enterprise Collaboration, Americas, Avanade Inc.

Enterprise Business Intelligence

> What are the business trends driving enterprise Business Intelligence?

More and more, business professionals require access to real-time business information that flows freely throughout the enterprise. The knowledge worker is no longer a theory; she is running your mortgage refinance process as you talk to her. Telemedicine is no longer an exclusive realm; it can run life support from anywhere globally and deliver decisions and metrics in near real time.

These are the business demands that have given rise to such popular BI applications as CPM (Corporate Performance Management), CRM (Customer Relationship Management), and BAM (Business Activity Monitoring).

To address CPM, BAM and CRM, a thoroughly integrated application architecture envelope must be designed in a manner that allows access to the full range of real time (or operational), tactical and strategic reports in a flexible manner. Applications that were previously unthinkable must become reality to support scenarios like CRM analytics, CPM decision support and BAM-related operational actionability.

> What benefits can companies expect to gain?

There are a number of vital benefits to applying BI within a company, such as the following:

Better decision-making. By accessing necessary information faster and drawing on rich analytical tools to parse the data for vital new insights into issues such as customer buying habits, companies can speed their decision processes significantly, and boost their profits by doing so.

Competitive advantage. Faster decision-making allows companies to deploy new innovations faster, enabling them to get ahead of the competition. Greater agility means being able to maintain this lead.

Customer satisfaction. Customers are always more satisfied when their needs are filled quickly. This happens when execution of internal processes is faster, more efficient and accurate, and when fulfillment of product requests and service requests is done with a greater speed, accuracy and finesse.

Single version of the truth. While most companies talk of getting to a single version of the truth, the fact is there are at least three different ways of perceiving the truth: strategically, tactically and operationally. A reporting scenario that forecasts a viable strategic direction, creates analytic drillable reports and reveals defects in real time would support a single version of the truth.

> What are the main inhibitors to success?

The main barrier to mainstream acceptance of BI has been the fact that it was previously deemed to be complex to use, requiring specialized skills to read a report and figure out trends. Moreover, the time gap resulting from processing delays could lead to stale data in reports, thus keeping BI out of the acceptable norm in corporate decision making. The advances in Wintel/SQL Server/Analysis Services drive such inefficiencies out and create a more realistic solution that brings BI to the masses and lets the single version of the truth be within their grasp.

There's also a false perception that BI is slow, ironically driven by delays in IT funding. In spite of the fact that a BI investment can lead to revenue growth, difficult economic times have driven fiscal stringency within the technology department, and BI implementations are no exception.

> How can Packaged Solutions provide benefit for BI?

Packaged solutions invariably need some customization specific to the customer needs. However, even taking this into consideration, the speed of implementation is vastly enhanced compared with a custom built solution. This allows customers to address performance, scalability, integration and cost issues rapidly and achieve very good BI reporting results.

Technologies like the Unisys ES 7000 servers address scenarios that are not possible on scaled-out commodity-driven hardware platforms. Specifically, in bringing high performance to bear on reducing batch cycle time, high concurrency loads and large data volume throughput across many vertical industries, this platform has proven to be very robust and cost efficient.

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Ethernet's Power Play

Outlook: The 802.3af Power Over Ethernet standard will soon be a checklist feature on every new LAN switch and will power everything from IP phones to wireless access points. By Robert L. Mitchell

THE IDEA BEHIND the IEEE's Power Over Ethernet (POE) standard, which delivers in-line power to networked devices over unshielded twisted-pair cabling, isn't new.

IP telephony system vendors stole a page from the private branch exchange vendors' playbook when they developed POE technologies several years ago in order to provide a competitive, centralized power source for IP telephones. In-line power gave users more flexibility in placing IP phones and made the task of providing backup power easier (see "Avoiding Data Center Blowups," page 32). But these proprietary systems typically locked users to one vendor's equipment.

EMERGING TECHNOLOGIES

The draft POE standard from the Institute of Electrical and Electronics Engineers Inc.'s 802.3af task force should not only bring much-needed interoperability but also deliver in-line power to a wide range of devices, from wireless LAN access points to IP security cameras. "POE is going to be one of those things where people won't even remember when you couldn't get power from an Ethernet jack," predicts Steven Carlson, president of Portland, Ore.-based High Speed Design Inc. and chairman of the IEEE 802.3af task force.

It's also the first international power-delivery standard. "With 802.3af, the RJ45 jack becomes the only power outlet standard that's supported globally," says David Passmore, an analyst at Midvale, Utah-based Burton Group. While that's not important for access points and IP phones, business travelers may one day be able to trickle-charge handheld and notebook computers, or even run them without lugging power converters and power supply bricks.

The IEEE's 802.3af specification calls for power source equipment (PSE), which operates at 48 volts of direct current, to guarantee 12.95 watts of power over unshielded twisted-pair cable to data terminal equipment (DTE) 100 meters away — the maximum distance supported by Ethernet. That's enough power to support IP phones, WLAN access points and many other DTE devices (see chart below). Two PSE types are supported: Ethernet switches equipped with a power supply module, called end-span devices, and a special patch panel, called a midspan device, that sits between a legacy switch and powered equipment, injecting power to each connection.

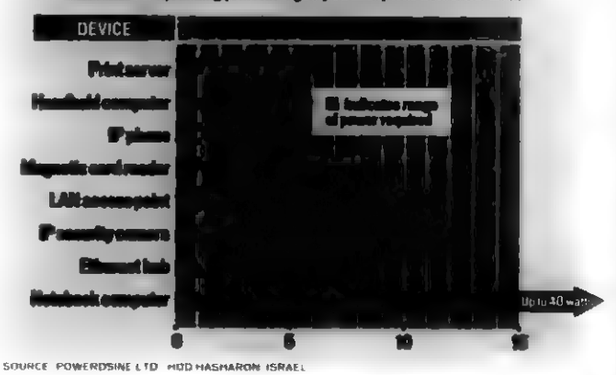
Power travels over two pairs that are unused in 10/100 Ethernet but do carry data in Gigabit Ethernet LANs. End-span PSEs will work over Gigabit Ethernet, but midspan devices will not, says Amir Lehr, a member of the IEEE 802.3 standards committee and vice president of business development at PowerDsine Ltd., an Israeli company that supplies midspan devices and components.

To prevent damage to noncompliant network devices, the PSE requests a special electronic "signature" from the end device before supplying power. It also stops power flow within 10 milliseconds after a device is disconnected from the network, so a user swapping out devices on a port can't accidentally damage the second end device.

The cost to support 802.3af in end devices is negligible, Lehr says, and many vendors offer devices they claim are compliant. Analysts say the specification adds 20% or more to the cost of an Ethernet switch, although Passmore expects prices to drop as volumes increase. But even paying the premium may be cost-effective, Carlson says, be-

What It Takes

The 802.3af specification can deliver up to 12.95 watts of power per network device. That's enough to run most of these common network devices, which have operating power ranges (red bars) well below the limit.



SOURCE: POWERDSINE LTD., HOD HASHARON, ISRAEL

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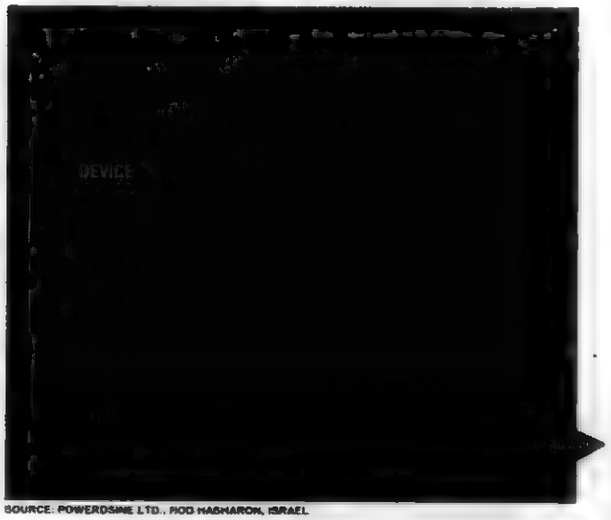


SOURCE: POWERDSINE LTD., RIDD HASHARON, ISRAEL

■ PRODUCTS

Vendors Get Jump on POE Standard

THE DRAFT STATUS of the POE specification hasn't stopped vendors from trotting out an array of early devices. The specification supports the Simple Network Management Protocol, and vendors of power supply equipment differentiate products by offering sophisticated management options and delivering different levels of power.

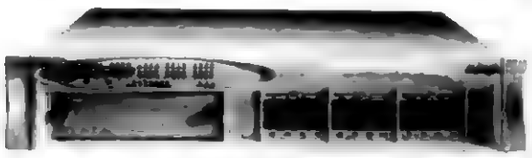
For example, 3Com's $2,495 SuperStack 3 Switch 4400 PWR provides 150 watts of power across 24 ports, while Avaya Inc.'s $4,295 P333T-PWR POE switch delivers a total of 200 watts. Those average out to 6 and 8 watts per port, respectively. By assuming that you'll need less than the full 12.95 watts per port, vendors can offer lower prices. But what if you run out of juice?

PowerDsine's 6000 series midspan devices

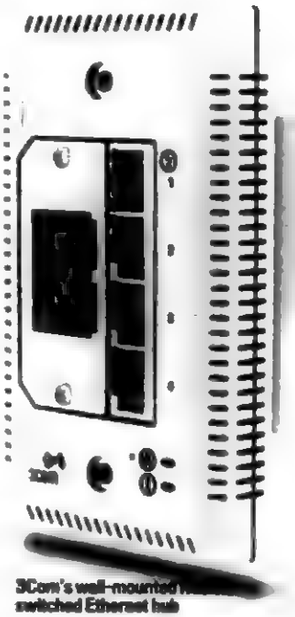
While the 802.3af standard delivers power sequentially by port number until it runs out of power, Avaya lets you reprioritize the ports, and 3Com also lets you limit power on a per-port basis. If you do max out, however, Avaya lets you boost power by adding an external power module, whereas 3Com does not. Nortel Networks Ltd. and Foundry Networks Inc. have also introduced compliant switches; Cisco plans to announce a daughtercard for its 6500 series modular switches after the standard is ratified.

Several vendors offer midspan equipment for about half the cost of an end-span switch. PowerDsine's 6000 series midspan products, for example, range from $99 for a single-port model to $1,199 for a 24-port device.

As for powered devices, major vendors of IP telephones and WLAN access points either claim to be shipping compliant products now or have announced plans to do so soon. One of the more interesting end devices is 3Com's NJ200 ($219), a wall-mounted Ethernet switch that runs off POE and then passes power through to one of the unit's four ports.



Avaya's P333T-PWR POE switch



3Com's wall-mounted switched Ethernet hub

cause IT doesn't need to run a separate power cable, and Ethernet cabling installations don't typically require the services of a licensed electrician. "It's very easy to put in and very low-cost," he says.

Buying Time

"Most larger enterprises will insist on POE in their new Ethernet switches within two to three years," Passmore predicts. But should you buy now? Current devices are based on a draft specification. Most vendors expect full ratification in July and say any further changes will be minor. But Chris Cullin, product marketing manager at Cisco Systems Inc., says the standard is still preliminary. He doesn't foresee ratification until "later this year."

Cisco wasn't in attendance when six members of the POE Consortium performed interoperability tests last month. Cullin says interoperability is "not really that complicated." But Doug Hyde, product marketing manager at 3Com Corp., expects problems right out of the gate. "Many vendors will read the specification differently; they always do. And you'll get incompatibilities along the way," he says.

An industry group formed to perform interoperability testing on early POE devices, the POE Consortium has no plans for independent certification testing along the lines of what the Wi-Fi Alliance is doing for wireless Ethernet. And the Wi-Fi Alliance doesn't plan to add POE testing to its certification for WLAN access points, says spokesman Brian Grimm. Nonetheless, Passmore says it's probably OK to buy early products, as long as vendors guarantee that their products will be upgradable to the final standard.

Gartner Inc. analyst Rachna Ahlawat says the stakes are too high for vendors not to address interoperability issues. Within a year of ratification, she says, POE will "just become another standard feature." ●

THINKING BACKWARD

For some POE products, backward compatibility comes at a price:
QuickLink 36377

Resources: To find more information about 802.3af technology and products, go to:
QuickLink 36378
www.computerworld.com

■ INNOVATIONS

You're Plugging in What?

WHILE WLAN access points and IP phones will be the biggest beneficiaries of POE initially, in time a wide variety of powered devices are likely to be attached to corporate LANs as the LAN becomes a universal data and power distribution architecture, says Steven Carlson, chairman of the IEEE 802.3af task force.

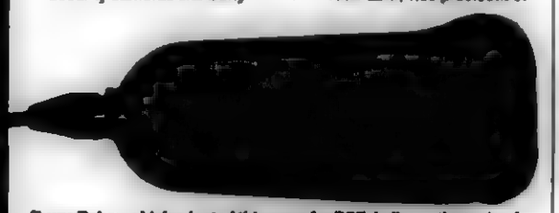
Perhaps the most offbeat powered device in circulation today is PowerDsine's novelty adaptation of a Norelco shaver. But users are also likely to see the emergence of more practical powered devices, from IP security cameras like Sony Corp.'s SNC-VL10N to building automation and control systems.

"You have a vast number of proprietary systems in a building – lighting control, security, heating, keypads, security cameras – and all that has its own cabling structure," Carlson says. He expects all of them to be powered through Ethernet in the future because material costs are lower, cable installation costs are lower because a licensed electrician isn't needed, and TCP and Ethernet establish a common network architecture for these systems.

Amir Lehr, vice president of business development at PowerDsine, says PSEs could be used to trickle-charge handheld and notebook computers if manufacturers design them to accept in-line power. Ethernet may eventually provide operating power for such devices as well, he says, although most notebooks today consume more than the 12.95 watts POE can deliver.

"Certainly there is a case to be made to eliminate a power connection for a desktop or LAN-connected notebook," says Brian Zucker, technology evangelist at Dell Computer Corp. But Zucker adds that he's not aware of anyone pursuing that yet.

Sony's SNC-VL10N IP security camera receives power from and feeds video stream back over a single Ethernet connection.



PowerDsine, which adapted this razor for POE, believes the technology will open the network to a wide range of powered devices.

Avoiding Data Center Blowups

The CTO of American Power Conversion discusses power problems in the data center. By Robert L. Mitchell

NEIL RASMUSSEN *has worked for more than 20 years at American Power Conversion Corp. developing power protection and management systems. But despite technology advances, data centers still suffer from some basic vulnerabilities. He spoke with Computerworld's Robert L. Mitchell about common weaknesses and how to protect against them.*

How is power management changing in the data center? In the way data centers and network rooms are built, there's more change now than there's been in the last 20 years. It involves developing systems that are much more modular and prefabricated.

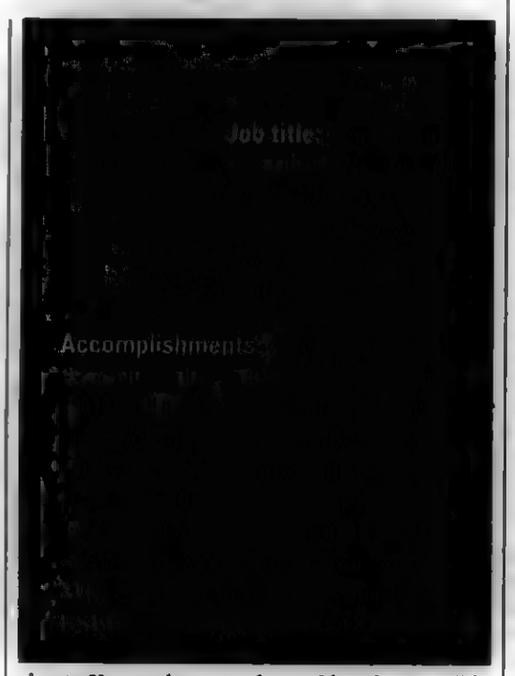
There are massive shifts in the whole way these systems are approached. And they will look a whole lot different. Raised floors are going to go away in the data center. And it's going to be a lot easier for people on the IT side to design and maintain data center and network room facilities.

What impact are emerging technologies having on data center power requirements? Blade servers are changing all the rules about how power and cooling have to be done, because the power density is so huge. The average power in a rack in a data center is about 900 watts. IBM already has a blade server [the BladeCenter HS20] that you can stack and get 17 kilowatts. No data center on earth can cool that.

You'll see it advertised with five units in a rack. But nobody can install it that way. They have to put them each in individual racks. If you put a bunch of these in one rack, they'll melt. The idea that you're going to pick up this big floor space is misleading, because nobody can cool the things.

How will the emerging 802.3af Power Over Ethernet standard change power management needs? There's a big benefit, which is with distributed devices like phones or access points, you don't need a UPS [uninterruptible power supply] on every one anymore. I can just put one UPS in the closet.

The downside is it creates a new problem in these



closets. You need to not only provide uninterruptible power, you have to make sure the place is cool and you have to monitor it.

Are there other issues in managing switches that provide in-line power? The 802.3af specification addresses power allocation. For example, you can put out 13 watts per port, but a lot of the switches are not designed to power every connection to 13 watts. They're going to take advantage of the fact that some are unused or will have a low-power device on them. It's first come, first served.

From a UPS perspective, the risk is that someone could accidentally underpower the system and eventually put more access points on and overload the system. You might start losing runtime [on your UPS] if the power fails. If it's got twice the load, the UPS is only going to run for half the time. That's a good reason for monitoring the system.

What's most likely to kill equipment in closets: heat, power surges or some other environmental variable? If you put a piece of equipment like a router in a closet today, power failures will cause it to have downtime, but overheating can break it. I'd say heat's a big problem in the closets.

How do you solve the problem? All I need to do is get fresh air in there. So it's going to be an issue involving air circulation, fans and vents and things that have to be put into the closet in some organized and predictable way that's easy for people to buy and install.

Some closets are in tough environments where you can't guarantee that anywhere nearby there is reasonable air. In those cases, there's a need for very compact air-conditioning systems. We need a way to cool without requiring that anything be put outside the building. We have units that take heat and provide cooling locally to an area like a closet and have a dryer-vent-like exhaust hose that sucks hot air out. It provides clean, local cold air, and all you have to do is get that hot air somewhere outside the room.

What is the most common mistake people make in designing data centers? They massively oversize the power and cooling systems. A lot of times people think, I'll oversize it. It can't hurt, right? But when you oversize these systems, the efficiency goes down, and a lot of bad side effects occur. Besides the operating and capital costs, it also impacts the availability of the system.

Suppose you put five UPSs in and you only need one. If you have less stuff, it can't break as often. Another example is you oversize your air-conditioning system, and there's excessive airflow going underneath the raised floor. The airflow is moving horizontally faster than it should [and] actually causes a Venturi effect that sucks air down into the floor instead of pushing it up into the equipment. So the equipment is starved for cold air because the air conditioner was oversized. These kinds of things happen all the time, and it's a big problem.

What other issues do you see come up? The second biggest problem is comprehending and understanding human error and the fact that data centers, network rooms and networks are constantly subject to change. Classic case: You go into a rack and rip out an old switch and you put in a new switch. The new switch runs on 208 volts, the old one ran on 120. So you call the electrician. He pulls the service panel off, [and he] can't turn that off because its running the rest of the data center. So he goes in there and installs wires while the panel is live. This is standard operating procedure in data centers today, rewiring of live panel boards. And people have gotten hurt. But the most common thing is someone bumps a wire, knocks a wire off, trips a breaker or disconnects the wrong wire; they drop loads all the time that way.

People have made huge investments oversizing gigantic UPS installations and cooling systems, and they haven't thought through the issues of how are people going to maintain change control and not destroy this thing while they're changing stuff.

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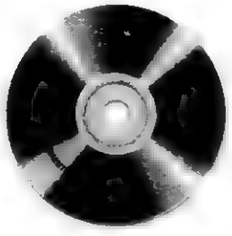

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E-Commerce On the Fly

Mobile commerce is coming your way. By Linda Rosencrance

IMAGINE THIS: You're walking by a pizza shop, and your cell phone rings. No, it's not your mom calling to tell you to remember to wear a sweater — it's the pizza shop calling to offer you a coupon for $2 off a large pepperoni pizza.

Or what about this: Your pharmacy sends you a text message telling you that you're about to run out of the medication you usually take and asks you if you want a refill. If you click "yes," the pharmacist will get your prescription ready and you can pick it up later or have the pharmacy deliver it to you.

Or this: You're having lunch with a good friend, and you mention to her that you desperately need to see a dentist. She tells you that her dentist, Dr. Goodteeth, is the greatest. Trusting her advice, you whip out your handheld device and make an appointment on the spot.

All of those scenarios, which involve mobile commerce, or m-commerce, will be possible in the next several years, according to Jaclyn Easton, the Van Nuys, Calif.-based author of *Going Wireless: Transform Your Business With Mobile Technology* (HarperBusiness, 2002).

"Mobile commerce is the use of wireless [devices] to facilitate the sale of goods or services, anytime, anywhere," she says. Although m-commerce has been touted as the best thing since, well, e-commerce, it just hasn't taken off the way experts thought it would in the U.S.

FUTURE WATCH

The reason: weaknesses in interoperability, usability, security and privacy, according to Norman Sadeh, a professor and director of the Mobile Commerce Lab at Carnegie Mellon University's School of Computer Science in Pittsburgh.

Sadeh says these issues must be resolved by standards bodies before wireless devices replace our wallets and credit cards and give us access to intelligent assistants capable of anticipating many of our needs and desires and taking care of routine tasks to help fulfill them, such as automatically arranging for taxis to pick us up after business meetings.

One such organization is the cross-industry Mobile Payment Forum in Wakefield, Mass. Billing itself as the bridge between the mobile and financial industries, the forum is working to create a foundation for secure, standardized and authenticated mobile payments that encompasses all types of transactions.

The Mobile Payment Forum is focusing on payment card transactions but is also addressing key issues such as interoperability passwords, cardholder authentication and encryption methods.

Beyond 'Infotainment'

The Mobile Commerce Lab at Carnegie Mellon is developing a prototype Semantic Web environment, called MyCampus, for context-aware mobile services for enhancing everyday campus life. The Semantic Web would enable machines to make more sense of the Web so the Web in turn would be more useful for humans. (To learn more about the Semantic Web, see "The Web's Next Leap," QuickLink 37596.) The service can be accessed via handheld over the university's wireless LAN.

The MyCampus environment revolves around a growing collection of customizable agents capable of semiautomatically discovering and accessing intranet and Internet services as they help users carry out tasks like planning an evening out, organizing a study group or looking for a place to eat, Sadeh says.

The lab is moving beyond the relatively simple "infotainment" services now offered by the mobile Internet to a variety of mobile applications and services that will assist users in time-critical, goal-driven tasks, like allowing a professor's assistant to schedule activities in the professor's calendar for a Monday using his own handheld device, Sadeh says.

But, he notes, that will require overcoming the inherent I/O limitations of mobile devices through higher degrees of automation and the development of services that understand the context within which their users operate — for example, their locations, the activities they are engaged in, who their friends and colleagues are, and a number of other contextual attributes and preferences.

Sadeh says the Mobile Commerce Lab has already developed a "restaurant concierge," an assistant that can give a user suggestions on where to eat based on information such as his food preferences, the amount of time he has before his next meeting or class, his location on campus and the weather.

Adam Zawel, an analyst at The Yankee Group in Boston, says m-commerce purchases haven't yet taken off because wireless is an inferior medium over which to make these types of purchases.

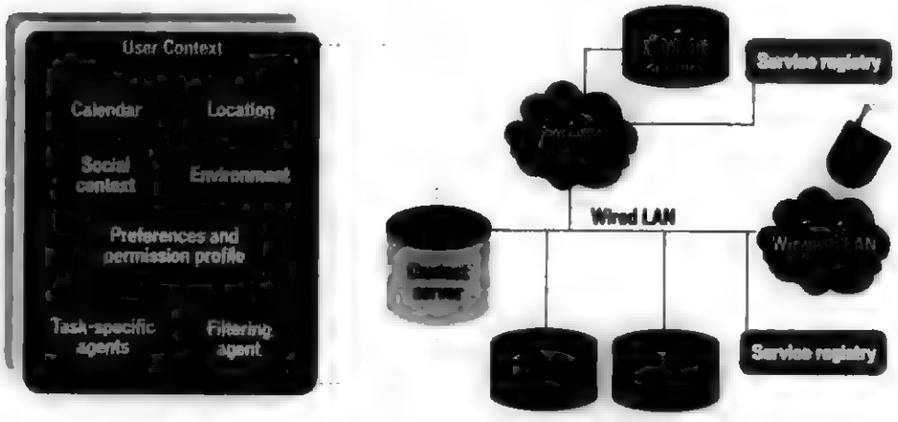
However, Zawel says that if the interface improves so that it's almost as easy to click through on a wireless phone as it is to make the purchase over a PC, people will be more willing to do so. He says improvements in network speed and latency will help bring about this change, but the main improvement will come from application design.

Zawel explains that when phones have better display capabilities and content providers spend more time developing the necessary applications, use of wireless devices for m-commerce will take off, with remote wireless purchases reaching $4.5 billion annually by 2006.

Once the concerns surrounding m-commerce are worked out, it may just become, in the words of Amazon.com CEO Jeff Bezos, "the most fantastic thing that a time-starved world has ever seen."

In Context

MyCampus users access personalized software agents using handheld devices over a wireless LAN. The agents are "context-aware," taking into account the user's calendar, location, lifestyle preferences and other factors. In one application, a "restaurant concierge" agent recommends a place to eat, selected from a service registry, based on the user's food preferences, schedule, location and the weather.



E-Commerce On the Fly

Mobile commerce is coming your way. By Linda Rosencrance

IMAGINE THIS: You're walking by a pizza shop, and your cell phone rings. No, it's not your mom calling to tell you to remember to wear a sweater — it's the pizza shop calling to offer you a coupon for $2 off a large pepperoni pizza.

Or what about this: Your pharmacy sends you a text message telling you that you're about to run out of the medication you usually take and asks you if you want a refill. If you click "yes," the pharmacist will get your prescription ready and you can pick it up later or have the pharmacy deliver it to you.

Or this: You're having lunch with a good friend, and you mention to her that you desperately need to see a dentist. She tells you that her dentist, Dr. Goodteeth, is the greatest. Trusting her advice, you whip out your handheld device and make an appointment on the spot.

All of those scenarios, which involve mobile commerce, or m-commerce, will be possible in the next several years, according to Jaclyn Easton, the Van Nuys, Calif.-based author of *Going Wireless: Transform Your Business With Mobile Technology* (HarperBusiness, 2002).

FUTURE WATCH

"Mobile commerce is the use of wireless [devices] to facilitate the sale of goods or services, anytime, anywhere," she says. Although m-commerce has been touted as the best thing since, well, e-commerce, it just hasn't taken off the way experts thought it would in the U.S.

The reason: weaknesses in interoperability, usability, security and privacy, according to Norman Sadeh, a professor and director of the Mobile Commerce Lab at Carnegie Mellon University's School of Computer Science in Pittsburgh.

Sadeh says these issues must be resolved by standards bodies before wireless devices replace our wallets and credit cards and give us access to intelligent assistants capable of anticipating many of our needs and desires and taking care of routine tasks to help fulfill them, such as automatically arranging for taxis to pick us up after business meetings.

One such organization is the cross-industry Mobile Payment Forum in Wakefield, Mass. Billing itself as the bridge between the mobile and financial industries, the forum is working to create a foundation for secure, standardized and authenticated mobile payments that encompasses all types of transactions.

The Mobile Payment Forum is focusing on payment card transactions but is also addressing key issues such as interoperability passwords, cardholder authentication and encryption methods.

Beyond 'Infotainment'

The Mobile Commerce Lab at Carnegie Mellon is developing a prototype Semantic Web environment, called MyCampus, for context-aware mobile services for enhancing everyday campus life. The Semantic Web would enable machines to make more sense of the Web so the Web in turn would be more useful for humans. (To learn more about the Semantic Web, see "The Web's Next Leap," QuickLink 37596.) The service can be accessed via handheld over the university's wireless LAN.

The MyCampus environment revolves around a growing collection of customizable agents capable of semiautomatically discovering and accessing intranet and Internet services as they help users carry out tasks like planning an evening out, organizing a study group or looking for a place to eat, Sadeh says.

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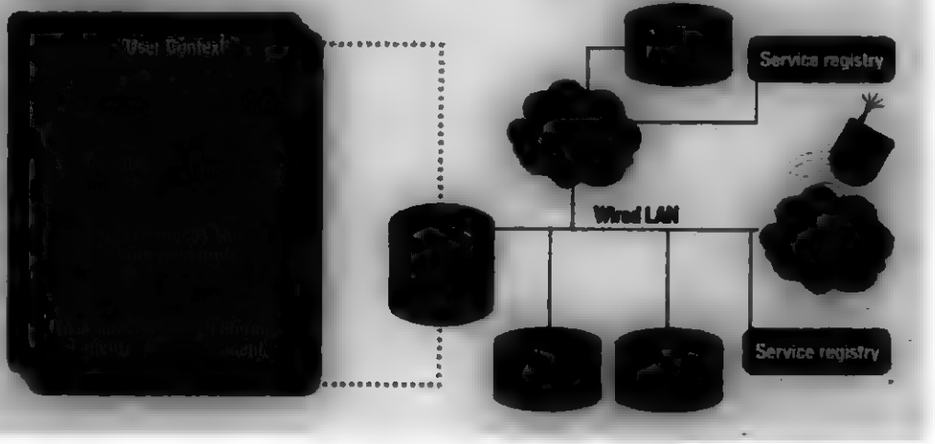

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Office Politics Plays Role In Postmerger Security

A committee meeting falls flat as management withdraws support and the vendor rep in attendance takes a snooze. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

My boss loves to tell of his presentation at a Cisco sales conference that ended with audience members standing on their chairs, clapping and hollering with glee. I have to admit I got a different reaction to a recent presentation of mine.

My company has become part of a larger group that is trying to merge cultures. A range of companies makes up the new company, and a headquarters team was formed to bring everything together.

Other companies in the group have outsourced their IT services to a third party (I'll call them "Acme Corp."), but we haven't. Those business units aren't so sure of the details of their security positions. They haven't explicitly listed IT security services in their outsourcing contracts, so there's a gray area. By the letter of their contracts, they don't receive any security services, but they've always managed to get some in the past either by inheriting what Acme does as the standard or by bullying or shaming the vendor into doing the right thing.

The other business units are under pressure from regulators and auditors who want to see compelling evidence that IT security is built in throughout the organization. They are looking for coherent policies, a management structure for security, and clear roles and responsibilities.

I was asked to represent my company at the first group security committee meeting. This team was set up by managers at headquarters who have "security" in their job titles. They invited representatives from each business unit, as well as a one from Acme, whom I will call John.

The aim was to help kick-start the process of sharing information and provide input into policy, roles and responsibility documentation. I'd been invited to talk about the areas of IT security that my unit covers in-house.

From the moment I arrived, it was clear that the senior staff hadn't reached a consensus regarding the best way to approach this topic. I met a chief security officer who explained that IT security and business continuity were both subsets of what he covered. Then I met the global head of business continuity, who explained that he covered physical security and IT security was a subset of that.

Shortly thereafter, the senior staff's new boss called us all in and told us that headquarters shouldn't be doing things for group companies such as holding committee meetings like the one we'd all just arrived to attend. Instead, he said, it should carry out a more remote role, checking to make sure we were doing a good job on our own.

> **From the moment I arrived, it was clear that senior staff hadn't reached a consensus as to the best way to approach [security].**

This put everything on a difficult political footing, a development that wasn't lost on the global head of business continuity. Just as we finished introducing ourselves, he took a call on his mobile phone, looked surprised and then stood up and announced that he'd been called away to something urgent. I wondered if that well-timed call wasn't from his assistant saying, "Hi, it's me with the fake call you asked for to get you out of that tricky meeting."

A Lost Cause

We began the meeting anyway, with each representative explaining how his unit was approaching IT security. John, the Acme representative, began to slump as each person spoke.

Then I gave my presentation, explaining the areas we cover, what we were hoping other group companies could help us with and what we might be able to offer them.

As I continued my fairly short talk, John's chin kept drifting to his chest and his eyelids lowered. Then, with a snuffle, he'd jerk upright and stare right at me. This was a little unnerving, but I kept talking. I exchanged glances with others around the table. Their knowing smiles and winks reassured me that John wasn't having some kind of seizure.

As I continued, John went totally under, and his body slumped forward. I staggered to the end of my presentation, unsure about what to do.

I quickly sat down and let the chairman of the meeting take over. He did nothing until about 10 minutes later, when we came to the place in the agenda where John was to report on Acme's approach.

The chair quietly asked John a question and then repeated it again and again at increasing volume until John snapped awake. It was a sight to see as John's head lifted and he began, midsentence, to explain how the business units were getting all they could out of their contracts with Acme.

I later found out that this wasn't the first time this had happened but that John is the brother of the man who runs Acme, so nobody wants to make a fuss.

The meeting ran to its natural close, and I fled back home. As I returned from the strange world of headquarters, I pondered the situation. There's no way you could get away with a performance like John's in our company as a staff member, let alone as a supplier. Perhaps at the next meeting I should make sure we have a lighter lunch or a cooler room. Or maybe I just need to be a more interesting presenter.

Whatever I change, I'm certainly going to be hesitant about getting too close to HQ without a lot of political preparation. Hopefully I can stay away from all that and get on with a refresh of the security basics. I'll be checking password strength, testing for unauthorized modems and providing security awareness training.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1500**

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SECURITY LOG

Security Bookshelf

Netegrity Updates IdentityMinder

Symantec Offers Gartex Firewall

BRIEFS

CacheLogic Offers Appliance for ISPs

Start-up CacheLogic Ltd. in Cambridge, England, this week will release two high-performance RAID storage network appliances to facilitate routing and caching for large Internet service providers (ISP). Aimed at mitigating network congestion caused by peer-to-peer traffic, the Cacheplance 4000 (CP4000) incorporates 1.4TB of RAID storage and supports the Gnutella and FastTrack network protocols. The CP2000 incorporates 700GB of RAID.

A single CP4000 is designed to serve 50,000 Internet service subscribers; one CP2000 will support 30,000 subscribers. The price is about $82,000 for 50,000 subscribers, with an additional $16,500 service fee.

Vendors Offer IM Archiving Service

Iron Mountain Inc. last week announced that it has partnered with four instant messaging (IM) vendors to provide a storage and retrieval service to help financial services firms comply with new regulations affecting archiving of electronic communications. Boston-based Iron Mountain's partners are Akonix Systems Inc., Communicator Inc., FaceTime Communications and IMlogic Inc. The service uses the Simple Mail Transfer Protocol to format messages to make them easy to search by subject or date. The service is included with Iron Mountain's standard e-mail archival package.

Fujitsu Touts 'Ultraportable' PC

Fujitsu PC Corp. announced the LifeBook P5000, a 3.4-lb., full-feature laptop PC that the Santa Clara, Calif.-based vendor calls "ultraportable." It has a 900-MHz Intel Pentium M processor, a wireless LAN connection and a choice of a 40GB or 60GB hard drive. Pricing starts at $1,549. The laptop will ship this summer.

NICHOLAS PETRELEY

What Microsoft Customers Want

NOW THAT the Microsoft antitrust trial is over and Microsoft is no longer distracted from its full-time effort to eliminate the word *competition* from the English language, I notice that the company's spokesmen have retreated from their daily usage of the word *innovation* and have returned to justifying every product, policy and technology by saying, "This is what customers are asking for." I've often wondered what customers would say if they wrote letters to Microsoft requesting the kinds of things the vendor delivers, so I decided to try my hand at drafting one.

Dear Microsoft:

Thank you for allowing customers like me to define your products and strategies. I'd like to offer some more suggestions, but first I want to comment on your progress.

The omnipresent talking paper clip was exactly as I had described the idea in my previous letter. The shared-source program was also precisely what I had in mind. I want a brief glimpse to make sure the source code exists; I trust you with the actual details. Thanks also for the SQL Server Slammer worm. The Internet has been way too fast lately, so the worm provided a nice temporary respite from all that speed.

Most of all, I want to thank you for solving the problem we had with the decision-makers in our company who don't see the value of constantly upgrading our hardware and software. I was pleased to see that you used my idea of threatening a software audit, since I know for a fact that we misplaced most of our licenses. Issuing the threat during tax season was a brilliant addition on your part, since it forced a quick decision without time to think it through.

On the other hand, I have to admit that I was a bit disappointed that you didn't take my advice about increasing the frequency of reboots. I noticed I was able to move the mouse pointer in the latest version of Windows without the system informing me that I would need to reboot for the change in pointer position to take effect. I still think customers would love this feature, so please consider it for the next version.

As for my latest ideas, let me begin by saying that I strongly suggest that you craft Windows Server 2003 so that it refuses to run existing server applications like SQL Server 2000 and Exchange 2000. I don't want the option of running any 2000 software on my 2003 operating system because I find it aesthetically unpleasant when the years don't match up.

I really like the idea of the single sign-on feature in Passport, but I often forget my password, and I don't always have access to a computer.

Passport would be much more convenient if you could make it easy for a friend to enter a simple URL that instructs your servers to send my Passport information to his e-mail address.

I appreciate all you've done to limit the abilities of others to view or share my Microsoft Word files. I admit I was a bit worried that your commitment to XML would undo all those years of increasing incompatibilities between file formats, but I was pleased to find out that your XML files simply point to inscrutable Microsoft objects.

Nevertheless, it's time to take this exclusivity to the next logical step. You need to design a hardware standard that encrypts documents, e-mail and even Web content to put this information out of the reach of everyone except people who are using the most recent versions of Microsoft software.

Finally, since you're always asking, "Where do you want to go today?" I was pondering that question and I came up with the brilliant idea: an Internet-enabled portable potty! Surely the whiz kids in Redmond could design something like that.

Anyway, thanks again for consistently delivering precisely what we customers want.

Sincerely,

A Satisfied User of Microsoft Software

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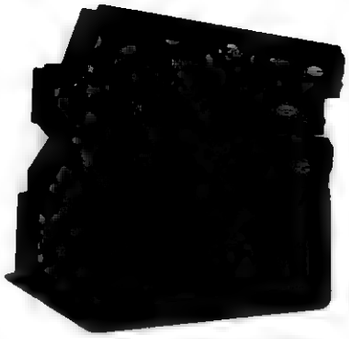

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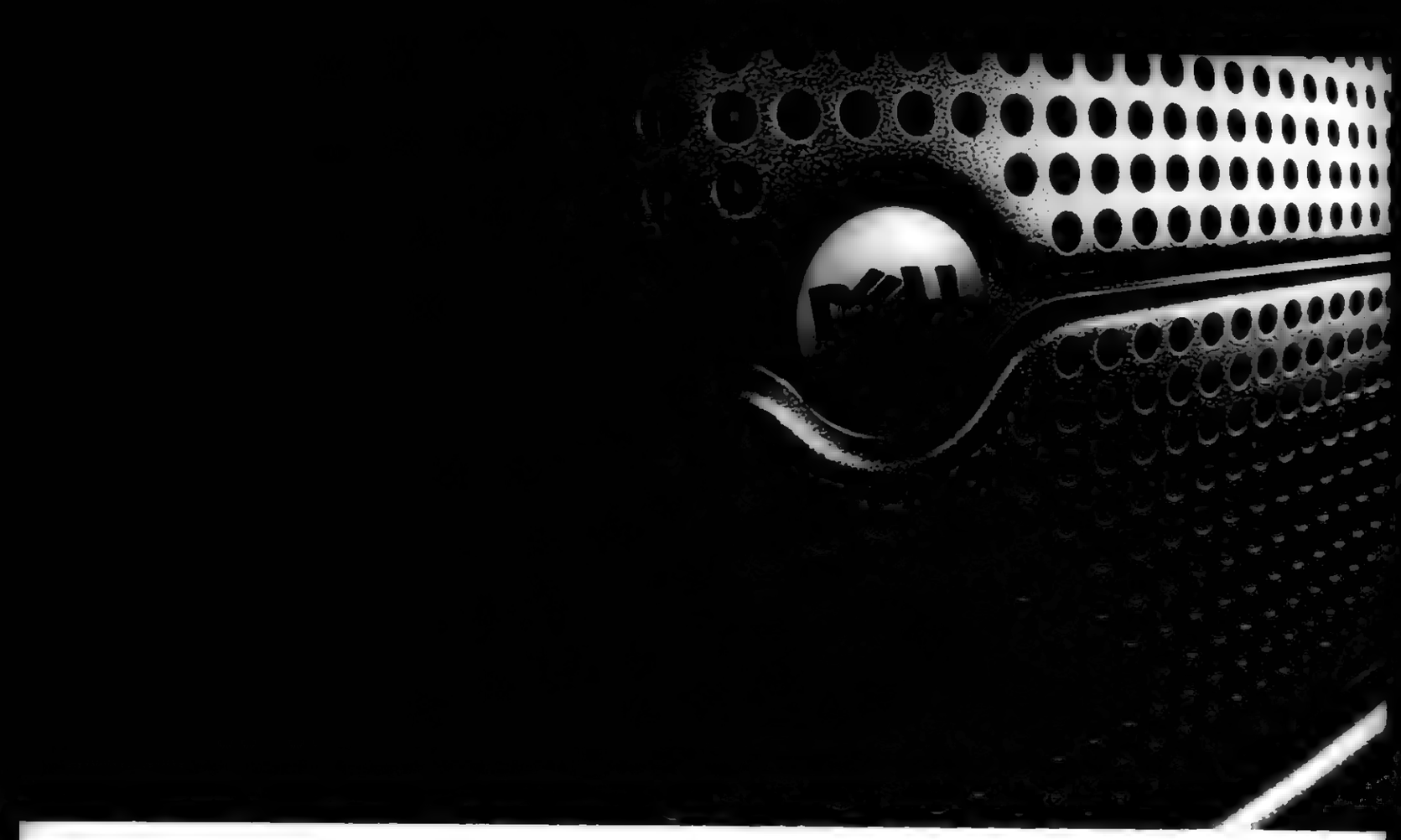

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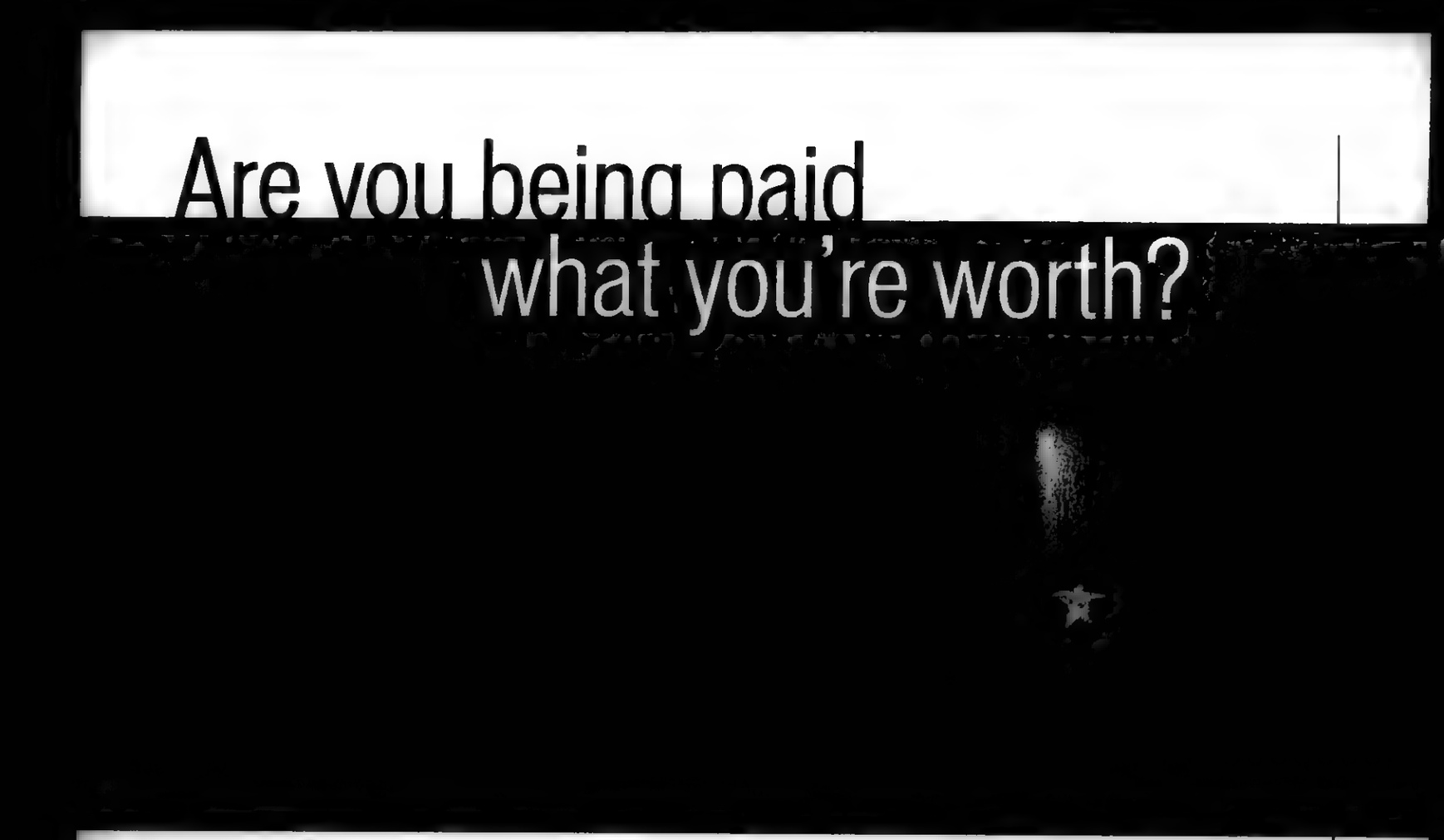

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OPINION

Getting Your Project Priorities Right
Find a way to prioritize your IT investments that will still let you support the business need — then stick to it, says columnist John Berry. **Page 48**

Speedy Recoveries
Baptist Health Care greatly improved its employee satisfaction and service quality by using metrics developed and supported by its IT department. **Page 46**

Surviving Software Upgrades
Implementing upgrades quickly and accurately can earn you points with your boss, improve your marketable skills and make life easier for you and software users. **Page 44**

Going for Broke

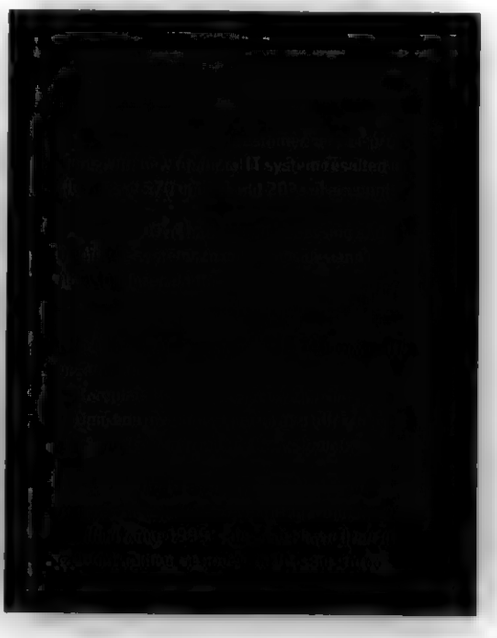
When the chips were down, Aviall invested $40 million in IT. The payoff is a $431 million boost in sales. By Kathleen Melymuka

WHEN TIMES ARE TOUGH, the tendency is to hunker down, cut back on spending and wait it out. Aviall Inc. did just the opposite. Faced with a string of financial setbacks that rocked its business, the Dallas-based aviation aftermarket parts distributor decided in 2000 to invest big in IT. Since then, its revenue has more than doubled in an industry where many players are fighting for survival.

"1999 was a challenging year for the corporation," says Paul Fulchino, who came to Aviall in January 2000 as a turnaround CEO. Problems with a new ERP financial system had caused such havoc with orders that nearly 20% of accounts had bailed out. "We lost $70 million-plus of business," Fulchino says, and the company was hemorrhaging funds in an attempt to recover from the customer service problems.

Fulchino planned to fix the system and give customers and suppliers easy access to information, efficient order processing and updates on order status. But he also wanted to transcend traditional distribution services by providing market intelligence, just-in-time inventory, superior delivery performance and one-stop shopping for customers.

For suppliers, the plan was to increase sales by linking their related products online so customers could find them more easily. Overall, the goal was to



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Aviall CIO developed relationships with business managers to ensure that IT projects succeeded.

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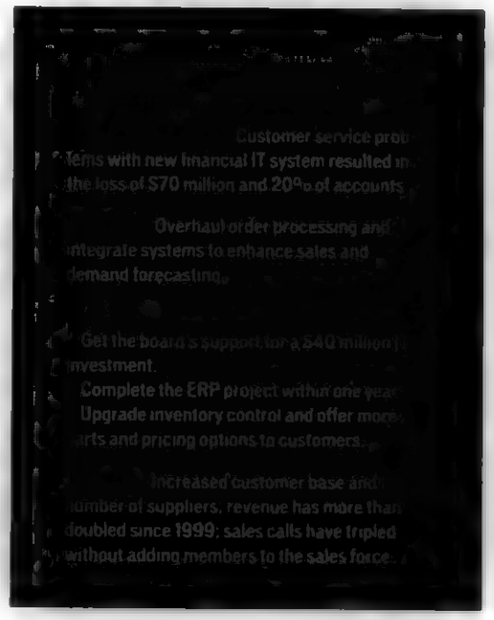

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That's where CIO Joe Lacik comes in. Lacik had been hired in late 1999 by the previous management team, and he and Fulchino started together on the first workday of 2000. "I told my wife, 'Honey, this could be my shortest job ever,' " Lacik recalls. But Fulchino was willing to stick with the team he inherited. "My message was the same to everyone: 'You've got six months to show me what you can do,' " he says.

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Fulchino's first challenge was securing financing for a multimillion-dollar IT investment. "You have to spend a buck to make two," Fulchino says, "but bankers would rather spend 10 cents and lose 20." He had to work hard with lenders to get initial funding, then show quick-hit successes for continued financing. As the plan evolved, Fulchino decided to make it all a quick hit. Initially, the turnaround plan was to play out over several years, but he compressed it to a year.

"That took a Herculean effort and a significant dollar spend as well as getting the board to go along, given that we had just come off a difficult year," says Jim Quinn, vice president of sales and marketing. "It took extraordinary vision, tenacity and guts."

But for Fulchino, it was a no-brainer. "I said, 'Guys, we can be conservative, but you didn't bring me in to chip away. You want a great company? I can return it. We'll go for the gold.' "

Process Problems

That decision to go for the gold brought political challenges for Lacik. "It was very tough," he says. "The business [people] said, 'The last thing we need is [to be] investing in technology, especially when some of our processes are broken. This is too much, too fast. Back off!' " But as Lacik developed closer relationships with key business managers, a blend of process improvements and technology support began to work. "If you're just pushing buttons and pulling levers, it can be a disaster," he says. "But they really knew their business and were able to guide me."

For example, a sales force automation and order entry system from Siebel Systems Inc. was the primary turnaround tool in sales, but Quinn knew technology alone wasn't enough.

"Plenty of people put in Siebel and still fail," he says. He needed to make his sales force accountable. That required training and discipline in time and territory management as well as use of the new system — a strategy not all salespeople were eager to embrace. "A number of salespeople opted out," Quinn recalls.

Enforcing the new processes, which were unpopular with a lot of salespeople, was "a pretty gutsy call to make with the company going the wrong way on revenue," Lacik says. But Quinn wouldn't take no for an answer, and the processes changed. "It was a difficult year," Quinn says, "but they started to make commission checks again, and that made them believers."

Business Transformation

Meanwhile, an online purchasing system from BroadVision Inc. enabled the new Aviall.com site to offer 380,000 parts to the company's 17,000 customers, using 20,000 pricing matrices. Web sales as a percentage of total revenue have grown by about 60%, while costs per order have been cut from $7 by phone to 39 cents via the Web.

In operations, upgrades to an inventory control and warehouse management system from Catalyst Manufacturing Services let Senior Vice President Charley Kienzle move $200 million in inventory to a new warehouse over one weekend without missing a beat. Upgrades to the product allocation, inventory management and forecasting software from Xelus Inc. provided more collaborative forecasting.

For example, sales leaders can make educated guesses about inventory needs based on market conditions. Soon, major customers may have a view into the Aviall pipeline to help better manage their own inventories and improve Aviall's forecasting.

Integration of the various systems with CRM data brings it all together. For instance, information about the number of different aircraft a customer services helps salespeople target their pitches and suppliers forecast demand.

Customer Value

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Another benefit is the "instant availability of information," Strickland says. "We know when things shipped. We can double-check orders and see what's outstanding, go back and look at shipment dates, check current orders to see if we've got enough and when it's coming. We can even download invoices and see them ahead of time before the shipments arrive."

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But many customers aren't that tied in yet, says Peter Arment, a principal at JSA Research Inc., an independent aerospace equity research company in Newport, R.I. "Currently the airline industry is in a large restructuring, so adoption rates are slow initially," he says. "But Aviall is building for the long term, and they have a large customer base, so the return will come as these services are adopted by the customer base."

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Aviall has already seen lots of benefits. Since 2000, it has invested $30 million to $40 million in IT, and revenue has grown $431 million, from $372 million in 1999 to $803 million in 2002, while net after-tax profit has risen from $5 million in 1999 to $27 million in 2002. Moreover, says Fulchino, Aviall's value-added service has attracted larger suppliers who used to handle their own distribution.

The number of monthly North American sales calls has tripled with no increase in the sales force, and even though the aviation market is down, general aviation parts sales have grown by double digits, Kienzle says.

In the process, Aviall has become a much more integrated business. "I'm a marketing guy leading an IT project [Aviall.com] working with IT, ops, sales, and you often can't tell where one begins and the other ends," says Dar Hackbarth, manager of e-business and marketing.

And the story continues. Fulchino plans to continue to invest $6 million to $7 million in technology yearly to make Aviall indispensible to its customers and suppliers. "We hoped to double our size in five years, and we did it in two and a half," he says. "Now we hope to double again in another five years. We'll see."

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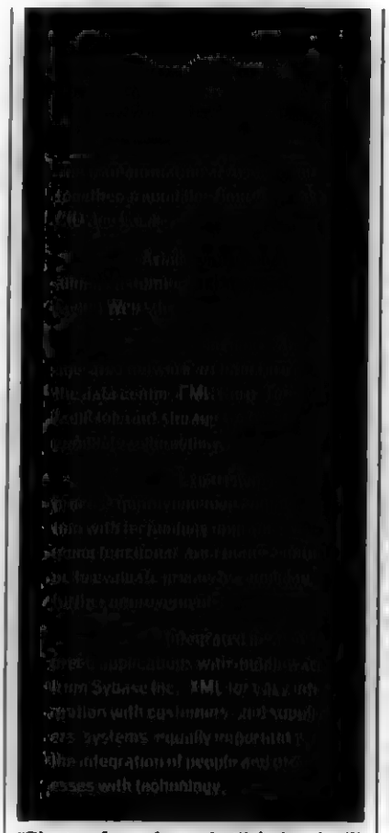

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IT without borders:

Are you contemplating or have you outsourced part or all of your IT operations? Are you taking the on-shore or off-shore route? What, if any, obstacles do you see to offshore outsourcing. What benefits do you hope to reap?

We want to hear about your experiences so we and your peers can get a clear picture of where outsourcing stands in today's IT strategies.

We invite you to participate in the Computerworld and InterUnity Group survey on the Best Practices and Emerging trends in On-Shore and Off-Shore Outsourcing.

If you complete the entire survey, you will receive a complimentary report of the findings.
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To participate in the survey, please visit:
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COMPUTERWORLD

JOSEF BASL

SURVIVING SOFTWARE UPGRADES

Divide the changes into manageable chunks, enlist users as allies, and deliver more than you promised. By Robert L. Scheier

TODAY'S weak economy makes upgrading major business systems harder than ever. Management has little patience for IT projects that go over budget or don't deliver the promised savings. Users doing their own jobs plus the work of two or three laid-off colleagues have little interest in cooperating with an upgrade effort, especially if the new system might eliminate their jobs next.

But the economic crunch that is making software upgrades so painful right now is also increasing the pressure to do those upgrades quickly and well. Companies desperate to squeeze out costs and improve profits are upgrading to newer, Web-based versions of ERP systems that allow them to fine-tune pricing and reduce costly inventory [QuickLink 34987]. Other companies are looking to migrate from proprietary systems to less-expensive, open-source software such as Linux.

UPGRADE MANAGEMENT

If you manage an upgrade well in these trying times, you can earn points with your employer, improve your marketable skills and at least make life easier for yourself and those around you. The keys, say veterans of the process, are to dump the arrogance regarding users, divide the painful changes into manageable chunks, and underpromise and overdeliver.

"I promise absolutely as little as I can get away with," says Damien Bean, vice president of corporate systems at Hilton Hotels Corp. in Beverly Hills, Calif., and one of *Computerworld*'s Premier 100 IT Leaders for 2003. "Don't overpromise — that's the death of every big upgrade."

Smaller, incremental upgrades are more likely to meet everyone's expectations than "big-bang projects," says Bean. And because they involve less change at any given time, incremental upgrades generate less resistance from skeptical users or managers.

No More Arrogance

One of the biggest obstacles to successful upgrades is users' negative experiences with previous upgrades, says Catherine Walters, an independent project management consultant in Worcester, Mass., who has managed many upgrades for an East Coast financial services firm. She says users remember upgrades when key systems were unavailable for days, causing them extra work. When they hear of a new upgrade, she says, their response is, "[IT is] going to do it to us again."

Walters advises that you acknowledge past failures but stress how much the upgrade team has learned since then and point out that users can play a positive role in creating a successful outcome this time.

"They have a contribution to make if they can get their hands dirty and be involved in testing and helping to write the user manuals," she says. Talking down to users or keeping technical details from them is counterproductive, she adds, because many users are far more technologically savvy than they used to be. If some users need handholding, give it to them, if you can afford it.

"Just sitting and talking with somebody and helping them" with common chores, such as setting up a new application so it's linked to a familiar printer, is all that some users need to feel more comfortable, says Connie Eaton, a senior business analyst at GM Nameplate, a 1,000-person manufacturing firm in Seattle.

It's vital to have users who know the business on the upgrade team, says David Richards, CIO at Pacific Steel

and Recycling in Great Falls, Mont. "They're your most knowledgeable people. You need to get their knowledge and to get their buy-in" so they can generate support for the upgrade among other users, he says.

Rich Bursek, senior vice president of online strategy at VirtualBank Mortgage, a subsidiary of Lydian Trust Co. in Palm Beach Gardens, Fla., is finishing the installation of a new mortgage-processing system, perhaps the single most critical application for the online mortgage lender. Many of the business staffers who process mortgages were included in the selection process. "We really wanted to make it their choice ... instead of them thinking they were getting pressured by the IT department," Bursek explains.

Eaton says that when she asks a user to help evaluate potential software purchases, she typically goes with the user's choice unless there is a good reason not to do so.

Winning over users also requires scheduling the planning, development, rollout and training to avoid crunch work times for users and managers. Bursek scheduled any upgrade-related meetings, such as progress reports or appointments with vendors that might involve users, within the first two weeks of the month, avoiding the end-of-the-month period when most mortgages close. That's important, because the users don't earn their commissions until the mortgages close.

At Hilton, "we have to be cognizant of the fact that [users are] continuing to operate their business in a very, very tough time for the travel industry," says Bean. "They don't have a lot of extra hands available at the moment." Realizing that system training will always take a back seat to day-to-day operations, Richards advises budgeting for some after-hours and weekend training.

No Forced Marches

One major reason upgrades fail is that IT project managers try to change both software and business processes at the same time, says Bean. He reduces the risk of failure and culture shock by upgrading applications first and then phasing in new features that force changes in how users do their jobs.

At Lydian, Bursek has even customized some portions of the new processing application so it "mocks" some of the existing workflows to which users are accustomed, and he has delayed implementation of a feature that would suggest to mortgage processors which loan program is best for a customer. "If the system were to make a mistake, or we made a mistake in the setup, and it was noticed right away, it would have given bad marks to the rollout," he says.

One of Bursek's best moves in winning the hearts and minds of users, he says, was hiring a help desk specialist whose job it is to understand the new system "inside and out." When the application is rolled out, the entire eight-person upgrade team will stay with the mortgage processors for 30 days to answer any questions and prevent business interruptions. Bursek's goal: to avoid the perception "that the IT team walked away from the implementation."

After the 30 days, the team will focus on rolling out the application to another business unit. Although team members will still be available to make enhancements to the application, most of the day-to-day support will be handled by the dedicated help desk specialist.

For IT managers, losing the arrogant attitude doesn't mean you can't and shouldn't be forceful when needed. At Pacific Steel, Richards interrupted a training session to remind complaining users why the upgrade was vital. The new system, he told them, would speed the delivery of information such as the profitability of various products.

"In order to get that new information, sometimes you have to do things a little different," he told them. "After that," he says, "they seemed to accept it a little better." Walters recommends developing "advocates among senior management, hopefully ahead of time, who can run interference if necessary" and overcome users' resistance.

Even in tough times, teamwork and humility go a long way. "You always surround yourself with very smart people," says Bursek. "You never assume you've got the right answer, and you work off your worst-case scenario. Constantly ask yourself, 'Do I have it all covered? Do I have it all covered? Do I have it all covered?' "

And when talking to users or others whose cooperation is needed, "even when you're almost certain you know the answer, don't assume — just ask the question anyway," says Bean. "Just the sheer action of asking engenders cooperation."

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

Winning Over the Skeptics

In successfully persuading a skeptical user to help during a system upgrade several years ago, it wasn't "so much what we said as that we listened," says Catherine Walters, an independent project management consultant in Worcester, Mass.

The financial services company she worked for needed to make state-ordered changes to a system that rated the rates for various types of insurance. One manager in a branch office "was deeply concerned" about whether the changes would both comply with the new regulations and allow him to keep offering policies at a competitive rate. "If we didn't do this right, this could potentially cost him business," says Walters.

Rather than deny that risk, she says, "I picked that theme up, that we have this business that is very profitable and it's our job [in IT] to protect it." She made the branch office manager part of the project team, tapping his knowledge of insurance regulations and of how the legislature would structure the final rating requirements. "As soon as we started listening to him, he responded beautifully," she remembers, even sending staff from his office to help with the upgrade.

"I can't stress enough how important it is to listen, and to treat people with the kind of respect you would want," she says. "Giving them a T-shirt or a coffee mug doesn't do it. Give them a chance to roll up their sleeves and get their hands dirty."

– *Robert L. Scheier*

TIPS

Successful Upgrades

- **Draw pictures of workflows** to encourage users to share their knowledge of how new systems should work, and to show why their involvement in the upgrade is important.
- **Have users – not developers – schedule training times** to avoid peak work periods. Write training manuals that include the information they need.
- **Have a stick handy in the form of executive support** to press reluctant users to go along with the upgrade.
- **Have a carrot handy in the form of examples** of how the upgrade will eliminate drudgery or give users new skills.
- **Prove that the new system will deliver** the promised response and throughput by using automated testing tools.

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> **RICH BURSEK**, SENIOR VICE PRESIDENT OF ONLINE STRATEGY, VIRTUALBANK MORTGAGE

Speedy Recoveries

Quick turnaround on IT help desk calls boosts employee satisfaction at Baptist Health Care. By Jean Consilvio

BAPTIST HOSPITAL in Pensacola, Fla., used to be no different from a lot of other hospitals. Top executives didn't share information or include the staff in decision-making, and that fostered a perception of secrecy among workers. Employee turnover was high — 33% in 1996 alone — and there were no tools or processes to measure employee satisfaction.

That was seven years ago. Since then, parent company Baptist Health Care Corp. has done an about-face: Today, the employees make the decisions and fix the problems. The result is patient care that consistently earns top ratings, a nurse vacancy rate of 2% and the lowest annual employee turnover rate ever, at 11.4%.

Baptist executives say that every initiative to improve the work environment can be traced back to IT, whose mandate now is to measure everything and respond immediately to all service requests.

CIO Dave Garrett and 49 IT workers spread among four technical groups support about 3,000 PCs and 2,000 printers and other devices. These are scattered across Baptist Health Care's five acute care facilities in Florida and Alabama, a behavioral health system, two home health agencies, one long-term care facility and two ambulatory surgery centers.

The emphasis is on executing the basics with excellence. "There's nothing rocket science here," says Garrett. "We're consolidating services and our help desk, and we feel good about doing it while improving customer satisfaction."

IT gets 800 to 1,200 help desk calls per month. Any hardware- or software-related call is fair game. That includes everything from desktop software to payroll, laboratory, radiology and hospital information systems and networks, plus any of the 100 servers running more than 120 applications. The help desk is Level 2, which means that the majority of calls are escalated and assigned to someone who is paged and then must call the customer back. "We're not Level 3," which would mean the help desk could resolve problems immediately on the phone, Garrett says. "But I hope to get there someday. In our environment, we would need more people, and then more people with different skills."

In the meantime, he's finding ways to measure and improve customer satisfaction. For example, when the help desk closes a user's service request ticket, the user is notified via e-mail that the service call has been closed — but the call isn't officially closed for reporting statistics until the user says so. When the user says the call is finished, within a few minutes he's automatically sent an online survey with four questions. The answers are rated on a scale of 1 to 5.

Dave Garrett, CIO at Baptist Health Care Corp.

"It moves really fast," says Garrett. "If we get a 3 or less in any question, it automatically e-mails the leader or director of that area here in IS, and it's time for 'service recovery.' We call the customer and apologize for not meeting their expectations and ask what we can do better next time. We usually do get some good feedback."

Service recovery can mean more back-and-forth communication between IT and the user to determine what's causing a recurring problem. In other cases, IT has been known to send a user something from the gift shop — in addition to fixing a problem that may have taken a little extra time.

To keep people interested in completing the surveys, IT each month randomly draws a survey number and rewards the winner with a $25 gift certificate to Sam's Club or Wal-Mart. The feedback program began in December, and the satisfaction rating today is 4.868.

The application that creates the help desk service request tickets was developed in-house and is Lotus Notes-based. All tickets are viewable by anyone who has access to Notes, which is in line with Baptist's no-secrets culture.

Both Garrett and Bob Murphy, Baptist Hospital's chief operating officer, say their employees are hard-working people who are dedicated to maintaining the quality of service at Baptist. But in order to do that, they need to know where they stand at all times.

"What impresses me about what IS has done is that they're measuring," says Murphy. "They want to know what their customers are saying, and when the customer is not satisfied, they respond and try to make it better. That's the key — we're never going to be perfect. We just have to, when we drop the ball, respond appropriately and do what we call here 'service recovery.' "

Getting Better and Better

Baptist Health Care's Bright Ideas program rewards employees for suggestions. For IT, the goal this year is to save $500,000 and to receive an average of 2.5 ideas from each IT worker. Already, workers have sent in 1.8 each on average, saving Baptist Hospital $360,000. Here's a sampling of bright ideas from IT that have seen the light of day:

- **Install flat-panel monitors,** which cost more to purchase but in the long run cost less. Flat panels have a 30-month longer life cycle and carry a monthly energy cost of 84 cents vs. $8.50 for a conventional unit.
- **Have someone in IT get a forklift license.** Not having to wait for PCs and other equipment to be delivered has saved an estimated 80 hours per year.
- **Lose the paper surveys.** When the user closes the help desk service ticket, it sends an e-mail to the user saying there's a customer satisfaction survey waiting for him online.

—Jean Consilvio

AT A GLANCE

Baptist Health Care

- About 50% of all employees are nurses. There are 5,800 employees at Baptist Health Care and 1,700 at Baptist Hospital.
- 22,000 admissions per year
- Not-for-profit – operates on a 2% margin
- 2003 IT budget of about $3.5 million
- 49 IT employees
- Spends an estimated $1 million per year to maintain compliance with the Health Insurance Portability and Accountability Act of 1996
- One of *Fortune*'s 100 Best Companies to Work For in 2002 and 2003

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Learn about Baptist Health Care's pragmatic approach to regulatory compliance and patient quality.

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NEWSMAKER

Mandalay Resort Group in March hired its first-ever CIO, TRACY AUSTIN, to ensure the value and importance of IT's role in its Las Vegas-based casino and hotel business. Austin spent 17 years at Harrah's Entertainment Inc. and the past two years as a consultant to senior executives. Her staff of about 130 handles IT efforts at 16 Mandalay properties in four states. She spoke with *Computerworld*'s Jean Consilvio about what lies ahead.

What's on your plate now? The challenge I face is twofold: Making sure that carving out the CIO role here at Mandalay adds value to the business while at the same time looking forward and further developing IT strategies.

Are you tuned into the business strategy? I've been here nine weeks and I'm getting tuned in. I'm part of ongoing strategy discussion with the corporate and property marketing groups, and I feel very fortunate just to have been pulled into that. A lot of times CIOs have to ask to be included, and Mandalay has been very warm and receptive in terms of pulling me right in.

Do you have plans to reorganize the IT staff? Because I had been doing some external consulting work with these folks, one of the things I did my first week was reorganize the corporate IT group. I was trying to add in [management] talent to support, for example, infrastructure network and operations and to be able to more quickly meet the business demand.

Have you set personal goals? I would be happy in the next year if what people said about the way we're running this IT department is that there's no smoke and mirrors. . . . Oftentimes people think that IT is different, and I want people to see it as, "We can run it just like any other arm of the business."

Is it hard stepping into projects in process? It's very different for me in terms of coming from a background where I built things from the ground up. But [my consulting experience] is helping me get my arms around that. ▶

JOHN BERRY

Getting Your Project Priorities Right

FREEDOM OF CHOICE can be as paralyzing as it is liberating. Decisions are suddenly undermined and muddled by uncertainty in the face of a seemingly limitless array of possibilities — 3,000 colleges, hundreds of cars, 20 different portable CD players, six pages of menu items to wade through. Make your choice now and stop dithering!

Many IT organizations wrestle with the same kind of paralysis because they don't have sound decision-making frameworks to help them prioritize technology investments. At the same time, they face a proliferation of new technologies from which to choose and, frequently, a clamor from excited business units pleading for competing projects that they believe will solve different pressing business problems. The IT organization sits in the middle of this turbulence, attempting to balance external supply with internal demand. Executives need to concern themselves with only one question: Is the proposed project supporting business goals?

So many requests and so little funding suggest that sound project prioritization is crucial to economic value creation. The most effective prioritization scheme is the one that best supports alignment between a business strategy and IT. But project prioritization in and of itself doesn't ensure this. For example, placing a $1 million cost cap on any one project to ensure that five projects can receive funding within a $5 million total budget is certainly one way to prioritize, but it's not necessarily effective. It's a response to internal politics, not business strategy.

The following techniques are proven frameworks through which specific investment proposals can be filtered and prioritized — and all reinforce alignment between IT and the business.

Hard economic forecast: Assess projects along hard-number returns only, using ROI, net present value or another preferred method of calculating returns. Don't include intangible, hard-to-quantify benefits, even when the project champion insists that strategic benefits exist beyond what the numbers say. Then, map the calculations from the project list against the company's financial goals and see which project comes out on top. If cost containment is the company's mandate, a project with quick payback might jump into the lead.

This is a very strict, narrowly focused approach to investment decision-making, but if the numbers are accurate and adjusted for risk, "hard ROI" is perfectly aligned with financial goals.

Hard and soft economic forecast: This is the same as above, but it requires executives to make qualitative judgments about harder-to-measure effects of an investment, scoring their importance and including this in the outcome. If the financial goal is revenue enhancement, a customer-oriented project that came out as No. 2 under a hard-number forecast might jump to No. 1.

The balanced scorecard: If you aren't familiar with Kaplan and Norton's bible, *The Balanced Scorecard: Translating Strategy Into Action*, read it. It lays out a set of principles and analytic techniques for improving a company's performance by focusing on four general areas: financials, customers, learning and internal processes.

The causal relationship among the four perspectives from internal to financial is a very useful way to think about the order in which projects must be deployed to reach intended financial outcomes. Ironically, you don't even need to adopt the balanced scorecard companywide to take advantage of its powerful project-funding logic.

Core competencies: The idea here is to prioritize IT projects based on what the company already does well. Which assets, skills, capabilities and talents can you exploit through a particular IT investment? A company might have a loyal customer base because it has a great brand. If the financial goal is improved earnings, consider which proposed customer-oriented project you can leverage to meet it.

Despite the qualitative nature of some of the scoring within these frameworks, all support the alignment imperative, if deployed properly. Consider one or a mix of all in your prioritization practices. The choice is yours. ▶

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Database Administration-Coordinate physical changes to computer databases. Translate business logic/requirements into E-R and logical models, generate physical models based on logical design with Oracle 8i specific parameters, and create and maintain ERW in models with logical/physical subject areas and domain dictionary. Document all requirements, design, test scenarios, code, process and design physical system/network architecture in a clustered/HA environment. Design and partition schemas for performance and maintainability, mentor team members on database standards and practices, and also lead the database team that consists of DB Programmers and DBAs. Use knowledge of de-regulated energy environment, implement/maintain custom-built applications, and to migrate data for new deployment efforts. Use Oracle 8i, Oracle 8, Informix on Sun Solaris 2.6 platform. Also use Oracle Application tools, ERWIN, PL/SQL, Monitor and tune database performance, manage tablespaces, rollback segments, redo logs and other database objects. Use Import, export, SQL*Loader and other tools to load and backup data, design and extend database schemas, generate ER diagrams and normalize/de-normalize tables. Requirements include Bachelor's Degree or equivalent combination of education and work experience in Computer Science, Mathematics and Engineering discipline or related field and five years of experience in job offered or related field of database administration/management. Applicants must have unrestricted authorization to work in the United States. Salary $75,000/year. 40 hours/wk. Respond with two copies of resume to Case # 200200906, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

Programmer Analyst. Work Sched 8:30AM-5:30PM 40 hrs/wk. $86,746.00 PA. Analyze, design, & develop SAP-based financial & accounting databases & applications meeting corporate requirements. Implement applications to link existing legacy mainframe systems (GEAC, SmartStream) with application software that enables real-time internal, external & cross-departmental transactions, increasing company efficiency. Evaluate, define, redesign process, & analyze systems - using DB2, & IMS-DB. Analyze, design, implement, & support of database for financial, controlling, & accounts payable (AP) systems & SAP interfaces for several countries using mainframe systems based on TSO, CICS & DB2 at corporate & plant levels. Analyze, design, & program using multiple application development tools including SAP Script & ABAP/4 for SAP (advanced reporting & ABAP workbench development tools). Visual Basic 5.0 (interface programming). Interface with end-users to identify & analyze system requirements & provide in-depth applications support. Analyze, design, implement database systems & perform data analysis using Access 2.0, SQL, AUTOSYS, UNIX & multiple batch processing techniques (EDI & IDOC) on mainframe & client server based systems. Analysis, design, coding, testing of ABAP/4 programs for SAP ERP software. Configure SAP FI-AP software module according to business requirements. Responsible for AP reporting, requirement analysis & report development. Analyze & implement general financial & accounting systems ledgers for Mexico, Canada & U.S. Work in technical environment including Microsoft Windows 95/98 & IBM RS6000 Unix. Analyze, control & implement activities related to total development & implementation of a global common designed SAP system (an Enterprise Resources Planning system) for Employer & all affiliate & subsidiary companies. Master (or equivalent). Any Computer Science or Information Systems Field. 2 Months exp in Job or Related Occupation(s) of Financial Analyst of Business Process Analyst. 2 mths. of Related Occupation exp. must include creation of customer databases, & programming in SQL, which may be concurrent with Related Occupation exp. Employer Paid Ad. Send resume to MDCD, P.O. Box 11170, Detroit, MI 48202, Ref. No. 210404.

Senior Statistical ("SAS") Programmers / Analysts (Pharmaceutical) - A global biotechnology company locally based in the Greater Boston area, engaged in the research, development, manufacture, and marketing of prescription drugs, has an immediate need for two (2) highly-skilled, Senior ("SAS") Statistical Programmers / Analysts (Pharmaceutical). The responsibilities of these hands-on team leader-level positions involve the multi-site statistical programming and analyses in "SAS" of international Phase III clinical trial data, and validating the results. Particular responsibilities include the development and maintenance of company-wide statistical-programming code and standard operating procedures ("SOP's). Minimum education required is a Bachelor's-level degree (or equivalent) in Health Information Management, Statistics, or Computer Science. Minimum experience required is six (6) years of post-degree pharmaceutical or biotechnology industry Phase III (3) clinical and statistical programming / analyses experience coding in SAS/STAT, SAS/Macro and SAS/Graph. Specifically required is the demonstrated ability to combine non-standard databases across multiple clinical trials and produce integrated safety and efficacy analyses. Also required is the demonstrated ability to utilize "International Conference on Harmonization" ("ICH") guidelines to develop both conforming programming SOPs and code modules. Additionally required is the demonstrated ability to lead an international (i.e., multiple sites) clinical data analyses team of SAS programmers in the analyses of a clinical trial. Finally required is the demonstrated ability to provide input into the data management operational plan (e.g., Case Report Form specifications, data validation plans, database architecture). Base salary is $ 86,500. Benefits include fifteen (15) days paid vacation, medical, dental, disability life insurances, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case # 200201162, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114. An EOE/M/F/H/V.

Prog/Analysts to analyze, design, test client server/web appls with OOAD methodologies using Java, VB, EJB, Servlets, JScript, XML, HTML, Oracle, SQL, JDBC, Access, Weblogic, etc in Windows OS; analyze business processes,determine reqs, generate reports, perform onsite/offsite maintenance; document, debug, test, perform code optimization. Require BS or foreign equiv. in CS/Engg (any branch) & 2yrs exp. in IT. High salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Programmer Analyst, Wilmington, DE. Bachelors in MIS or Comp + one year exp. in Design, develop and implement net enabled applications utilizing ASP, Oracle8i Application Server, HTML, XML, C, SQL and PL/SQL, for Windows 95/98/NT & Unix; design GUI using VB,Power Builder, and Oracle Forms; design, development and enhancement of the Electronic Medical Records Application using Nextgen, VB,Oracle, SQL Loader and TOAD implementing Quality Standards using CMM specifications and HIPAA guidelines for Electronic Medical Records Application design & develop RDBMS using Oracle, SQL Server, MS Access and generate reports using Crystal Reports8 and Oracle Reports8. Respond to HR Dept, Neotech Solutions Inc., 1170 Broadway, Suite 314, New York, NY 10001

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MIS Administrator - administer & maintain Windows NT4 (SP6) network that includes 4 servers & numerous work stations, perform hardware & software installation & configuration, administer Accounting (MAS90), Maintenance (Transman) and Phone (Strata CS) systems; audit automated accounting processes; write small in-house applications as needed, monitor, measure & tune system performance, train users on network operations & procedures & engage in trouble-shooting duties require knowledge of & experience w/ NT4 Network, MS SQL Server & MS Access databases, Visual Basic, SQL, TCP/IP, 100Base-T LAN & principles of accounting. Requires BS (or MS) in computer science, information systems, business administration or accounting plus 4 YRS exp. (2YRS exp with MS). Please email your resume to: mikewilsen@iramsmanagement.com

Technical Support Specialist for NYC IT Co. to review & test prgms w/Systems Analysts & Hardware Engrs to assure prgms & hrware systems perform necessary functions per client specs. Review & test systems integration w/clients' existing systems. Assure clients' data credibility after installation of new systems. Liaison w/client & in-house personnel. Test, eval & update maintenance procedures for compatibility w/new systems. Prep'n of acctg & other data files petty cash, customer & vendors after analyses using MS-DOS, Win 95, FoxPro for Win, MS Office/Excel/PowerPoint. Maintenance & troubleshooting. Diploma/Assoc deg in Comp Applics or equiv & 2 yrs exp. Systec Intl, Inc., 350 5th Ave., #7812, NY, NY 10018, fax (212) 290-2889, Systec@systecusa.com

ATC Associates, Woburn, MA is seeking a full-time Software Developer to design, develop and maintain client-server / web based applications, support existing client-server and 3-tier applications which include Financials, Payroll and HR systems. Must have experience in writing SQL code and stored procedures, MS Visual Studio, MS SQL Server and MS Access. Should be familiar with financial, HR and Payroll applications. Must have a Bachelors Degree in Information Systems, Finance, Accounting, or its equivalent with at least 2 years of related experience in software development. To apply, please e-mail your resume to IS-Development@ATCAssociates.com referencing code SD.

SOFTWARE ENGINEERS: Advent Global Solutions one of the fastest growing IT service companies requires Software Engineers to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software is required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems. Please send resumes to Advent Global Solutions, Inc., Human Resources, 12777 Jones Road, Suite #445, Houston, TX 77070.

SYSTEMS ANALYSTS: Advent Global Solutions one of the fastest growing IT service companies requires Systems Analysts to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems. Please send resumes to Advent Global Solutions, Inc., Human Resources, 12777 Jones Road, Suite #445, Houston, TX 77070.

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Sr. Software (Test) Engineer - As member of software testing team, test & develop test automation software. Participate in design & code reviews. Write test plans according to system requirements. Maintain existing test plans & automated test scripts. Test telecommunications products. Support potential customers during lab trials. BS in Comp Sci/ Engg, Electronics/ Electrical Engg or equiv + must have 3 yrs exp. in job offered or w/ software testing for the telecommunications industry, including detailed knowledge of telecommunication protocols, general telecommunications procedures & TCL programming. 40 hours/week. Salary $98,000/yr. Send two copies of resume to Case #200201685, Labor Exchange Office, 19 Stamford St 1st Fl, Boston MA 02114.

Database Administrator (NY, NY) Design & administer database solutions. Perform all aspects of Oracle NT & UNIX admin, incl installation, tuning, migration, space mgmt, backup & recovery. Design database solutions using beta/test. PL/SQL coding. SQL Loader & clustering/replication on UNIX/ NT platform. Design & implement UNIX Shell & NT batch scripts/tools. Coordinate w/ techn project mgrs, PL/SQL dvlprs and DBA team to confirm feasibility & efficiency. Req Master's in Comp Sci or Comp Appl. or foreign degree equiv & 2 yrs exp. in job offered. Send resume to: HR, Weg@NYWatchers.com, 888 7th Ave, 8th Fl, NY, NY 10106.

Programmer Analysts to analyze, develop, maintain software appls using Oracle Applications, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; conduct functional testing and debugging, perform data conversions, customize Forms/ Reports using Oracle Applications standards, document, maintain & update development process. Require BS or foreign equiv. in CS/Engg, (any branch) or related field & 2yrs of exp. in IT. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America,Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611.

Programmer: design, analyze, code, configure, and implement new computer programs; perform unit and system testing; provide technical support and assist in personnel training. Req. MS or equivalent in CS or CIS with proficiency in Java, JSP, SOAP and JINI. Must be Java certified. 40hr/wk, 9-5. Contact Adsystech, Inc. at 1990 Lakeside Parkway #170, Tucker, GA 30084.

Sr. Software Engineer (with Bachelors degree and 5 years experience) - West Chester, OH. Job entails and requires experience in design and development of applications using, Oracle, Visual Basic, i2 Demand Planner, PL/SQL, Perl Script and Unix. Relocation within USA possible. Attractive compensation package. Send resume to Catherine Fanucchi, SDG Corporation, 65 Water Street, Norwalk, CT 06854.

Quality Assurance Engineer: Analyze, design, develop, test, implement, maintain client server applications using various databases on multiple environments and platforms. Develop & test GUI using VB, VC++ and work with RDBMS. Exp to test PDA & wireless applications, e-mail related protocols. Exp working on Regression, system, integration, functional & performance testing. Req BS in Comp Sci Engg/Rel field with 2 yrs exp. Wages $60,000/yr, 40 hrs/wk, 9am-5pm. Send 2 resumes to: Case# 200201883, Labor Exchange Office, 19 Stamford St. 1st Fl., Boston, MA 02114.

Seeking qualified applicants for the following positions in Orlando, FL. Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C++, UNIX and Shell Scripting (Unix Shell Script or Perl Script) also required. (Master's degree in appropriate field will offset 2 years of general experience.) Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Director of MIS & Technology wanted to perform enterprise-wide technology & info systems implmtn using ERP tools, plus utilize general bus knowl in various areas. Pos is loc in Houston, TX. Hrs. M-F 9-5. Must have BS (or equiv) in Comp Sci, Engg or related field +5 yrs exp in position offrd or in related occupation such as Sftware Consultant or Project Engr for info systems dvlpmt & implmtn. Apply to: Attn: Jackie Meredith-Batchelor, P.O. Box 8018, Philadelphia, PA 19101-8018.

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Electronic Content Developer

Lead the design & development of the Intranet, Bridge portal WebSphere portal, and CMS Develop portlets w/ JSP, Servlets, JBeans & XML using WebSphere API. Develop and publish content via CMS. Develop VB apps for survey mgmt comp to Lotus Notes. Administer Intranet using Unix/CGI Script. Analyze and document business case process impl. Req: BS in CIS & skill to use Java, JSP, Servlets, ASP, VB, Access, CGI/PERL, XML, XSL, R-Rose, UML, Flash, and Host on Demand. Able to do business analyst, system design, & tech. writing documentation. 40/wk, 9-6. Resume to: Zarun Turlington, Manager of eContent Services, The Home Depot, 2455 Paces Ferry Rd, N.W. (C-17), Atlanta, GA, 30339

Systems Advisor. Define, plan, organize and provide project leadership for the development and implementation of worldwide regulatory clearance systems. Requirements: Bachelor's degree* in computer science, math, engineering, business or related field plus 7 years of experience in defining system requirements and/or project leadership in the development of user systems. Experience with customs clearance systems, data extraction using SQL, and RDBMS also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Greg Dixon, Federal Express Corporation, 3690 Hacks Cross Road, Memphis, TN 38125, EOE M/F/D/V

Research Associate II

To assist principal investigators in designing and implementing sys. for the acquisition, storage and retrieval of environmental data; developing software for data processing and operations for the US ARGO and Global Oceanographic Observing Systems Req: B.S. in mathematics, physics, computer science, environmental science or related field; fluency in client-server applications programming plus 4 yrs exp in commercial database mgt. systems. 40hrs/wk. Send cover letter & resume to Dr. Joseph M. Prospero, CIMAS, 4600 Rickenbacker Cswy., Miami, FL 33149. Ref Code: ARGO-II.

Technical Support Specialist. 8a-5p 40 hrs/wk. Analyze project, review, test prgm for compatibility; troubleshoot & provide tech'l support/updates using object oriented prgmg. Java, TCP/IP & Win NT; repair & maintain comps. Educational req: Bach or equiv in Comp Sci/Engg, Info Technology, Electrical, Electronics or related Engg. Resume: 83 Group, Inc., 7001 Peachtree Indus. Blvd, Ste 446, Norcross, GA 30092.

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BS or equiv. in Comp. Sci or any Engg., statistics, or related fields plus relevant exp. Send resume to HR, SysZen Technologies, Inc., 646 Highway 18, Ste. 218, East Brunswick, NJ 08816.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Business Application Analyst Formulate/define systems scope and objectives based on user/customer needs and a good understanding of applicable business systems and industry requirements. Requirements: Bachelor's degree* in computer science, business, math, engineering or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with MS Project and either C++, Java, JSP or object-oriented programming also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sita George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

IT SPECIALIST to install, configure and support network systems; develop, maintain and administer automated computer systems including PowerFlex, EDCOMM, NSLDS, ELM, and mainframe; coordinate the automation, upgrading, and maintenance of current and future technological processes; responsible for the coordination and production of regular financial reports in an accurate and timely manner. Require: Bachelor degree in Computer Science/Information Systems. Competitive salary and benefits. Mail resume to: Director, Human Resources, Alabama A&M University, P.O Box 305, Normal, AL 35762.

Sr. Software Engineer - As a member of the software development team. Design & develop call control software. Analyze software requirements & functional specifications. Design, code & test critical Call Control functionality translations, CLASS IM Services, the AIN based Call Model, messaging & associated protocols. Participate in design & code reviews. Will maintain existing software systems & test/integrate telecommunications products. B.S. in Comp. Sci/Eng'g, Electrical/Electronics Eng'g or equiv. + 3 yrs exp. in job offered or software development. Must be proficient in C & Unix/DX programming & have an in-depth understanding of Data Switching Systems as well as AIN Generic Requirements for Call Control. Must have knowledge of general telecommunication procedures. 40 hours/week. Salary: $86,400/yr. Send two copies of resume to: **Case #200201669**, Labor Exchange Office, 19 Stamford St 1st Fl, Boston, MA 02114

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Sr. Software (Test) Engineer- As member of software testing team, test & develop test automation software. Participate in design & code reviews. Write test plans according to system requirements. Maintain existing test plans & automated test scripts. Test telecommunications products. Support potential customers during lab trials. BS in Comp. Sci/ Eng'g, Electronics/Electrical Eng'g or equiv. + must have 3 yrs exp. in job offered or w/ software testing for the telecommunications industry including detailed knowledge of telecommunication protocols, general telecommunications procedures & TCL programming. 40 hours/week. Salary: $100,000/yr. Send two copies of resume to: **Case #200201669**, Labor Exchange Office, 19 Stamford St 1st Fl, Boston MA 02114

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Sr. Software Engineer - As member of software development team, design & develop software & sustain company's cutting-edge telephony devices. Will develop & enhance serviceability tools & participate in design and code reviews. Will test & integrate telecommunications products & provide critical bug fixes for customers. In addition, will provide customer software enhancements & use programming/analytical skills in order to provide services for debugging. M.S. Comp Eng'g, Comp Sci, E.E. or equivalent + 2 yrs exp. in job offered or software development. Exp. may be gained prior to M.S. degree. In the alternative, employer will accept candidates w/B.S. & 5 yrs. of progressively responsible post-graduate exp. Must have knowledge in at least 1 of the following telecom protocols: ISDN or SS7 Call processing, ATM or TCP/IP as well as strong coding skills in C. 40 hours/week. Salary: $100,000/yr. Send two copies of resume to: **Case #200201645**, Labor Exchange Office, 19 Stamford St 1st Fl, Boston MA 02114

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Software Engineer- Develop, integrate, maintain & test complex communication protocols including but not limited to Sigtran, SS7/GCS7 & ISDN. Participate in design & code reviews of new software and modifications to existing software. Develop, maintain & test telecom applications & system software responsible for configuring & controlling the system, internal communication between software entities, fault tolerant and redundant operation of software. Analyze and document computerized telecommunication system software requirements, functional specifications, architectural specifications, & design specifications. B.S. in Comp Eng'g, Comp. Sci, E.E. or equiv + 2 yrs exp. in job offered or telecom software development. Must have proficiency in C programming as well as knowledge of telecommunication protocols. 40 hours/week. Salary: $84,000/yr. Send two copies of resume to: **Case #200201669**, Labor Exchange Office, 19 Stamford St 1st Fl, Boston, MA 02114

Computer Product Manager. Manage, plan & direct a group of computer engineers developing new products. Also designing and developing vIDE for a middleware product. Wirelessly and online financial analysis web application using C, C++, Java, JSP, Perl, SQL, Oracle, XML, HTML, ASP, JBuilder, VB, Rational Rose, WinCVS, ATG's Dynamo and JESS. Requires: Masters in Computer Science and 2 years experience in software development. Must have knowledge of C, C++, Java, JSP, Perl, SQL, Oracle, XML, HTML and Visual Basic. 40hrs/wk (8:00 a.m. to 5:00 p.m.). $86,413.00/yr. Send two resumes/responses to: Case Number 200201473, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114

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PROGRAMMER/ANALYST

Design customer software applications for clients by analyzing client requirements, designing functional specifications, developing and documenting code, performing initial testing with feedback to Q.A. coordinating implementation with client and providing all necessary documentation throughout all stages of the project and escalated support after implementation. Requires working knowledge of VisualBasic, XML, Javascript, PDF/LIB, .net, ASP and JSP. Bachelor's degree or its equivalent in computer technology or a related field is required. Position is fulltime, M-F $56,000/year. Interested parties may submit resume to Transcend Software, Inc., Attn: Susan Blaskovich, 5440 Corporate Park Drive, Davenport, IA 52807

Database Administrator. Manage and maintain Sybase, SQL and Informix databases and ensure continuity of development activities. Install new versions products and components to upgrade databases. Streamline default parameters in existing databases. Tune and scope OS and database parameter settings; update periodically. Daily troubleshooting. Administer databases (create log-ins and security measures, assign roles and privileges). Monitor QA and development databases. Establish back-up and recovery procedures. Provide support for synchronizing schemas for Dynamo 5.0. Supervise physical design of databases. Database development duties include data migration views, stored procedures, schema development, interrelationalization inter-database consistency, configuration tuning, and troubleshooting. Database systems include Sybase, MS SQL, and Informix. Qualify with MS in Comp Sci, EE or related area plus 2 yrs exp in position w/ database maintenance and development duties (including data migration, views, stored procedures, schema development, interrelationalization, inter-database consistency, configuration, tuning, and troubleshooting) in Sybase, MS SQL and Informix. Must have unrestricted right to work in US. M-F 8:30am-5:30pm, 40 hrs/wk. Salary: $85,000/yr. An EOE. Send 2 copies of resume to Case No. 200116428, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114

IT/Consulting Company req. Prog./Analyst w/Bachelors Deg & 2 yrs exp or its equivalent Degree req: Comp. Science, Science, Engg., Math, MIS. Equivalent can be based on Education and Exp. evaluation, w/skill sets that include:

Java, J2EE, EJB, JSP, Servlets, JavaScript, Java Beans, HTML, Corba, Arsta, TIBCO, XML, ASP, JFC, Swing Controls, Perl, CGI, Web Logic, WebSphere, Oracle Apps, Server, VC++, MFC, COM/DCOM, SQL, VB, VBScript, Microsoft .NET, ActiveX, Powerbuilder, C, C++, UNIX/LINUX, HP-UX, Windows, 2000, NT, Sun Solaris, AIX, DB2, Oracle, PL/SQL, Oracle Forms and Reports, Developer 2000, Designer 2000, SQLServer, Sybase, Informix, SAP, PeopleSoft, JD Edwards, Siebel, BASIS, ABAP/4, EDI/ALE, ARO, BW, SQR, MVS, VAX, VMS, JCL, COBOL, T-SQL, AS400, Informatica, Business Objects, Microstrategy, Crystal Reports, SAS, Rational Tools, Testing, Win Runner, Load Runner, Mercury Tools, Silk, MS-Office Suite, Lotus Notes, CISCO Routers, LAN, WAN, DecALPHA, Datastage, Interwoven.

Travel & Relocation req. to unanticipated client sites throughout the U.S. as assigned. Send resume to Attn: Recruiter, Nutech Systems, Inc., 1638 Ornate Lane, Smyrna, GA 30082.

eTransX, Inc. provides cost-effective information solutions for issues involving e-Business and e-Commerce. We are looking for the following position: Software Engineers: Design, develop, analyze and recommend software requirements for messaging, system integration and E-commerce database applications. Expertise in object-oriented programming using Java and C++. Expertise in XML, RDBMS Oracle, MySQL, SQL Server, DB2, application servers, wireless protocols and LDAP required. Experience with MS Active Directory, Blackberry SDK, ClearCase and current Web Technologies in Windows, Unix, and Linux environments. Need Master's degree in Computer Science or Engineering and 3 years of experience. Send resume to: Human Resources, eTransX, Inc., 8323 Southwest Freeway, Ste 580, Houston, TX 77074. E-mail: info@etransx.com

OpTech Inc has immediate, full-time opportunities for:

Systems Analyst to analyze user requirements, procedures and problems to automate processing or to improve existing computer system/network; review computer system/network capabilities; develop new system/network to improve production; provide problem analyses, isolation, resolution and traffic management; use a variety of tools including Concord/Cisco Works, ATM Swatches & Active View. Bachelor's degree or foreign edu. equiv. of same and 1yr exp. required.

For some positions, we also accept the degree equivalent in edu and exp. Travel and/or relocation required. Send confidential resume, salary requirements to OpTech, Inc., Attn: HR 645 Griswold, Ste 2146 Detroit, MI 48226.

Development Manager Responsible for managing all company software development projects to ensure that projects are properly completed on time and under budget. Supervise software development teams in the development of intricate database driven applications. Oversee and lead the Development Team staff. Interface with clients and supervise coding and development functions. Demonstrated ability developing intricate database driven applications using tools such as ColdFusion, HTML, Dynamic HTML, JavaScript, Java, Java Server Pages, Active Server Pages, IIS 5, Windows Distributed ability developing applications using tools such as SQL Server, MS Access, Oracle, COM, XML, Flash, Crystal Reports, Cascading Style Sheets, Activex Components. $110,340/yr. 40 hrs/wk. 9:00a.m. - 5:00p.m. Must have Bachelor of Science, Comp. Sci, Eng related field/degree and 3 years experience (or 3 years experience in related occupation as Consultant/Software Engineer). Send 2 resumes. Case #200200617. Labor Exchange Office, 19 Stamford Street, 1st fl., Boston, MA 02114

Computer Software Engineer needed for Jackson, Wyoming corporation to plan, develop, test and document computer programs. Requires one year of application and database development experience using VBA, Access and Excel in a Windows environment. Send resumes to Lynda Yazzolino, H.R. Dir.; P.O. Box 1108; Jackson, WY 83001. Refer to Job Code: BDBC.

IMRA America is looking for Research Scientist in the field of opto-electronics, high-power laser & wave-guide technology. Qualified candidates must have Ph.D. with at least one-year experience in the optical area. Please send resume to employment@imra.com. EOE.

K&M Softech is looking for programmer/system system, software/project engineers or IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/++, VB, Oracle, SAP, SQL are plus. Please send resumes to Recruit@kmsoftech.com. EOE

NetSoft has openings for Programmer/system analysts, Software engineers or other IT professionals to design, develop, test, analyze, code, implement and maintain software and computer system to meet client's requirements; skills in COBOL II, CICS, MVS, JCL, VSAM & DB2, SAP, HTML, Java, PWB, IIS, JDBC, ASP, JavaScript, XML and Oracle 8.0 are preferred. Applicants must have BS/MS (or equivalent, 1-5 exp. in IT). Some job may require traveling (we pay expense). Competitive wage with full benefits. Please apply at: Apply hr@nstc.net or jobs@nstc.net. No phone calls. EOE

Noetix Corp. seeks Comp. Systems Analysts for Bellevue office. DESC: Det. proj. specs.; Analyze user req's; Dir. the cust. & impl. of Oracle RDBMS & Oracle fin. & mfg. modules & apps. thru the util. of SQL, PL/SQL, & Des/Dev 2000 on UNIX & Win NT o/s. REQS: BS in Bus., Bus. Admin., MIS, Econ. or Fin. + 2 yrs. exp. dsgn. & impl. Oracle RDBMS & Oracle fin. & mfg. modules & apps. util. SQL, PL/SQL & Des/Dev 2000 on UNIX & Win NT o/s. Prem. sal. + bns & benes. Pls. reply to J. Hubbs, Job #TP-102, 2229 112th Ave. NE, #200, Bellevue, WA 98004.

Pronto Networks, Inc. is seeking a: Director/Chief Architect - Embedded Systems to lead the dev't of WLAN embedded systems. Requires MS + 5 yrs exp or Ph.D + 2 yrs exp in designing system architecture, efficient algorithms, and developing software products in networking/telecom. Pls send resume to Pronto Networks, 3527 Mt. Diablo Blvd. #404, Lafayette, CA 94549. No phone calls pls.

Software Solutions Group, Inc. A global provider of IT & profit business svcs. We are hiring for the following: Business Intelligence Integration Analysts Analyze client sys. assess requirements, design, develop & implement business intelligence applications in the areas of Inventory/Material mgmt, finan acctng, & data repositories. Create client/server & Web/intranet application for extraction, transformation & loading tools for daily manipulation & monitoring of data. Utilize tools such as C++, C#, ASP.NET, SeeBeyond, MS SQL Server 2000 & Oracle 9i. Min 3 yrs exp. in related occupation. Fax res: (310) 337-0786 WEB LA514044

Prog/Analysts to analyze, design business/scientific appls using SAP R/3, ABAP, VB, Oracle, SQL Server on UNIX/Windows envir; develop tech design documents; determine reqs; perform monitoring, quality control; test/troubleshoot project appl code according to system objectives. Require: BS or foreign equiv. in CS/Sci./ Engg. (any branch) & 2 yrs of exp. in IT. Travel involved. High salaries. Respond to: HR, Smartsoft International, Inc., 7900 Steubenville Pike Suite 21, Imperial, PA 15126

Programmers, Jr. Programmers, Software Engineers: Analyze, design and develop apps. in (a) MQ Series, Shell Scripts, Java and related tech., Oracle & related tools, SQL Loader, CGI/Perl, Visual Basic, AppWorx and related technologies; (b) C/C++, Cobol, PB, Sybase, Java, Oracle, SQL Server, XML, Unix, MQ Series, Weblogic and related technologies. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to HR, Datum America Ltd., 850 Boyce Rd., Suite 7, Bridgeville, PA 15017. EOE.

Software Engineers to lead teams to analyze, design, develop and implement s/w appls using Oracle Financials, MS Access, ERP Appls, Dev 2000, SQL, PL/SQL, XML, Pro*C, C++, VB, ASP, HTML etc. on Sun Solaris, Windows, SCO UNIX OS; interact with clients for req. analysis/feasibility study; evaluate team, train end users. Require: MS or foreign equiv. in CS/Engg/Business & 3yrs of exp or BS or foreign equiv. in any of the above field & 5 yrs of relevant prog. exp. Travel involved. High Salary. Resumes to Fourth Technologies, 585 Tollgate Road Suite I, Elgin, IL 60123.

PROGRAMMER/ANALYST wanted by software developer in Houston, TX. Must have degree & exp. Respond by resume only to: Mr. H. Morris, V/K - #10, Solid Software Solutions, LLC, 3300 S. Gessner, Ste. 201, Houston, TX 77063.

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The applicant shall have 7 + yrs in Business Modeling, Analysis, Design, Implementation and Configuration Management, CARNOT Workflow engine 1.2/2.0. Software using J2EE, XML, XSL Technologies with Oracle 8i® as backend and Oracle Internet File System as Fileserver on Windows and Linux Platforms.Lead role in the deployment and performance tuning of applications on Borland, JBoss 2.4.3 and Bluestone UBS Application servers is preferable. Knowledge into AS400 Systems,DB2,OS/400 DB2/400, CL/400, RPG/400 SQL/400,COBOL/400 on IBM AS-400 Platforms. certifications are a huge pluses 40hr/wk, competitive salary Resumes should be sent to 226 Paul St.#204, Pittsburgh, PA-15211 WEB# 316850.

The applicant shall have 5+ years of experience in analysis, design, development, testing and maintenance of web applications using JAVA,EJB,Servlets,XML,JSP, HTML,Javascript,XSL,XSLT, Visual age, Secure, CRT,TOAD, Websphere,DB2,MS Access,Informix, PVCS, ERwin, Unix Shell scripts, Sun Solaris, Windows NT, Mercury load runner 7.51, RAD View Weblod,Together J,JProbe,Design patterns, Frame work, Data Modeling and Rational Rose by using, iPlanet, LDAP, weblogic 5.1, Oracle 8i Automobile/financial industry. Certifications a huge plus. 40hr/wk, competitive salary Resumes should be sent to 226 Paul St. #204, Pittsburgh, PA - 15211 WEB# 321325.

Performing software engineering design, test, analysis and implementation of various computer applications for Web based architecture wrt financial industry. Extensively use of JAVA with EXTRICITY on the web servers like WEBSPHERE and IPLANET. The databases the ORACLE 8i and DB2 should be used to retrieve data. Should work with operating systems like UNIX and WINDOWS NT etc. Must have min. 5 years of experience. 40 hr/wk, competitive salary. Resumes should be sent to 226 Paul St.#204, Pittsburgh, PA-15211 WEB# 326906.

First National Bank of Marin

DATA WAREHOUSE BUSINESS SYSTEMS ENGINEER

Design, administer, develop, implement, and manage Oracle data warehouse and data marts; participate in project design and Oracle OLAP database design decisions; refine and troubleshoot the design; solve database and application problems; develop and maintain database-driven applications; generate reports to support the needs of business; create and maintain appropriate documentation about the database and its data architecture; support interfaces and back-end integration with applications; and provide functional and technical supports to Oracle Financials Application.

Minimum requirements: Bachelor's degree or equivalent in computer science or related field plus four years software engineering or programming experience. Must have four years experience in business application systems design and development with two years in the banking/credit card industry. Prior experience must include using Microsoft technologies, VB 5.0/6.0, two years. Oracle Financial Application DBA using Oracle Apps 11.0.3, ADI 7.X, Discoverer 3.1/4i, and one year FDR Raw scripts.

Competitive salary. Hours: 9 am – 5 pm, M-F. Must have indefinite right to work in U.S. Send resume demonstrating minimum requirements to:

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585 Pilot Road
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Fax: (702) 269-1280
Jobline: (702) 269-1122

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Salt Lake City, UT
Software Engineers, Software Animators, Developer Evangelists

Mountain View, CA
Software Engineers, Program Managers, Database Administrators, Hardware/Electronic/Design Engineers, Technology or Tech Ops Specialists, Systems Engineers

San Francisco, CA
Technical Account Managers

Santa Monica, CA
Computer Systems Analysts (Consultant), Software Engineers (Systems)

Irvine, CA
Business Strategy Analysts

Redmond, WA
Technical Specialists, Software Engineers, Program Managers, Product Managers, Analysts, Financial Analysts, Research Analysts, Business Analysts, Business Development Analysts, Business Development Managers, Database Administrators, Directors, Electrical Engineers, Marketing Managers, Network Engineers, Product Designers, Reliability and Hardware Test Engineers, Support Engineers, Systems Analysts, Consultants, Systems Engineers, Technical Writers, Editors, Training Specialists, Usability Engineers

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Waltham, MA
Technology Product Specialists, Technology Specialists

Southfield, MI
Managing Consultants

Charlotte, NC
Support Engineers, Software Engineers, Developer Support Engineers, Applications Development Consultants, Escalation Engineers, Support Engineers, Support Professionals, Support Analysts, Technical Account Managers

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Software Engineers, Program Managers

Fargo, ND
Product Managers, Software Engineers, Technical Trainers

Fort Lauderdale, FL
(Site Engineers) Operations Analysts

Washington D.C
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Business Productivity Advisor

Denver, CO
Software Engineers - FRX Software

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SOFTWARE ENGINEER

Witness Systems, Inc., a Developer of Client/Server Monitoring Software seeks a qualified Software Engineer. Experience must include 2 years in the position offered or 2 years as a Software Engineering (Development or Design or Quality). Salary and benefits commensurate with experience. Send resume to: Sheri Mattison, Employment Manager, Witness Systems, Inc. 300 Colonial Center Parkway, Roswell, GA 30076.

Programmer Analysts
Prudent Systems, Inc. has openings for Programmer Analysts in NJ & elsewhere. Analyze, dsgn, dvlp, test & implmt s/ware & web based applics using VB, ASP, COM, MTS, IIS, XML, Oracle, SQL Server, MS Access, Win. Some positions req at least 4 yrs exp, others Bach in Comp Sci or Engg w/2 yrs exp. Must have legal auth to work in US. Excellent pay & benefits. Mail resume w/proof of work status to: jobs@prudentsystems.com

COMPUTER

Vice President, Information Services

B.S. required and eight years experience in the job offered, or as a Programmer/Analyst, Software Engineer or similar occupation, with at least four of those years managing or directing customer technical support and information services required. Location: Irvine, CA. Employer: Best Software. Please e-mail resumes to hrhelpdesk@bestsoftware.com and reference VPIS in the subject line. EOE.

Blue Star Infotech is hiring all levels of Software Engineers, Prog/Analysts, Bus Analysts (technical), Business Dev. Heads, General & Operations Managers, Project Managers & Database Administrators. Send resumes to HR Manager, Blue Star Infotech, 550 Valley Way, Milpitas, CA 95035. May be placed at client sites nationwide.

Aries Solutions Intl Inc is hiring all levels of System Administrators.Send resumes to 635 Atherton Place, Hayward, CA 94541.

First National Bank of Marin

INTERNET DEVELOPMENT BUSINESS SYSTEMS ENGINEER

Performs technical systems analysis, software development, systems design and integration, construction, implementation, and maintenance activities in support of web-based application.

Minimum requirements: Bachelor's degree or equivalent in computer science or related field plus four years software engineering or programming experience. Must have four years experience in business application systems design and development with two years in the banking/credit card industry. Prior experience must include two years Microsoft technologies: VB 5.0/6.0, Active Server Pages, C++ or C Sharp, MS SQL Server, and web development.

Competitive salary. Hours: 9 am – 5 pm, M-F. Must have indefinite right to work in U.S. Send resume demonstrating minimum requirements to:

First National Bank of Marin
585 Pilot Road
Las Vegas, NV 89119
Fax: (702) 269-1260
Jobline: (702) 269-1122

www.FNBMarin.com

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SOFTWARE ENGINEER to design, develop, implement, test, maintain and support web-based application software in a distributed environment using Visual Studio.NET, C#, C++, VB.NET, ASP.NET/ASP, JavaScript, VBScript, HTML, DHTML, XML, XSLT, UML, Oracle, MS SQL Server, MS Access, Crystal Reports, Visual Source Safe, CSS, COM+, MTS and IIS on Windows XP/2000 platforms. Require: Master's degree in Computer Science/Engineering, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job AK.

Senior Software Engineer - Westford, MA - Research and analyze data, recommend actions and generate specifications and design documents for the design and development of telecommunications protocol software for VPNs (Virtual Private Networking). Develop software for embedded systems using C programming language. Develop software to allow RIP (Routing Information Protocol) and OSPF (Open Shortest Path First) routing protocols to run over PPP (Point to Point Protocol) and ML-PPP (Multilink PPP) lines. Develop Equal Cost Multi-path Routing. Track progress during software implementation, including analyzing and debugging problems and recommending solutions. Communicate project progress to management. Requires a Bachelor's degree in Computer Science, Computer Engineering, Electrical Engineering, or related field, and 3 years of experience in job offered or as a Software Engineer or related occupation. The 3 years of experience must involve design and development of telecommunications protocol software using embedded systems programming in C for VPN and related protocols such as PPP and ML-PPP. 40 hrs/wk, 9:00 am - 5:00 pm. Salary: $80,100/year. Please send two (2) resumes to: Case# 200201770, Labor Exchange Office, 19 Stanford Street, 1st floor, Boston, MA 02114.

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Computer Systems Manager - Provide technical support for software and hardware sold to clients in Latin America; Maintain, configure, administer and support company network including T1 line and direct access to internet; Establish, maintain, and update internal and public corporate website in English and Spanish; Integrate hardware and software for client use, install and integrate ProQuest siteBuilder for sales demonstrations and for client accounts; Analyze new products for company network use, install, integrate and train staff in the use of new products. Must have Bachelor's degree or equivalent in System Engineering and two (2) years of experience as a Systems Analyst or Director R&D in IT or similar IT position in business environment; Must be completely bi-lingual in English and Spanish. Full time (8:30 am to 5:00 pm) consisting of 40 hours/week at a weekly salary of $1,480.77. Please send resume to MDCD/ESA, P.O. Box 11170, Detroit, Michigan 48202-1170, Reference No. 210542. EMPLOYER PAID AD

PROGRAMMER/ANALYST to analyze, develop, test and maintain telemanagement application software for the hospitality industry using minimally Progress 4GL and RDBMS (V.8 &V.9), Smart Objects ADM1 & ADM2, Web Speed, Web Client, HTML, XML, Java Script, Socket Programming, TCP/IP, RS232, Tomcat and Apache on Windows NT/2000, UNIX and AIX platforms. Require: B.S. degree in Computer Science/Engineering, or a closely related field with 2 years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Dina Gallo Terro, Systems Design & Development, Inc., 800-A, NW, 17th Avenue, Delray Beach, FL 33445; Attn: Job MS

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and maintain web-based application software for the telecommunication industry using C, C++, Java, CORBA, Orbix, Sybase, DSG Toolkit, GDMO, CMIP, RogueWave Tools.h++, DB Tools h++, OOA and OOD on HP-UNIX, SUN Solaris and Windows platforms. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, President, Everest Computers Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: Job KM.

Application Developer responsible for developing interfaces between company's applications and other applications in Visual Basic. Interact with data processing personnel representing the customer to determine specifications for the interface; designs the interface; write application code; install the code at the customer's site; test the interface to see if it functions properly; support the interface to fix any problems that may arise; document the interface. Required knowledge of: VB(5-6) including ActiveX components and Control, VBscript, Crystal and Data Report, SQL MS Access 97/2000 MS SQL (6.5/7.1/2000), Windows NT/2000, HTML, XML, ASP, PCAnywhere, Terminal Services, Carbon Copy, Setup Factory, Sybase, Oracle. $56,323 per year. 9:00AM to 5:00PM. 40hrs/wk. BS in Computer Science or Computer related and 2 years exp in job or 2 yrs. as software developer. Submit 2 copies of resume to Case # 200116685, Labor Exchange Office, 19 Stanford St, 1st fl., Boston, MA 02114.

Database Administrator – Various locations throughout the U.S. Coordinate changes to computer databases, test and implement databases, apply knowledge of database management systems. May plan, coordinate and implement security measures to safeguard computer databases. Must have 18 months experience with Unix, Oracle 7.x, 8i, Developer 2000, DBA on Oracle. Must have a Bachelors Degree in Computer Science or Science Education and 18 months of computer professional-related experience. Position is 40 hours a week with a salary of $57,700 a year. Must have proof of legal authority to work in U.S. Submit resume referencing job order #1101712 to: Iowa Workforce Center, 500 7th St., SE, Cedar Rapids, Iowa 52406-0729. Employer paid advertisement.

Senior Software Engineer. Develop Windows-based version of Corepart, company's main product. Develop new technologies. Establish features and design new features. Develop and unit test new features. Create test plans with quality assurance team. Work with documentation group to ensure that new features are properly documented. Work with product support organization to resolve issues raised by customers. REQUIREMENTS: Master's degree in C.S., Engineering, or Math plus one and a half years experience in job offered or one and a half years experience as a Software Engineer. Must have knowledge of Windows NT, Windows 98, Visual Basic, and C/C++, MFC, and Post Object Server, Unix Shell Script, Java Script, ASP and OPEN INVENTOR, object oriented programming and multi-thread programming. Salary: $85,562/year, M-F, 9-5. Submit two copies of resume to: Case Number 200116573, Labor Exchange Office, 19 Stanford St., 1st floor, Boston, MA 02114. Applicants must be workers eligible to accept employment in the US on a full time basis.

Software Engineers (in NJ & elsewhere) w/at least 1 yr exp in job offd or as Programmer/Analyst, Tech. Assistant or Engr. Research, analyze, dsgn, dvlp, test & implmt s/ware applics using C, ASP, VB, LoadRunner, ODBC, TCP/IP, Oracle & SQL in Win envrnmt. Position req. Masters in Info Systems or Science. Excellent Pay & Benefits. Mail resume to Trupti Patel, United Auction, LLP, 306-B Capital St, Saddle Brook, NJ 07663 or email to in.rpti@buythepallet.com

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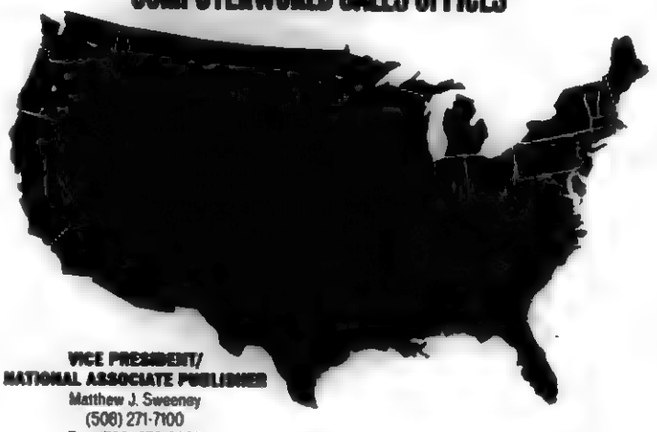

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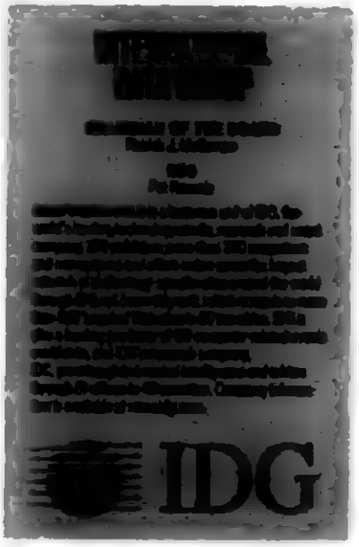

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Computon

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"It sounds too complicated to me," said Malcolm Fields, CIO at HON Industries Inc., a maker of office furniture and fireplaces in Muscatine, Iowa.

"The last thing that we need is another complicated licensing scheme," Fields said. "What we need is a quick and easy way to buy more computing power, and I need to be able to buy it in very small, inexpensive increments."

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In April, Sun introduced a pricing metric called the Sun Power Unit, which sets prices based on factors such as CPU utilization and the storage capacity used by customers, said Jay Littlepage, vice president of IT operations at Sun and head of its utility-based computing program.

Littlepage said Sun is testing the new approach in four pilot projects, including one that's aimed at determining how to price applications shared among multiple users.

As part of its computon effort, HP is developing separate pricing mechanisms for the different types of computing services it offers, such as network bandwidth, application hosting and data center activities, Huberman said.

Service-level agreements will reward HP's biggest customers with preferential pricing — as long as they guarantee a certain level of usage, Huberman said. He added that HP is also weighing the idea of sharing the computon formula with customers so they can use it to calculate internal chargebacks for IT services.

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Visas

for such legislation.

Unless Congress acts, the H-1B cap is due to drop from 195,000, its limit for the past three years, to 65,000 in October, the start of the 2004 fiscal year. But the L-1 visa, which has no cap, has become as controversial as the H-1B.

The L-1 program was designed to let companies with subsidiaries abroad transfer to the U.S. executives or workers who have specialized skills.

But critics contend that U.S. companies are using foreign outsourcing firms, known as "body shops," to import IT workers with L-1 visas and replace higher-paid employees. Last year, the government issued 57,700 L-1 visas.

In his bill, U.S. Rep. John Mica (R-Fla.) called the L-1 visa a "back door to cheap labor." The proposed legislation would require that employees be transferred from subsidiaries and not from third-party outsourcers.

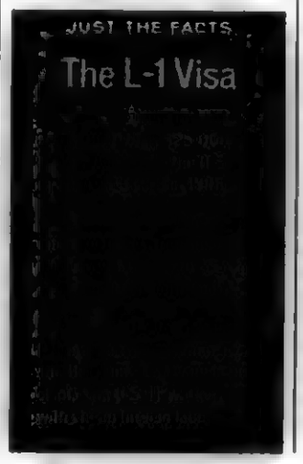
But Mica's bill may face opposition from all sides.

Mike Emmons, an Orlando-based activist who said he lost his consulting job because of the L-1 visa, lobbied Mica heavily but said he's disappointed with the proposed fix.

Emmons said the legislation includes a large loophole that would let a U.S. company set up shop in another country, hire workers there and then move them to the U.S.

"This is a pretty minuscule bill," said Emmons.

But Vic Goel, a Greenbelt, Md.-based immigration attorney who represents high-tech companies, said the legislation could prevent multinational firms from bringing in foreign IT workers to help clients in the U.S. For instance, Goel said, foreign workers who played a key role in developing a particular program may be needed to implement, service and maintain the software.



"The idea is to find a solution that promotes business and closes the door on the abusers," said Goel. He added that such a solution could involve finding a way to differentiate "project-based [work] vs. simple provisioning of warm bodies to fill seats."

Holders of L-1 visas can work in the U.S. for up to seven years. H-1B visas let foreign workers take jobs in the U.S. for as long as six years.

There has been no move yet in Congress to raise the H-1B cap, but that issue will be discussed at some point by the House Judiciary Committee's Subcommittee on Immigration, Border Security and Claims, a committee spokesman said. Whether legislation will be introduced is "unclear at this time," he said.

The Information Technology Association of America in Arlington, Va., which pushed for a higher H-1B cap in years past, hasn't asked Congress to raise the planned new limit, said Harris Miller, the trade group's president.

Miller added that he suspects Congress won't want to take up the issue until employment rates in the U.S. improve.

The strategy of proponents for a higher cap may be to wait until the 65,000 limit is reached, sometime in 2004, before seeking any further increase, said Miller.

Roughly 79,000 H-1B visas were issued in the government's last fiscal year, well short of the 195,000 cap.

VISA CONTROVERSY

For more on this issue, visit our Web site's Focus on H-1B Visas page.

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In April, Sun introduced a pricing metric called the Sun Power Unit, which sets prices based on factors such as CPU utilization and the storage capacity used by customers, said Jay Littlepage, vice president of IT operations at Sun and head of its utility-based computing program.

Littlepage said Sun is testing the new approach in four pilot projects, including one that's aimed at determining how to price applications shared among multiple users.

As part of its computon effort, HP is developing separate pricing mechanisms for the different types of computing services it offers, such as network bandwidth, application hosting and data center activities, Huberman said.

Service-level agreements will reward HP's biggest customers with preferential pricing — as long as they guarantee a certain level of usage, Huberman said. He added that HP is also weighing the idea of sharing the computon formula with customers so they can use it to calculate internal chargebacks for IT services. ◗

Continued from page 1

Visas

for such legislation.

Unless Congress acts, the H-1B cap is due to drop from 195,000, its limit for the past three years, to 65,000 in October, the start of the 2004 fiscal year. But the L-1 visa, which has no cap, has become as controversial as the H-1B.

The L-1 program was designed to let companies with subsidiaries abroad transfer to the U.S. executives or workers who have specialized skills.

But critics contend that U.S. companies are using foreign outsourcing firms, known as "body shops," to import IT workers with L-1 visas and replace higher-paid employees. Last year, the government issued 57,700 L-1 visas.

In his bill, U.S. Rep. John Mica (R-Fla.) called the L-1 visa a "back door to cheap labor." The proposed legislation would require that employees be transferred from subsidiaries and not from third-party outsourcers.

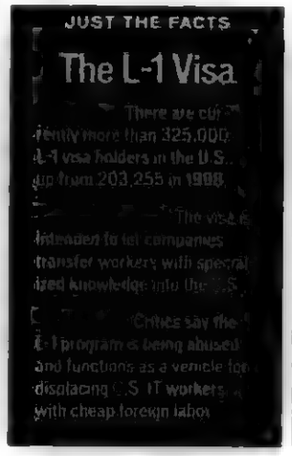
But Mica's bill may face opposition from all sides.

Mike Emmons, an Orlando-based activist who said he lost his consulting job because of the L-1 visa, lobbied Mica heavily but said he's disappointed with the proposed fix.

Emmons said the legislation includes a large loophole that would let a U.S. company set up shop in another country, hire workers there and then move them to the U.S.

"This is a pretty minuscule bill," said Emmons.

But Vic Goel, a Greenbelt, Md.-based immigration attorney who represents high-tech companies, said the legislation could prevent multinational firms from bringing in foreign IT workers to help clients in the U.S. For instance, Goel said, foreign workers who played a key role in developing a particular program may be needed to implement, service and maintain the software.



"The idea is to find a solution that promotes business and closes the door on the abusers," said Goel. He added that such a solution could involve finding a way to differentiate "project-based [work] vs. simple provisioning of warm bodies to fill seats."

Holders of L-1 visas can work in the U.S. for up to seven years. H-1B visas let foreign workers take jobs in the U.S. for as long as six years.

There has been no move yet in Congress to raise the H-1B cap, but that issue will be discussed at some point by the House Judiciary Committee's Subcommittee on Immigration, Border Security and Claims, a committee spokesman said. Whether legislation will be introduced is "unclear at this time," he said.

The Information Technology Association of America in Arlington, Va., which pushed for a higher H-1B cap in years past, hasn't asked Congress to raise the planned new limit, said Harris Miller, the trade group's president.

Miller added that he suspects Congress won't want to take up the issue until employment rates in the U.S. improve.

The strategy of proponents for a higher cap may be to wait until the 65,000 limit is reached, sometime in 2004, before seeking any further increase, said Miller.

Roughly 79,000 H-1B visas were issued in the government's last fiscal year, well short of the 195,000 cap. ◗

VISA CONTROVERSY

For more on this issue, visit our Web site's Focus on H-1B Visas page

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SCO's Stock Plot

SO WHAT DO YOU DO if you're the CEO of a $65 million software company that's losing money, losing market share and — worst of all — has a stock that's lost 99% of its value in the space of two years? If you're Darl McBride of The SCO Group, you file a billion-dollar lawsuit against IBM. Then drop the product you've staked your future on. Then send threatening letters to about 1,500 of your biggest potential customers. Then announce a deal with Microsoft.

Result: SCO's stock is up 500% since January. Sort of takes the mystery out of why SCO is taking wild swings at the Linux it championed just months ago, doesn't it?

We know SCO was losing money and market share and stock value, because that's all in the company's filings with the U.S. Securities and Exchange Commission. So is the statement about SCO depending on Linux to rescue the company from its declining Unix sales.

And the connection between SCO's stock price and the lawsuit, the threatening letters and the Microsoft deal? SCO's stock price jumped the day the IBM lawsuit was announced. It jumped again when SCO announced its letter-writing campaign. And again last Monday when *The Wall Street Journal* reported the Microsoft deal.

And every time it jumped, SCO started rattling its saber louder. If you're Darl McBride, you don't second-guess the strategy of trashing Linux to boost your stock price.

There are still a few opportunities for McBride to do that. On June 13, he'll probably announce that because IBM has breached its Unix license, SCO is canceling that license, so IBM can no longer legally sell AIX, IBM's version of Unix. That should make some headlines, and maybe add a dollar or two to the stock price.

And there will surely be plenty of publicity when SCO finally unveils to a few carefully chosen experts some carefully chosen examples of how Linux source code is riddled with copyrighted Unix code. They may not get much chance to determine exactly where any similarities in the code came from, or what they mean. But that's missing the point — or rather, the points the event will add to the price of SCO shares.

Of course, eventually SCO will have to try to convince a judge and jury that its claims about IBM and Linux are true. But with any luck, McBride will have cashed out by then, either by selling the company or handing the mess off to some new CEO.

Does that sound cynical? Then you haven't been paying attention to SCO. When McBride was hired as SCO's new honcho a year ago, the stock was at about a dollar. McBride slashed costs, including R&D. He cut deals, mostly with other companies that, like SCO, are funded by Ray Noorda's Canopy Group. He changed the company's name to The SCO Group from Caldera. In short, he acted very much like a CEO who's sprucing his company up to be sold.

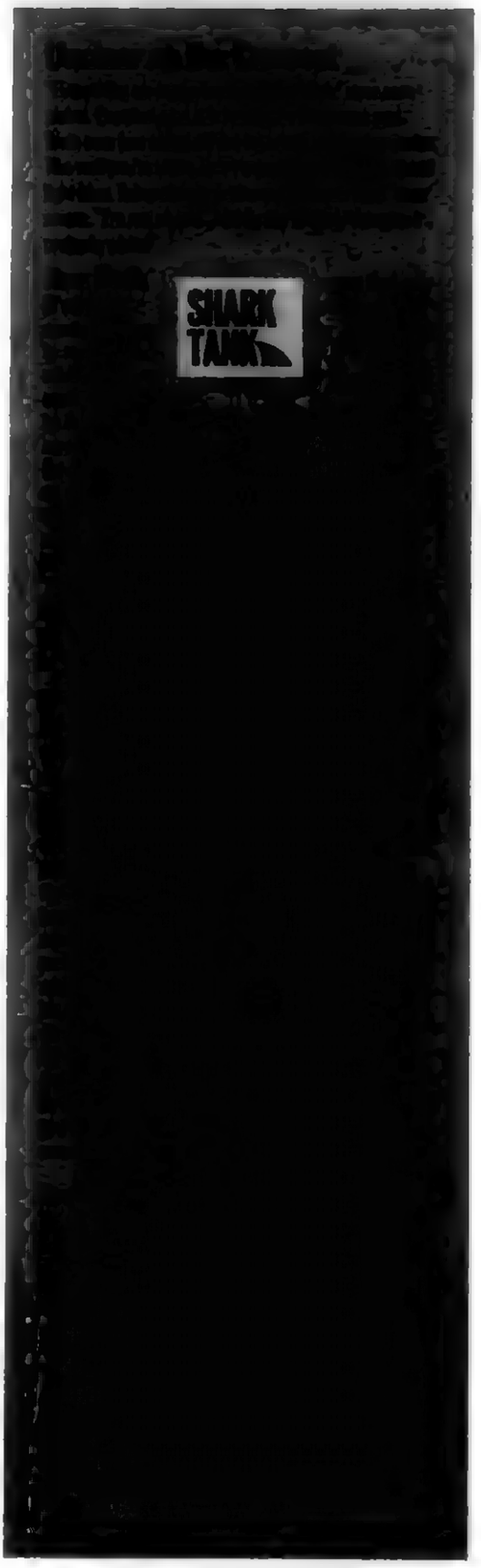
But nothing seemed to budge the stock price until SCO sued IBM in March. Success at last!

Since then, McBride has looked even more like a CEO who's gutting his company to sell it. He killed SCO's Linux — his company's future, remember? He antagonized potential customers in mid-May by sending threatening letters to 1,500 commercial Linux users.

Today SCO may not have R&D or a future-facing product or a growing customer base. But, hey, how about that stock price!

All of which isn't good news for SCO customers. But it should be a relief to everyone else. After all, suing the people who buy software is never going to push SCO's stock price up. And as long as there's one more way to goose that stock price, Darl McBride won't be worrying about us.

Because if you're the CEO of SCO, the last thing you pay attention to is customers. ◗



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9:15am to 9:45am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners (an IT consultancy)
9:45am to 10:15am	**Business Case Study** Helen Cousins, CIO and SVP, Cendant Corporation
10:15am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Helen Cousins, CIO and SVP, Cendant ■ Robert Reeg, SVP, Systems Development, MasterCard International ■ Kim Ross, CIO, Nielsen Media Research ■ Greg Schueman, Vice President and CTO, Mercury Insurance Group ■ Gregory Tranter, CIO, Allmerica
11:30am to Noon	Open Forum

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Microsoft Fees Now Buy More

Software Assurance customers will get support, training

BY CAROL SLIWA

Microsoft Corp. last week made good on a long-standing pledge to add value to its controversial Software Assurance maintenance program. The company disclosed plans to provide expanded support, training and Office home-use benefits starting in September.

SOFTWARE SUPPORT

Although Microsoft has been tweaking the program for months [QuickLink 31514], last week's disclosure was the most significant step yet toward addressing the concerns raised by customers since the Software Assurance program's abrupt introduction in May 2001.

Until now, the chief benefit for companies has been upgrade rights to products covered under their two- or three-year contracts. For that, they have paid an annual fee of 25% of the volume license cost for server products and 29% for desktop products.

"I think there was a feeling they either needed to do more or charge less," said one cus-

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Offshore Ops to Get Stronger Privacy Lock

U.S. firms that outsource work to India welcome legislation to protect data

BY JAIKUMAR VIJAYAN

India's Ministry of Information Technology and the country's main software trade association are drafting a data protection act designed to allay growing privacy concerns in the U.S. and Europe related to offshore outsourcing.

The legislation, expected to be enacted around the beginning of next year, would provide legal safeguards to ensure data privacy protection in India, said Kiran Karnik, president of the National Association of Software and Service Companies, known as Nasscom, in New Delhi.

The new rules are being drafted primarily to address the European Union's strict privacy requirements, Karnik said. EU laws prohibit companies from exporting data to or storing data in countries that lack privacy safeguards comparable to the EU's. "The EU has very stringent laws with

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New Sarbanes-Oxley Apps Provide Only Limited Help

Few products for managing compliance with the financial reporting law are comprehensive

BY THOMAS HOFFMAN

A growing number of software vendors are starting to offer applications designed to help companies comply with the financial reporting requirements of the Sarbanes-Oxley Act. But most of the products are point solutions that focus on specific areas, such as internal accounting controls.

For example, Oracle Corp. last week announced a set of software tools for addressing Sarbanes-Oxley's Section 404, which requires CEOs and CFOs to certify that the financial control procedures used by their companies are effective.

Redmond, Wash.-based Concur Technologies Inc. later this month plans to introduce a similar package for documenting how its expense management software functions in order to comply with Section 404. The new technology will be included as part of the annual maintenance fee paid by users of the company's software, said Christopher Juneau, Concur's senior director of product management.

Customized software created by big accounting and IT consulting firms is among the few options available to users seeking a full complement of tools for automating compliance with Sarbanes-Oxley. Thomas Murphy, CIO at Royal

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It's a long-running debate in IT circles: Do you buy a packaged application and customize it, or do you build the application from scratch? Advocates on both sides weigh the pros and cons. **Page 39**

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RICHARD BORGE

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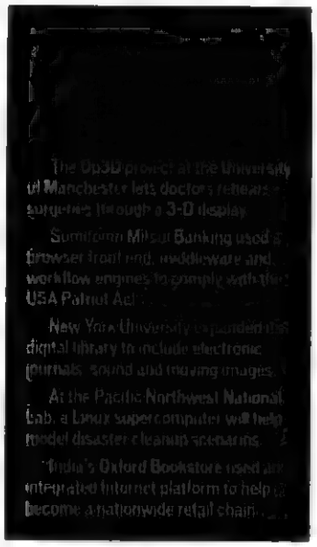

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IT professional and technology writer Ryan Faas takes a look at how organizations can tackle the Mac/PC challenge in two basic ways: server-side and client-side software. **QuickLink 36720**

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At the Pacific Northwest National Lab, a Linux supercomputer will help model disaster cleanup scenarios.

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AT DEADLINE

Microsoft Settles Lawsuit With AOL

Microsoft Corp. said it will pay AOL Time Warner Inc. $750 million to settle an antitrust suit filed on behalf of Netscape Communications Corp. in January 2002. Microsoft also will give AOL Time Warner's America Online Inc. division a royalty-free, seven-year license to use Internet Explorer with its client software. The suit claimed that Microsoft illegally harmed Netscape's Web browser business.

J.D. Edwards Reports Q2 Loss

Business applications vendor J.D. Edwards & Co. dropped back into the red during its second quarter, reporting a loss of $393,000 for the three-month period that ended April 30. Revenue totaled $203.5 million, down 9% from $223.6 million a year ago. CEO Bob Dutkowsky said Denver-based J.D. Edwards was affected by smaller transactions as users scaled back purchases.

HP, Ericsson Set To Finalize IT Deal

Hewlett-Packard Co. and LM Ericsson Telephone Co. this week are expected to announce that they have finalized an IT outsourcing deal valued at more than $1 billion. Stockholm-based Ericsson in April said that it had signed an agreement in principle to hand over management of its IT operations to HP, with a formal deal expected by midyear.

Short Takes

In other HP news, the company this week plans to release a low-end network-attached storage device priced at $2,999, which is $5,000 less than its existing entry-level product. . . . CISCO SYSTEMS INC. this week is due to announce upgraded software for managing corporate wireless LAN installations.

Microsoft to Introduce Security Certifications

Exams tailored for IT professionals who specialize in security for Windows

BY CAROL SLIWA

MICROSOFT CORP. tomorrow will announce its first set of certification credentials for IT administrators and engineers who specialize in security in a Windows environment.

Dan Truax, director of business and product strategy for training and certification at Microsoft, noted that the company has offered security courses for years. But he said Microsoft decided to take the extra step of creating a formal credential in recognition of the number of customers that now specialize in that type of job.

The announcement of the new certifications is scheduled to be made during a keynote address by Scott Charney, Microsoft's chief security strategist, at the company's TechEd 2003 conference in Dallas.

The more rigorous of the two certifications being introduced is the Microsoft Certified Systems Engineer (MCSE): Security on Microsoft Windows 2000. To achieve that status, an engineer must pass six core exams and demonstrate a "security specialty" by taking a test on Microsoft Internet Security and Acceleration (ISA) Server 2000 or an exam administered by the Computing Technology Industry Association, better known as CompTIA.

ALSO AT TECHED

Microsoft will announce the availability of Release Candidate 1 of Exchange Server 2003.

QuickLink 38824
www.computerworld.com

The requirements are essentially the same as for an ordinary MCSE certification, except the security candidate has to take the core security design exam and a security implementation exam that Microsoft introduced in January, along with the ISA Server or CompTIA exam.

The other new certification — Microsoft Certified Systems Administrator (MCSA): Security on Microsoft Windows 2000 — requires the four exams needed for a typical MCSA certification, plus one additional exam. One core exam on the client operating system and two on networking systems are mandated along with the security implementation exam and either the ISA Server or CompTIA exam.

NEW CERTIFICATIONS

Microsoft Certified Systems Administrator: Security on Windows 2000

- **Core exams:** Client operating system (1), networking system (2), security implementation (1)
- **Security specialty:** One required (options: installing, configuring and administering Microsoft Internet Security and Acceleration Server 2000, Enterprise Edition or CompTIA Security+)

Microsoft Certified Systems Engineer: Security on Windows 2000

- **Core exams:** Client operating system (1), networking system (3), security design (1), security implementation (1)
- **Security specialty:** One required (same options as above)

SOURCE: MICROSOFT CORP.

Certifications aren't yet available for Windows Server 2003, but they're expected to become available later this year, according to Truax.

Truax said Microsoft was first approached last summer about creating a special security credential. Customers and partners subsequently advised the company not to create credentials similar to any that already exist in the industry, but rather to focus on offering a certification specific to the Microsoft software environment, he said. "Our goal was to complement what exists in the industry, not to compete with it," Truax said.

How important the new certifications will be to IT shops is unclear. Charles Emery, senior vice president and CIO at Horizon Blue Cross Blue Shield of New Jersey in Newark, said he views the new Microsoft programs as positive for the industry. But he also noted that Horizon Blue Cross Blue Shield doesn't use certifications as hiring criteria, because it has often found that certification holders have no practical experience.

Mike Lines, an Indianapolis-based manager of technical integration at Bell Industries Tech.logix Group, said that as a provider of outsourced IT services, his company requires all of its engineers to carry the MCSE credential. Lines said he definitely will have a couple of engineers take the new security certification exams.

But one certified Microsoft trainer, who asked not to be identified, said it's difficult for any vendor to develop a security curriculum for its own products. He said third parties, such as the SANS Institute, tend to take a more critical and thorough approach.

Microsoft Set to Ship NAS Upgrade to Storage Vendors

At TechEd, Microsoft today plans to announce that it will release the third generation of its network-attached storage (NAS) software to hardware vendors this month. Added features are designed to let the Windows-based technology be used in a wider range of storage devices.

The Windows Powered NAS upgrade was detailed as part of Microsoft's Windows Server 2003 rollout in April and includes new Virtual Shadow Copy Service and Virtual Disk Service middleware components, plus a software driver that supports the Internet SCSI storage interconnect standard.

Claude Lorenson, product manager for Microsoft's enterprise storage division, said the Server Appliance Kit 2003 release of the NAS software should start appearing in storage devices by September.

Analysts said Microsoft's latest release will put more pressure on NAS software rivals like Network Appliance Inc. in Sunnyvale, Calif., and Snap Appliance Inc. in San Jose. NetApp and Snap are among the holdout storage vendors that have yet to team up with Microsoft, which in late April announced a deal under which EMC Corp. will sell Windows Powered NAS on its Clarion midrange arrays.

According to Pushan Rinnen, an analyst at Gartner Inc. in Stamford, Conn., Microsoft more than doubled its NAS revenue last year and had a 15% share of the $1.4 billion market. In comparison, NetApp had a 37% market share, Rinnen said.

Despite that gap, Microsoft is starting to nip at NetApp's heels, said Dennis Martin, an analyst at Evaluator Group Inc. in Englewood, Colo. "It's just the fact that they're making it easy for OEMs to sell this stuff," he said.

— Lucas Mearian

Legal Threat Won't Deter Linux Adoption for Now, Users Say

But uncertainty raises concerns about future plans

BY PATRICK THIBODEAU

The SCO Group Inc.'s claim that the Linux kernel contains large blocks of illegal code isn't stalling corporate adoption of the open-source operating system. But the case is clearly getting the attention of many IT managers, and some said the uncertainty it's creating could have an impact on future Linux implementation plans.

Lindon, Utah-based SCO, which in March filed a $1 billion lawsuit against IBM alleging misappropriation of trade secrets and unfair competition [QuickLink 36901], now claims that sections of the Linux kernel — in chunks of code as large as 15 lines — were copied from its Unix System V operating system. In May, the company sent letters to all Fortune 1,000 and Global 500 companies with a vague warning that using Linux could put them at legal risk [QuickLink 38514]. But so far SCO's actions don't appear to be affecting corporate rollouts.

"I have not heard of the lawsuit substantially altering people's plans for Linux deployment," said Jim Battan, president of the Portland, Ore., chapter of the Chicago-based Society for Information Management. "It's something most companies are observing closely but aren't too worried that there will be substantial end-user complications."

Duke Energy Corp. in Charlotte, N.C., for instance, is proceeding apace with its Linux adoption, said Bruce Anderson, the company's general manager of IT strategies and technical architecture. Like a lot of large companies, Duke Energy has Linux on limited-function appliance devices.

Dan Agronow, vice president of technology at Weather.com and Weather Channel Enterprises Inc. in Atlanta, said SCO's actions raise more questions than answers. "It's having no effect at all" on Linux use at his company, said Agronow. "There's too much uncertainty."

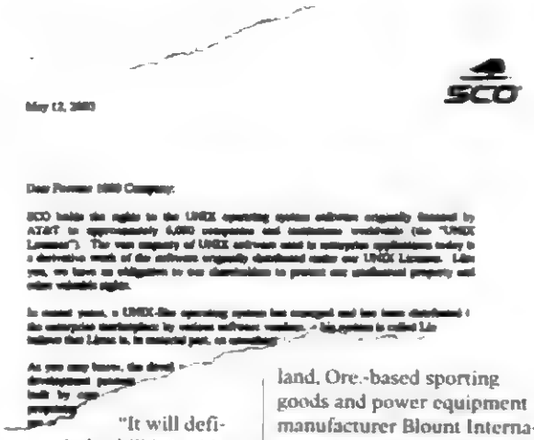
The uncertainty and skepticism over SCO's claim stem from a lack of proof. SCO said that beginning next week, it will show its source code to analysts who agree to sign a nondisclosure agreement. But it may have trouble getting takers.

Giga Information Group Inc. analyst Stacey Quandt said she is wary that signing a nondisclosure agreement could prevent her from discussing the legitimacy of SCO's claims. She called the offer a PR stunt. "[SCO] should tell everybody what they have," said Quandt, who has advised clients of Cambridge, Mass.-based Giga to continue with their Linux adoptions.

George Weiss, an analyst at Gartner Inc. who recently recommended minimizing Linux adoption in complex, mission-critical systems until the merits of SCO's claims or any judgments are clear, has also been talking to SCO. He said he's leaning against accepting SCO's offer, noting that SCO is making its case based on "vague inferences" and is asking analysts to do the same. "It's stepping right into their shoes," he said.

Regardless of the uncertainties, legal experts said users have to pay attention. "The fact that you ignored it could potentially cause your damages to increase substantially," said Brian E. Ferguson, an attorney in McDermott, Will & Emery's Washington office. "The ostrich's head-in-the-sand approach is definitely not an option."

Until the case is resolved, Peter Mojica, a vice president at AXS-One Inc., a Rutherford, N.J., supply chain software vendor, said he expects companies will at least consider the legal challenge before proceeding with Linux adoptions.



"It will definitely chill it," said Mojica, although he noted that Linux will still be widely adopted in the long run. "It is kind of hard to stop the open-source train," he said.

Barry Brunetto, director of information systems at Portland, Ore.-based sporting goods and power equipment manufacturer Blount International Inc., said SCO's legal claims may be a factor in any strategic Linux decision his company makes. "It does play into our mind," he said.

Reporter Todd R. Weiss contributed to this story.

PROVE IT

Novell challenges SCO to prove its Linux allegations:

QuickLink 38754

Full coverage: Additional stories on this subject are available at

QuickLink a3280
www.computerworld.com

SCO Official Defends Linux Attack

The SCO Group claims that beginning next week, it will show analysts where the Unix code it owns has been illegally copied into the Linux kernel. In an interview with *Computerworld*'s Patrick Thibodeau, **Chris Sontag**, senior vice president and general manager of SCOsource, the division of SCO Group that's in charge of protecting the company's intellectual property, discussed SCO's position.

Why should Linux users take your claim seriously? Think about if I was the CIO of a company and I'm going to be running my business on an operating system that has an intellectual property foundation that, by almost everyone's admission, is built on quicksand. There is no mechanism in Linux to ensure [the legality of] that intellectual property – the source code being contributed by various people.

Your recent letter to 1,500 user companies outlining your claim was vague. What is it that you want from these companies? The one thing that we specifically want from those 1,500 companies that we directly sent those letters to is for them to not take our word on the warning that we sent . . . but to seek an opinion of their legal counsel as to the issues that we raised.

Should companies remove Linux from their systems? We're not making any specific recommendations at this time.

Are you considering suing Linux users that you notified? Anything is always a possibility. If you are going to enforce your contracts, claims and intellectual property, you have to be able to go to ultimately the endpoint of infringement.

How many lines of code in the Linux kernel are a direct copyright violation? It's very extensive. It is many different sections of code ranging from five to 10 to 15 lines of code in multiple places that are of issue, up to large blocks of code that have been inappropriately copied into Linux in violation of our source-code licensing contract. That's in the kernel itself, so it is significant. It is not a line or two here or there. It was quite a surprise for us.

Why did Microsoft decide to get a license from you? Completely unrelated. Microsoft has been adding more and more Unix compatibility and Unix interoperability into their products. We got in contact with them early this year to let them know that we had concerns about it they had all the appropriate intellectual property necessary to be providing that Unix capability.

We ended up in negotiations where they have licensed some of our Unix Systems V intellectual property from us for use in their Services for Unix products. . . . They recognized that it was important to have appropriate intellectual property licenses for the property they are using.

Have you made a similar licensing offer to the 1,500 companies that received your letter? We have no specific program or solution for solving this Linux intellectual property problem right now.

BRIEFS

Microsoft Forms Security Team . . .

Microsoft Corp.'s IT security business unit has set up a group that will establish new software development processes and look at security issues across all its product lines. The Security Engineering Strategy team will have about 10 workers recruited from inside and outside Microsoft, said director Scott Lipner. The company needs "to do a more coherent job" of trying to limit security flaws, he added.

. . . And Warns of Software Flaws

Microsoft also issued two bulletins warning of vulnerabilities in its Web server and Window Media Services software. It released patches designed to fix the flaws, none of which were given a "critical" severity rating. In addition, Microsoft pulled from its Web site an updated implementation of the IPsec security protocol for Windows XP after some users reported problems.

Symantec, DISA Sign Security Deal

Symantec Corp. announced a three-year deal to provide the U.S. Defense Information Systems Agency (DISA) with early-warning information about IT security threats and cyberattacks. The data will complement other systems at DISA and will be used to formulate recommendations for protecting IT assets within the Pentagon, the Cupertino, Calif.-based company said.

Short Takes

DELL COMPUTER CORP. said that EASTMAN CHEMICAL CO. in Kingsport, Tenn., is buying about 14,000 desktop and notebook PCs in a $16 million upgrade deal. . . . IBM announced a low-end Unix server that's based on its Power4+ microprocessor, completing a shift of its systems to that chip.

MARK HALL • ON THE MARK

HP to Update OpenView Road Map . . .

. . . later this month, says Todd DeLaughter. He's OpenView vice president at Hewlett-Packard Co., so he should know. But he's a bit mum on the details, revealing only that Service Desk 4.5 will be bumped to Version 5.0 and include **more automated problem-resolution capability.** According to DeLaughter, "We view service management as not the endgame. We want network management to evolve into adaptive services." (That's HP's phrase for utility computing.) He adds that the industry is moving toward automating problem resolution with the help of IT management systems like OpenView. "It's a trust that builds over time," he says. OpenView user Joe Madden, director of managed services for three data centers run by Consonus Inc. in Salt Lake City, has an interesting take on who trusts products like OpenView to identify problems and fix them without human intervention. "System administrators and DBAs show more willingness to accept automation," he observes. "Network guys are less inclined." Why's that? Madden thinks operating systems and databases suffer from **persistent patching problems,** which makes automatic patch services very desirable. Network problems tend to be intermittent, inconsistent and, at times, just plain inexplicable, which makes human intervention invaluable. • If you invest in IT vendors, you may have noticed that database companies are prized by Wall Street more than firms whose products manage unstructured data, despite the fact that **10 times as much corporate information** is stored in unstructured formats such as e-mails, Web pages and whatnot. Prabhakar Raghavan, chief technology officer at Verity Inc., grouses that if you look at market capitalizations (outstanding shares multiplied by share price) of database companies and compare them with the slew of search, document management and content management businesses, you'll see that the stock market prefers database vendors. (That's probably because Google Inc. is still a private company.) **But that may change in three to five years,** he says, as unstructured data search tools become even more analytical and add advanced XML queries. Databases will be constrained in this area because of their rigid schemas. Verity isn't waiting until then to make improvements to its products. At the end of this month, the Sunnyvale, Calif.-based search technology vendor plans to ship the 5.1 upgrade of its Ultraseek search engine, adding a new graphical user interface tool to lay out query results and sprucing up its analytical functions. • Once you find all the data you need, you'll want to do something with it. The folks at Somerville, Mass.-based Spotfire Inc. would appreciate it if you ran it through AnalysisBuilder, **a new and free module available today** in DecisionSite 7.2, the company's business-intelligence software. The tool makes it pretty simple for users to capture data from a variety of sources, annotate it and then share it with others via e-mail in an HTML format with a single mouse click. • Naturally, all that data has got to live somewhere, and it will increasingly reside in a storage-area network (SAN) or network-attached storage (NAS) environment. You'll have more options by month's end, when Spinnaker Networks LLC in Pittsburgh ships SpinServer 4100. The new NAS device can manage a single file as big as 22TB. **(Or, slightly bigger than the size of a certain editor in chief's internal memos.)** And a six-node cluster of the 4100 can handle 11 petabytes of data. (Room for plenty of memos.) Marketing vice president Jeff Hornung displays a remarkable honesty in admitting that his young start-up "is behind companies with longer histories in terms of offering a complete solution." But the 4100, whose little brother the 3300 shipped last year, already integrates into most SAN environments and works with Advanced Technology Attachment drives from Nexan Inc. The major drawback might be in backup applications. Right now, it works only with backup software from Veritas Software Corp. Hornung says you can expect to see compatibility soon with backup products from Legato Systems Inc., Tivoli Software and Computer Associates International Inc. **All this for less than $70,000.**

A new filtering tool, Chaperone for Exchange from Duffield, Va.-based Carmel Post Software LLC, goes into beta-testing in two weeks and will ship by the end of July. The product filters out spam and runs keyword searches on outgoing e-mail to prevent company secrets from finding their way into the wrong hands. Pricing hasn't been set.

3Com Readies Low-Cost Gigabit Switches

BY MATT HAMBLEN

3Com Corp. today plans to expand its line of switches for small and medium-size businesses by announcing five Gigabit Ethernet devices.

The new switches range in price from $149 for a model with eight ports — only one of which is capable of Gigabit Ethernet performance — to $3,495 for a system with 24 Gigabit Ethernet ports, said Robert Winch, director of product management at Santa Clara, Calif.-based 3Com. Two of the switches are desktop models, and the other three are rack-mountable. All five are due this summer.

Kirk McClanahan, network administrator at CSA Travel Protection in San Diego, said the insurance provider plans to add two switches to its network to move information between 175 desktop PCs and its data storage devices.

Data-transfer workloads on CSA's network are expected to increase because of corporate growth, McClanahan said. He added that CSA "needed to increase the available speed without spending a lot."

3Com is one of several leading vendors in the market for unmanaged switches, which operate without relying on the Simple Network Management Protocol and functions that typically help IT administrators monitor network access and usage, said Joshua Johnson, an analyst at Synergy Research Group Inc. in Phoenix.

"Compared to many segments of networking, this is one area that's growing," Johnson said, adding that annual sales of unmanaged switches total about $500 million. Other top vendors include Dell Computer Corp., D-Link Systems Inc., Netgear Inc. and Linksys Group Inc.

Sales of switches supporting Gigabit Ethernet data rates should also see growth "because the difference in price over standard Ethernet is minimal," said Zeus Kerravala, an analyst at The Yankee Group.

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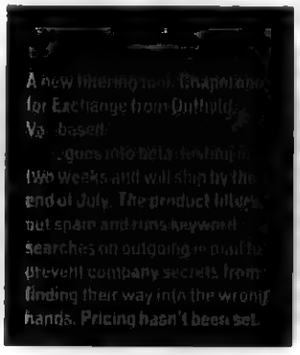

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System Crashes Linked to Centrino, VPN Client Glitch

New Intel mobile chip set incompatible with Nortel's software, possibly others

BY BOB BREWIN

INTEL CORP. last week turned off software used by its Centrino mobile chip set because of incompatibility problems that can cause some notebook and laptop PCs to be hit by blue-screen system crashes if users try to run virtual private network (VPN) client software.

WIRELESS

The problems came to light after Nortel Networks Ltd. acknowledged that the operating system on Centrino-based PCs can stop functioning when Nortel's Contivity VPN software is installed. A posting on Intel's Web site indicates that the suspected cause of the system crashes could apply to any VPN client package.

Mike Schexnaydre, a software engineer at Nortel, said the Brampton, Ontario-based company has determined that the conflicts between Contivity and Centrino stem from the use of an adapter-switching feature in the Intel-developed software used to manage wireless LAN setup profiles and other functions on PCs.

The adapter-switching component of Intel's PROSet software lets end users automatically switch from wired to wireless connections, Schexnaydre said. But a work-around developed by Nortel requires IT departments to uninstall the PROSet drivers, according to a technical bulletin that the company released May 14.

Big Problem, No Solution

Jonathan Jordan, a LAN engineer at a large textile company in South Carolina, is experiencing firsthand the incompatibility between Centrino and Nortel's VPN software. Jordan said he ordered "hundreds" of Centrino-based laptops from Dell Computer Corp., only to discover that installing the Contivity client "causes the PC to blue-screen upon reboot."

He added that he has worked on the problem with Dell and Nortel for more than a month, but the vendors still don't have a viable solution. Nortel's work-around disables useful functions in PROSet, Jordan said, and unless the problem is resolved, his company "may have to move away from the Intel Centrino chip set."

Intel spokesman Daniel Francisco confirmed that the incompatibility issue involves the adapter-switching feature but said that Intel thinks most Centrino-based systems are already being shipped with that functionality switched off.

An advisory that's posted on Intel's Web site and dated Feb. 26 — nearly two weeks prior to Centrino's official launch on March 12 — says the adapter-switching feature "must be disabled when VPN client software is in use."

Seattle-based WatchGuard Technologies Inc. and San Jose-based Secure Computing Corp., two other vendors of VPN clients, said they're investigating whether there are any conflicts between Centrino and the products they sell.

The Centrino architecture, which has been widely adopted by hardware vendors, includes a Pentium-M mobile processor and a supporting chip set that helps manage power consumption, graphics cards and the Universal Serial Bus ports on PCs.

Schexnaydre said the operating system freezes appear to occur only on Centrino-based models that include an 855GM version of the onboard graphics and power management controller. PCs with Intel's 855PM chip set don't appear to be affected, he added.

Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn., said he finds the fact that Intel didn't build plug-and-play VPN client support into Centrino "baffling." But he noted that it illustrates the fact that vendors of mobile and wireless technology have done a poor job of addressing users' security requirements. ▶

Tools Help Administrators Secure Mobile-Device Data

Ability to control network access a growing concern

BY JAIKUMAR VIJAYAN

The mushrooming use of mobile devices such as PDAs and smart phones is creating a growing security problem, and companies have few tools to deal with it.

But that's changing. This week's Gartner IT Security Summit in Washington will feature products from two vendors that are intended to help companies secure critical data on mobile devices.

One of the vendors is Credant Technologies Inc., a Dallas-based company that's partly funded by Intel Corp. Credant's Mobile Guardian software lets companies centrally manage security-policy administration and on-device policy enforcement, according to the company. With it, administrators will be able to track and control mobile device usage on their networks, as well as protect the data stored on such devices via encryption and tight access control.

The other vendor is Baltimore-based Bluefire Security Technologies Inc. Its Mobile Firewall Plus technology features an on-device firewall that protects data on the system and provides a logging and alerting service that lets administrators track device usage and system compromises, company officials said.

Red Flag

Such tools are aimed at addressing growing security concerns related to the use of nonsecure mobile devices on enterprise networks, said Sally Hudson, an analyst at IDC in Framingham, Mass.

As users increasingly move to sync mobile devices with their office systems, corporate information may be getting downloaded to those devices with little or no protection. "Enterprises are waking up to the fact that it is important to monitor and control this flow," Hudson said.

The 22-hospital Banner Health system in Phoenix is testing Credant's software to determine whether it can protect patient health information stored on mobile devices.

"There's a lot of data that's being put on these devices," said Dave Jahne, a senior security analyst at Banner. "Since the HIPAA regulations came out, we are looking for ways to secure that data."

The expectation is that Credant's technology will allow Banner to impose and enforce strict security policies related to the use of such devices and the data stored on them, Jahne said.

Despite the promised benefits, these products aren't faultless. The large size of the Credant agent software installed on mobile devices could be a problem for some users, according to Jahne. Meanwhile, Bluefire acknowledges that its technology can do little to detect and stop unauthorized mobile devices from logging onto networks.

Even so, user concerns will fuel increasing demand for mobile-security products such as firewalls, encryption technology and tools for intrusion detection, authentication, authorization and access control, according to Hudson. IDC expects the market for these products to grow 71% annually, from $84.5 million in 2002 to over $1.2 billion in 2007.

Other vendors in this small but growing market include Pointsec Mobile Technologies AB in Stockholm and F-Secure Corp. in Helsinki, Finland. ▶

NEW PRODUCTS

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- An on-device policy-enforcement agent that encrypts and controls access to data on the mobile devices.
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Bluefire Mobile Firewall Plus

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System Crashes Linked to Centrino, VPN Client Glitch

New Intel mobile chip set incompatible with Nortel's software, possibly others

BY BOB BREWIN

INTEL CORP. last week turned off software used by its Centrino mobile chip set because of incompatibility problems that can cause some notebook and laptop PCs to be hit by blue-screen system crashes if users try to run virtual private network (VPN) client software.

WIRELESS

The problems came to light after Nortel Networks Ltd. acknowledged that the operating system on Centrino-based PCs can stop functioning when Nortel's Contivity VPN software is installed. A posting on Intel's Web site indicates that the suspected cause of the system crashes could apply to any VPN client package.

Mike Schexnaydre, a software engineer at Nortel, said the Brampton, Ontario-based company has determined that the conflicts between Contivity and Centrino stem from the use of an adapter-switching feature in the Intel-developed software used to manage wireless LAN setup profiles and other functions on PCs.

The adapter-switching component of Intel's PROSet software lets end users automatically switch from wired to wireless connections, Schexnaydre said. But a workaround developed by Nortel requires IT departments to uninstall the PROSet drivers, according to a technical bulletin that the company released May 14.

Big Problem, No Solution

Jonathan Jordan, a LAN engineer at a large textile company in South Carolina, is experiencing firsthand the incompatibility between Centrino and Nortel's VPN software. Jordan said he ordered "hundreds" of Centrino-based laptops from Dell Computer Corp., only to discover that installing the Contivity client "causes the PC to blue-screen upon reboot."

He added that he has worked on the problem with Dell and Nortel for more than a month, but the vendors still don't have a viable solution. Nortel's work-around disables useful functions in PROSet, Jordan said, and unless the problem is resolved, his company "may have to move away from the Intel Centrino chip set."

Intel spokesman Daniel Francisco confirmed that the incompatibility issue involves the adapter-switching feature but said that Intel thinks most Centrino-based systems are already being shipped with that functionality switched off.

An advisory that's posted on Intel's Web site and dated Feb. 26 — nearly two weeks prior to Centrino's official launch on March 12 — says the adapter-switching feature "must be disabled when VPN client software is in use."

Seattle-based WatchGuard Technologies Inc. and San Jose-based Secure Computing Corp., two other vendors of VPN clients, said they're investigating whether there are any conflicts between Centrino and the products they sell.

The Centrino architecture, which has been widely adopted by hardware vendors, includes a Pentium-M mobile processor and a supporting chip set that helps manage power consumption, graphics cards and the Universal Serial Bus ports on PCs.

Schexnaydre said the operating system freezes appear to occur only on Centrino-based models that include an 855GM version of the onboard graphics and power management controller. PCs with Intel's 855PM chip set don't appear to be affected, he added.

Chris Kozup, an analyst at Meta Group Inc. in Stamford, Conn., said he finds the fact that Intel didn't build plug-and-play VPN client support into Centrino "baffling." But he noted that it illustrates the fact that vendors of mobile and wireless technology have done a poor job of addressing users' security requirements. ▶

Tools Help Administrators Secure Mobile-Device Data

Ability to control network access a growing concern

BY JAIKUMAR VIJAYAN

The mushrooming use of mobile devices such as PDAs and smart phones is creating a growing security problem, and companies have few tools to deal with it.

But that's changing. This week's Gartner IT Security Summit in Washington will feature products from two vendors that are intended to help companies secure critical data on mobile devices.

One of the vendors is Credant Technologies Inc., a Dallas-based company that's partly funded by Intel Corp. Credant's Mobile Guardian software lets companies centrally manage security-policy administration and on-device policy enforcement, according to the company. With it, administrators will be able to track and control mobile device usage on their networks, as well as protect the data stored on such devices via encryption and tight access control.

The other vendor is Baltimore-based Bluefire Security Technologies Inc. Its Mobile Firewall Plus technology features an on-device firewall that protects data on the system and provides a logging and alerting service that lets administrators track device usage and system compromises, company officials said.

Red Flag

Such tools are aimed at addressing growing security concerns related to the use of nonsecure mobile devices on enterprise networks, said Sally Hudson, an analyst at IDC in Framingham, Mass.

As users increasingly move to sync mobile devices with their office systems, corporate information may be getting downloaded to those devices with little or no protection. "Enterprises are waking up to the fact that it is important to monitor and control this flow," Hudson said.

The 22-hospital Banner Health system in Phoenix is testing Credant's software to determine whether it can protect patient health information stored on mobile devices.

"There's a lot of data that's being put on these devices," said Dave Jahne, a senior security analyst at Banner. "Since the HIPAA regulations came out, we are looking for ways to secure that data."

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The expectation is that Credant's technology will allow Banner to impose and enforce strict security policies related to the use of such devices and the data stored on them, Jahne said.

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AT&T Aims Network Services At Storage and Hosting Users

Business-continuity offerings include data backup, remote server monitoring

BY MATT HAMBLEN

AT&T CORP. last week announced two network services, one that connects corporate systems to data backup sites and another that lets IT managers remotely monitor servers hosted by AT&T in its data centers.

The StorageConnect Service and Direct Control offerings work with a variety of other services focused on business reliability. For example, StorageConnect can be combined with AT&T's Ultra-vailable Storage Service, a partnership set up two years ago with Hopkinton, Mass.-based EMC Corp. to provide managed storage, said Bernie McElroy, vice president of business continuity and high-availability services at AT&T.

The new services expand AT&T's effort to move beyond its traditional role as a seller of network pipes, said Zeus Kerravala, an analyst at The Yankee Group in Boston. No other telecommunications carrier is offering as comprehensive a set of business-continuity services, he added.

According to McElroy, StorageConnect is an end-to-end managed connection service, offering a network pipe provisioned with a storage networking protocol that connects a company's primary data center to a backup location. Users can choose one of three service-level agreements depending on their data availability needs, and AT&T will set up the connections and offer consulting help.

Atlanta-based Worldspan LP, which operates a computerized reservation system for the travel industry, has been using StorageConnect since April to link EMC Symmetrix storage arrays at a production data center with a backup IT facility.

David Lauderdale, Worldspan's chief technology officer, said the company replicates up to 12TB of information once or twice a day between the two data centers. Eventually, Worldspan expects to expand the amount of replicated data to 20TB, he added.

The AT&T service replaced a laborious system of performing nightly tape backups in the main data center, then shipping the tapes to a vault for archiving. "We had rooms full of tape drives and rooms full of people," Lauderdale said.

StorageConnect costs about the same as the tape backup system did, Lauderdale said. But, he added, "I've got a totally new, remote, state-of-the-art business-continuity infrastructure for the price of 1990 tape technology."

Direct Control gives AT&T's managed services customers the ability to remotely perform systems administration functions on servers housed at its U.S.-based data centers. Using Web browsers, IT managers can handle tasks such as setting capacity-utilization thresholds and viewing real-time alarm notices, AT&T said.

Luring Customers

AT&T is using services like Direct Control to try to lure more customers into signing managed storage agreements or other IT deals involving its data centers, said Melanie Posey, an analyst at IDC in Framingham, Mass.

"A couple of years ago, this wouldn't have happened from a [network] services provider," she said. "But they're now saying they'll be as flexible as they need to be to get your business."

Symantec Upgrades pcAnywhere Remote Connectivity Software

New version ups speed, adds more flexible interface

BY MATT HAMBLEN

Symantec Corp. today plans to announce pcAnywhere 11.0, an upgraded release of its remote-access software that features performance improvements and a revised user interface for IT help desk administrators.

The pcAnywhere technology, which was initially released in 1986 as a connectivity tool for remote users, has emerged in recent years as a help desk support tool. The software provides help desk workers with remote system control functions, including the ability to take over a PC in the field and transfer files or patches, said David Scott, a senior product manager at Symantec in Cupertino, Calif.

The new version can transfer needed files in the background while IT administrators continue with other work, Scott said. He added that the revamped user interface looks more like Windows XP and offers increased configuration flexibility, making it possible to reduce the size and number of tool bars and other features.

The Burlington Northern and Santa Fe Railway Co. (BNSF) in Fort Worth, Texas, has about 250 pcAnywhere users and is beta-testing the 11.0 release, said Brian Cook, a field service engineer at Wabtec Corp. Cook works at BNSF under an IT services contract between the railway company and Wilmerding, Pa.-based Wabtec. The upgraded software provides faster remote connections and better response-time performance than existing versions of pcAnywhere, and it has a better look and feel, he said.

PRODUCT DETAILS

pcAnywhere 11.0

NEW FEATURES

- Supports **RSA Security Inc.'s SecurID** two-factor user authentication technology.
- Allows help desk personnel to send a **thin-host version of pcAnywhere to PCs** so they can remotely install the software.
- Includes file-transfer functions for **sending software drivers and patches to PCs** as a background process.

PRICING AND AVAILABILITY

- Starts at **$200 per seat**; due for release this month.

One big benefit of using pcAnywhere is that it lets help desk staffers take control of PCs so they can show users how proprietary BNSF applications work, Cook said. And if a user's system won't start, pcAnywhere can be used to access a fail-over copy of his data at a backup site in Topeka, Kan., and restore the PC.

"I have no qualms with this product," Cook said. "If they raised the price, people would still buy it."

Framingham, Mass.-based IDC recently reported that pcAnywhere commands more than 50% of the global market for remote systems control software, outpacing products from Symantec's four major competitors: Tivoli Software, Computer Associates International Inc., LANDesk Software Ltd. and Danware Data A/S.

"The remote-control market is very mature, so products are at a very high level of functionality," said IDC analyst Stephen Drake.

Products like pcAnywhere also face competition from the free remote-control capabilities that Microsoft Corp. has built into Windows XP, Drake added. The market for remote-control software will stay about level with last year's sales of $288 million for several more years, he predicted.

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BRIEFS

CSC Signs Two Outsourcing Deals

Computer Sciences Corp. (CSC) announced a pair of big IT outsourcing deals, including a 10-year, $735 million contract with Marconi Corp., a London-based telecommunications equipment maker. El Segundo, Calif.-based CSC said it has also signed an outsourcing deal valued at $450 million over 10 years with ISS A/S, a Copenhagen-based company that provides facility cleaning and landscaping services.

Sprint Slows Down Network Rollout

Sprint Corp. said it has begun converting its local phone network to packet-based switching technology made by Brampton, Ontario-based Nortel Networks Ltd. But the rollout schedule has been extended. The original plan called for the implementation to take eight years. Sprint now expects it to take up to 12 years.

3Com Says Q4 Sales Below Plan

3Com Corp. warned that it will report lower-than-expected revenue for its fourth quarter, which ended May 30. The Santa Clara, Calif.-based networking equipment vendor said revenue should range between $165 million and $175 million, well below its $245 million third-quarter total. Enterprise networking sales will drop by as much as 25% sequentially, 3Com said.

Short Takes

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New CIO Takes Reins Of IRS Tech Upgrade

Agency appoints former CFO to post as 10-year modernization effort continues

BY TODD R. WEISS

GOVERNMENT IT

THE U.S. Internal Revenue Service has named W. Todd Grams, its former chief financial officer, to serve as new CIO, effective yesterday.

IRS Commissioner Mark W. Everson appointed Grams late last month to oversee the agency's continuing technology modernization, including the replacement of a decades-old master file system. Grams had been the agency's CFO since February 2001.

The IRS has been pursuing a major technology revamp since 1998 as part of a 10-year project authorized by Congress through the IRS Restructuring and Reform Act. According to a recent report from the General Accounting Office (GAO), the act aims to fix problems with computer systems that didn't work and telephone systems that often left taxpayers unable to reach workers at the agency.

In the past five years, Congress provided $1.35 billion for the agency's Business Systems Modernization Project, which has resulted in improvements that have made it easier for taxpayers to reach the agency for assistance, according to the GAO report.

E-filing Expansion

A key benefit of the technology upgrades has been the expansion of electronic tax return filings, up from 12 million returns in 1995 to 53 million this year. Electronic filing helps the agency cut costs by reducing the need for labor-intensive reviews of paper tax returns, according to the GAO.

One problem the new CIO will face is the continuing need for improved data and network security at the IRS, according to the GAO report.

"Although IRS has made important progress securing its systems, information security remains a challenge," the GAO report stated. "Long-standing computer control weaknesses continue to threaten the confidentiality, integrity and availability of sensitive systems and taxpayer data."

Grams replaces John C. Reece, who retired last month after serving as CIO since February 2001. Before joining the IRS, Grams worked for more than 20 years at the Department of Veterans Affairs and the Office of Management and Budget. He couldn't be reached for comment.

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Data Privacy

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At the same time, a tougher data privacy law in India stands to benefit U.S companies that have hired Indian firms to process jobs involving personal data.

"We see this as making it easier for us to do business there," said Karen Allen, vice president of risk management at Exult Inc., a business process outsourcer for Fortune 500 companies that last week opened a data center in Mumbai. The company is one in a growing number of U.S. corporations that process personal information on U.S. individuals at offshore locations. Such information often includes Social Security and driver's license numbers as well as confidential data such as individuals' employment or medical histories.

Currently there are no U.S. laws that prohibit that data from being shipped to or accessed from other countries. But companies are increasingly being required to comply with industry-specific and state laws such as the Health Insurance Portability and Accountability Act, the Gramm-Leach-Bliley Act and California's pending SB 1386 identity-protection law. U.S. companies must comply with those laws regardless of where the data is processed or stored, legal experts said.

"There are no significant differences [in] a company's privacy obligations, [whether it's] conducting an offshore arrangement [or] a domestic one," said Christopher Ford, a partner at law firm Alston & Bird LLP in Washington.

Consequently, it's important for companies to consider a country's data privacy laws when contracting with offshore firms, said Greg Scheuman, chief technology officer at Mercury Insurance Group in Brea, Calif.

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The need to comply with Gramm-Leach-Bliley and California's SB 1386, which goes into effect July 1, has made privacy standards at Mercury "very significantly different from even a year ago," Scheuman said. India's initiative is therefore a positive one for Mercury, which outsources some development and maintenance work there, he said.

Companies need to ascertain what measures an offshore service provider has taken to ensure data privacy, Scheuman added. That means reviewing the providers' data handling and access control policies, disaster recovery and business continuity processes, and employee screening practices, he said.

It also pays to familiarize employees in offshore locations with U.S. data privacy practices and laws, Allen said. Exult, for instance, has a data privacy certification program for offshore employees. The company also ensures that no confidential data is sent overseas. Instead, the data is hosted on U.S.-based systems and accessed in a closely monitored process. Systems that are used to access the data have some functions disabled to prevent unauthorized copying or downloading of the data, Allen said.

"The focus of a U.S.-based company should be to look closely at the terms of their contract with outsourcers and insist that terms be imposed for very strong control over personal information," said Donald Harris, president of HR Privacy Solutions Ltd., a New York-based identity management consultancy.

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Continued from page 1

Microsoft

tomer, who asked not to be identified.

Bill Landefeld, vice president of worldwide licensing and pricing at Microsoft, said the additional benefits brought to Software Assurance are the direct result of feedback the company has collected from more than 2,000 customers during the past year.

Several IT managers last week said they expect the enhancements to be useful for their companies — especially the free access to online training modules, business-hour telephone and Web support for enterprise edition server software, and home-use rights to the same version of Microsoft Office that employees have at work. Benefits vary depending on the type of agreement purchased.

"It was a nice surprise — Christmas in May," said Les McCarter, director of infrastructure and operations at Hawaiian Electric Co. in Honolulu, which is eligible for the full complement of new benefits as an Enterprise Agreement licensee of Microsoft desktop and server products.

McCarter said the utility has paid for 100 to 200 work-at-home licenses in the past and is currently exploring a virtual private network project that was going to require the purchase of licenses for home users. "This will mean a nice cost savings for us," he said.

But it's too soon to tell whether the enhancements unveiled last week will sway more companies to buy Software Assurance or entice those with existing agreements to renew. Until now, the prime decision-making factor has been the frequency with which a company upgrades.

Not for Everyone

Jim Prevo, CIO at Green Mountain Coffee Inc. in Waterbury, Vt., said the new benefits are good, but they won't change his decision to forgo Software Assurance because it's "just not worth the money." He said his company balked at purchasing Software Assurance because it was too expensive and he didn't want to feel pressured to upgrade more frequently than he would like.

David Curran, manager of IT at CE Franklin Ltd. in Calgary, Alberta, said his company doesn't upgrade quickly enough for Software Assurance to be of much value. But he said he might have considered it for server products to gain access to the free training and support, if the new benefits had been offered sooner.

Kurt Schlegel, an analyst at Meta Group Inc. in Stamford, Conn., predicted that free support will lead more companies to buy Software Assurance for their servers. He added that the economics are attractive for users with upgrade cycles under four years.

But Alvin Park, an analyst at Gartner Inc., said the value won't be obvious for every company. He said users will need to take stock of each new benefit Microsoft is building into Software Assurance and put a price tag on those benefits to determine whether it makes sense for them.

One Software Assurance customer who also holds a Premier Support contract with Microsoft said he hopes the new support options being offered through Software Assurance will enable his company to reduce the number of Premier Support hours it now purchases from the vendor. The customer, who asked not to be named, is the vice president of IT procurement at a multinational media conglomerate. He said the company spends more than $100,000 per year on Premier Support.

He added that the company hasn't done an analysis to see if Software Assurance has been worth it and hasn't decided whether it will be renewed. With the economy forcing the company to watch costs, it couldn't upgrade even if it wanted to, he said.

For Joe Brunner, MIS manager at Sleepeck Printing Co. in Bellwood, Ill., the self-paced online training for users is expected to be particularly helpful, since Sleepeck's IT staff is small. "This is a tool I can give them that doesn't take away from my time," he said. "It's available when they need it."

Dwight Davis, an analyst at Boston-based Summit Strategies Inc., said Microsoft was forced to look beyond the pure software angle to enhance Software Assurance because of the lengthening time between major product releases. He said customers have been paying for Software Assurance on "blind faith," without any assurances of the upgrades they will get during their contract terms.

"Microsoft should think long and hard about its release cycle for its software and try and build a little more predictability into its update cycle," Davis said. "If people knew they would get releases in the next two to three years, they would probably enter into those contracts more easily and with a lot less trepidation."

SOURCE: MICROSOFT CORP.

Software Assurance Changes Explained

Microsoft said last week that expanded training, support and management benefits will be available as of September for companies that purchased Software Assurance agreements for upgrade rights to its products. Bill Landefeld, vice president of worldwide licensing and pricing at Microsoft, spoke with *Computerworld*'s Carol Sliwa about the additional benefits. Excerpts from that interview follow:

Under the Software Assurance program, customers pay an annual fee for upgrade rights to Microsoft products, but the upgrade cycle has been somewhat slow for some products. Did that put pressure on you to add value to Software Assurance? There's always pressure on us to deliver for our customers. Did the rate of the upgrade cycle put more or less pressure on us? I would say no. … Really, what this is in response to is customer feedback after the Licensing 6.0 rollout, in terms of what more they expect from a vendor like Microsoft through a Software Assurance type of program.

When you went out and talked to customers, did you ask them how they would like to see Software Assurance enhanced? We work very closely with our research group, and we did a number of in-person surveys, a number of phone surveys and a number of Web surveys. It was quite comprehensive. And the surveys were different, based on the amount of time and the type of interaction we had.

We asked our customers what they expect from a relationship with Microsoft, what they expect from a maintenance type of offering like Software Assurance. And we would give them some examples of benefits that could be delivered. But we tried to go about it in a more open-ended way so that we could get real feedback on what was valuable to customers, as opposed to saying, "OK, here's a choice of three things. How would you prioritize this?"

If customers want to take advantage of any of the new benefits prior to Sept. 1, will they be able to negotiate to gain access to them sooner? We're always working with our customers on a one-on-one basis, and what I would tell our customers is, talk to your channel partner or your Microsoft account manager. We aim to make sure that customers can take advantage of these benefits in the September time frame, but any specific customer questions should be directed to their channel partner or their account manager.

Licensing 6.0 has been out for a while. When is Licensing 7.0 due out? One thing that we've heard very clearly from our customers is that if we change anything, they want plenty of notice. The other is that they've had enough change for a while. So we have no plans for a version of licensing beyond Licensing 6.0.

MORE ONLINE

To read the complete interview with Landefeld, visit our Web site.

QuickLink 39791
www.computerworld.com

European Agency Gets OK For GPS-like Satellite System

Galileo to begin launching in 2006

BY BOB BREWIN

The European Space Agency (ESA) last week said its 15 member states have reached an agreement that paves the way for the development of a satellite-based navigation system designed to rival the U.S.-developed Global Positioning System (GPS) technology.

The agreement came just two weeks before the scheduled start of an international communications conference at which the frequencies to be used by the European system are expected to be decided.

The ESA said it's now ready to sign a joint development deal for the proposed Galileo system with the European Union, which will split the cost. The project's budget is expected to total $3.7 billion, according to Dominique Detain, an ESA spokesman in Paris.

The ESA plans to launch the first of 27 active Galileo satellites and three spares in 2006 and complete the deployment two years later.

Because Galileo will likely transmit its signals within the same frequency band used by GPS equipment, users should eventually be able to buy receivers that can pick up location signals from both systems, said Ashok Wadwani, president of Applied Field Data Systems Inc., a GPS consulting firm in Houston.

The mixed support could provide better data availability and improved location accuracy. For example, Ken Chamberlain, a land surveyor at the Bureau of Land Management in Portland, Ore., said Galileo should make it easier for agency users operating in dense tree cover to access satellite location signals.

But before the ESA can proceed, it must first obtain rights to the needed frequencies at the World Radiocommunication Conference (WRC-03), which starts next week in Geneva. The conference is being held under the auspices of the International Telecommunication Union, a United Nations agency with more than 180 member states.

Restrictive Language

The U.S. government, in its draft proposals for WRC-03, inserted language that the ESA and EU view as threatening to Galileo. That language would set specific milestones for new satellite navigation systems to reach before frequencies could be assigned to them, including "clear and binding agreements for the manufacture and procurement of satellites."

John Alden, a spokesman for a WRC-03 delegation that will be led by the U.S. State Department, said the proposed language is designed solely to weed out "paper" satellite systems that are speculative or that could be used to tie up spectrum resources without ever being built. The U.S. has told European officials that it considers Galileo to be a viable system and that it isn't trying to impede its development, Alden said.

But Joern Tjaden, head of the Galileo interim support office in Brussels, said the U.S. draft language is one reason the ESA plans to launch the first of the Galileo satellites in 2006. By doing so, he said, the agency would meet the criteria proposed by the U.S.

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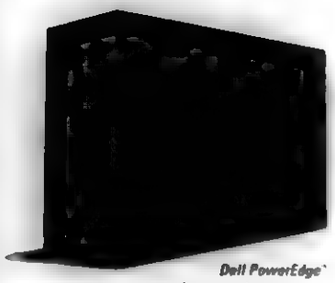

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†Tests by Dell in January 2003 on baseball database. Dell configuration: Dell PowerEdge 6650 server with four 2.0 GHz Xeon MP processors, Red Hat Linux Advanced Server 2.1, 3-Year Gold Support. Price: $32,701 (www.dell.com, 1/20/03). Sun configuration: Sun Fire V480 server with four 900 MHz UltraSPARC III processors, Solaris 9 (12/02 version). Price: $53,795 (www.sun.com, 3/17/03). 3-Year Gold Support. For details and results, see www.dell.com/migration.

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Nasdaq's CIO Looks to Streamline Systems

Stock market plans shift from Unix to Linux

BY LUCAS MEARIAN

In an effort to whittle down the number of IT platforms it needs to support, The Nasdaq Stock Market Inc. is looking to consolidate systems and networks through a series of moves that will include shifting some applications from Unix servers to Linux boxes.

In an interview last month, Nasdaq CIO Steve Randich said he also wants to eliminate the company's Unisys Corp. mainframes and migrate the trading-floor functions that run on those machines to its year-old SuperMontage order display and execution system. SuperMontage is based on a combination of fault-tolerant systems made by Hewlett-Packard Co. and Stratus Technologies Inc., plus Dell Computer Corp. Windows servers.

In addition, New York-based Nasdaq is consolidating 15 market data, stock trading and corporate e-mail networks onto a single IP-based WAN backbone. That project will cost $50 million, Randich said.

Nasdaq currently uses about 300 Unix servers that run a mix of HP's Tru64 and HP-UX operating systems as well as Sun Solaris. Randich declined to specify how many of those servers he expects to replace with Linux systems or say when conversions to the open-source software will take place. But he added that Linux will be his first choice for migrations, despite the existing use of Wintel systems inside Nasdaq.

Steve Randich says Linux is his first choice for Unix migrations.

"Going from Linux to Unix tends to be the most compatible and easiest decision," Randich said. "I don't want to bifurcate myself across Linux and Windows Server 2003. But I do think Linux will play a role at Nasdaq in helping us minimize our Unix platforms going forward."

The network consolidation project is under way, but Randich declined to disclose a rollout schedule. Nasdaq's 15 networks are all run by WorldCom Inc., which now operates under the name MCI. Randich said the stock market has yet to pick a services provider for the unified Nasdaq Intelligent Network, which will be built around Cisco Systems Inc. routers that support the Multiprotocol Label Switching standard.

Despite the heavy investment in networking hardware and software that the new network will require, Randich said he expects to get a rapid return on investment. "It will require some recabling, but more importantly, we're going to be able to take a lot of circuits out of our network and save costs," he said.

On-demand Computing

Another likely cost saver is a plan to move toward more of an on-demand computing approach that would let Nasdaq add server or storage capacity as needed. Randich said he has been putting pressure on his hardware vendors to support on-demand computing and is seeing "more and more willingness" on their part to do so.

But Jamie Gruener, an analyst at The Yankee Group in Boston, said some vendors are struggling to create policy-based software that can automatically order additional equipment for users or turn on unused servers and storage devices when specified capacity thresholds are reached. "We're not there yet and may not be for some time," Gruener said.

SAP, MySQL Sign Open-Source Database Deal

BY MARC L. SONGINI

SAP AG last week said it plans to hand off lead development of its SAP DB database software to MySQL AB and work with MySQL to deliver an enterprise-class version of that company's namesake open-source database.

SAP officials said the agreement with MySQL is an attempt to put increased development muscle behind the open-source movement and make it easier for corporate users to deploy Linux-based ERP systems without having to pay big database administration fees.

SAP includes SAP DB with its applications as a free alternative to Oracle, DB2 and SQL Server databases, and it released an open-source version of the technology in late 2000. The business applications vendor said SAP DB is being used by about 1,100 customers.

Now MySQL will take over stewardship of the product, said Faheem Ahmed, director of market strategy and collaborative solutions at SAP. That means MySQL's development and management tools will be able to work with SAP DB, which should help cut the cost of administering the database for users, Ahmed said.

Continued Existence, Support

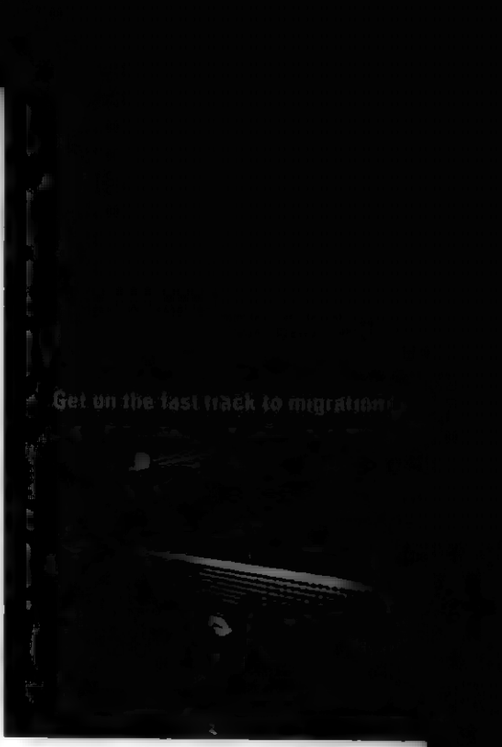
SAP will continue to support SAP DB installations, for both existing and new customers. MySQL CEO Marten Mickos said his company is taking over the lead role on tasks such as developing new application programming interfaces and testing SAP DB to ensure that it continues to conform to industry standards. SAP DB will still be offered "for a long time," Mickos said.

But he added that Uppsala, Sweden-based MySQL will start marketing the software under its own name by the fourth quarter and offer a version under a commercial license in addition to the free release. The agreement will also let the company add corporate-oriented technologies in SAP DB to its MySQL database, with the goal of slashing the time it would take MySQL to develop those features on its own.

The agreement with MySQL appears to have the potential to enrich the capabilities of SAP DB, said Charlie Brann, SAP administrator at Swisslog TransLogic Corp. in Denver. Swisslog, which makes materials-handling systems, runs SAP DB with SAP's flagship R/3 applications. Brann said the upcoming changes should also open up SAP DB to management tools beyond what SAP currently provides.

PeopleSoft Inc. last month announced plans to make all of its business applications available on Red Hat Linux [QuickLink 38335].

But SAP is now putting itself ahead of PeopleSoft and other rivals in terms of open-source support, said Stacey Quandt, an analyst at Forrester Research Inc. in Cambridge, Mass. The agreement with MySQL should also give SAP users more choices when they pick databases to support their ERP applications, she said.



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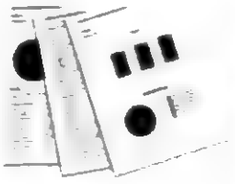

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MARYFRAN JOHNSON

Sarbanes Action Plan

IMAGINE ASKING 40 CIOs in six cities what their biggest worries are these days. I'd expect to hear about freeze-dried IT budgets, unfinished projects, sinking staff morale or loss of corporate confidence.

I'd be way off base.

What I never would have guessed was the Sarbanes-Oxley Act of 2002, that Loch Ness monster of new financial reporting and disclosure requirements enacted by Congress in the aftermath of Enron and a string of other corporate scandals. Nobody quite knows how far-reaching its impact on IT infrastructures will be, but ignorance is the opposite of bliss here.

"The CIOs feel blindsided by this," says Cathy Hotka, principal of Cathy Hotka & Associates and former VP of IT at the National Retail Federation. In a recent series of CIO roundtables she moderated, Hotka was surprised to find SOX (as the finance types call the act) a topic of so much consternation among senior IT execs. "They know the CFOs have it on their radar screens, and they don't like that feeling. Nobody has a handle on this yet," she says.

Sarbanes-Oxley is reverberating throughout IT management like an eerie echo of Y2k, with compliance deadlines looming and businesses feeling threatened and uncertain about the extent of the potential damage (that is, legal trouble) if changes aren't made. As one of Hotka's CIO dinner guests observed, "I could end up spending $1 million to fix a $100,000 problem!"

"There's a tremendous amount of confusion" about what IT should be doing to ensure compliance with Sarbanes-Oxley, says John Hagerty, an analyst at AMR Research Inc. in Boston. A recent AMR poll of 60 companies found that while 85% are anticipating changes in system and application infrastructures, an equally whopping 80% are unsure of what the changes will be.

In light of all this free-floating anxiety, last week's news that the Securities and Exchange Commission had extended the deadline for Sarbanes-Oxley compliance another nine months (to June 2004) might seem like a welcome relief.

But senior IT managers should be using this gift of time to get their information engines in gear — not to relax.

Step 1: Dive in and do some research. Online in our IT Management Knowledge Center, we've compiled a special topics page [QuickLink a3250] with all of our ongoing coverage of Sarbanes-Oxley and additional links to sister publication *CIO* magazine's recent series on legislative issues. We'll keep adding resources to that page, so let us know what kind of additional information you need. If you search on Google for "Sarbanes-Oxley and CIOs," you'll get more than 700 hits. Many are worth looking over for advice, checklists, additional resources and examples of what other companies are doing.

Step 2: Survey the vendor landscape. A number of them are circling their wagons and offering upgraded products or new features geared to tracking, safeguarding or guaranteeing data veracity. So far, the vendors include Oracle, Hyperion, SAS Institute and PeopleSoft, and there are also several vendors of reporting tools, supply chain software and document management applications with offerings.

Step 3: Formulate an action plan that includes a presentation to the CFO about the proactive measures IT is looking into (or, even better, ready to implement) to address a range of Sarbanes-related concerns: internal auditing and controls, systems access, real-time data reporting, detailed IT project tracking and so forth. [More action items are online at QuickLink 34225.]

Like it or not, IT will be at the heart of your company's Sarbanes solution. And if you're ready and informed, you'll be at the head of it. ◗

PIMM FOX

Goldfinger's Heirs

I CAN SEE the movie trailer now: Pierce Brosnan as Agent 007 uncovers a secret slush fund that's being used to bribe world leaders and business execs so that they'll eschew Linux in favor of Windows — software they don't want. Behind the scenes, Bill Gates (played by Mike Myers) secretly hands out piles of cash to greedy governments and corporate bigwigs, while his hairless cat Orlando plots to destroy Linux user groups by listening in on their meetings and trade shows.

This might read like a Hollywood script gone sour, if not for a series of Microsoft deeds, beginning with a memo written last summer by a former Microsoft official named Orlando Ayala, then the head of worldwide sales. His missive put forth a corporate strategy to persuade governments not to forsake Windows for Linux. If deals were in jeopardy, Microsoft reps were to draw from a special slush fund to either discount or make Windows software available for free. "Under NO circumstances lose against Linux," Ayala wrote.

A rogue e-mail by some excited, hyped-up exec? No way. Steve Ballmer, Microsoft's big cheese, got a copy.

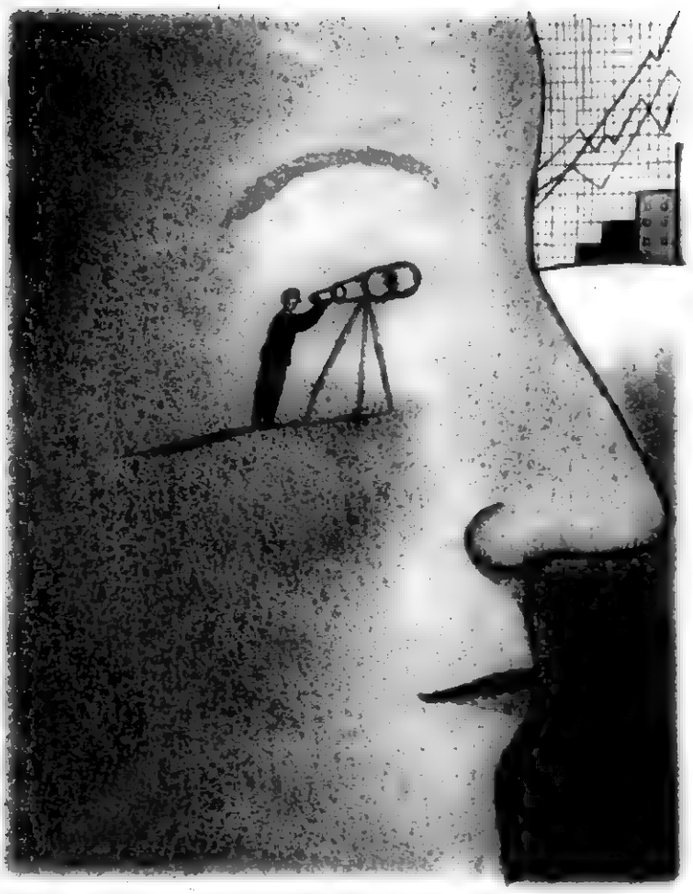
This may be legal and standard operating procedure for a monopolist here at home, but in Europe regulators are still investigating whether Microsoft broke antitrust laws.

According to a follow-up message from Michael Sinneck, Microsoft's executive for services, the fund had $180 million earmarked for discounting in 2003. Aboveboard in the U.S., perhaps, but in Microsoft's case it's just plain wrong.

The 2001 settlement with the Bush administration has been about as effective in forcing Microsoft to drop its heavy-handed, anticompetitive moves as Iraq's air force in stopping Operation Iraqi Freedom.

But there is some hope. The combination of Linux and people's general

White Paper



Five Technologies that Will Make a Difference

A Storage Manager's Watch List

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Five Technologies that Will Make a Difference

A Storage Manager's Watch List

Written by: Richard Villars, Vice President, Storage Systems Research, IDC

Global economic and business uncertainties place a growing strain on IT systems and the people who install and maintain them. Despite tightening budgets, customers and, in many cases, regulatory agencies demand better, faster and more cost-effective access to information. In today's information-based economy, these demands translate into enhancing the value of existing and planned IT investments while simultaneously reducing the cost of IT operations.

One roadblock is the difficulty companies have managing storage assets. Enterprises must collect and store more information (e.g., medical records, customer correspondence and e-commerce transactions). They must also enhance existing applications; deploy new ones; and integrate rich content (e.g., audio, image and video files) into existing solutions.

The bottom line: a need for more storage capacity. In these challenging times, simply going out and buying more storage is not acceptable. For today's CFO and IT manager, price per gigabyte and useful capacity — not just raw gigabytes — are at least as important as performance for many applications. This cost-consciousness translates into three requirements:

- Increase flexibility in purchasing and extending storage capacity.
- Improve utilization by consolidating and maximizing capacity.
- Reduce ongoing storage, server and application configuration costs of resources and time to complete.

The world is awash in technology that promises to lower the total cost of ownership and improve ROI. Some very visible technologies specifically target companies' storage priorities.

But what is real? What technologies can you implement today to impact the corporate bottom line? In this White Paper, we look at five technologies that should be closely watched by storage managers, data center managers and CIOs.

By mid-2004, these storage-related technologies will reduce the cost per gigabyte of real storage capacity, the complexity of organizing and protecting data within storage systems, and the cost of provisioning and managing add-on capacity. Each can help reduce the cost of adding storage capacity or managing existing assets. Their real value, however, is in new products and services that offer previously unseen integrated solutions.

[redacted] and Serial [redacted] SCSI

Since the development of the SCSI interface, most servers (other than low-end Intel-based servers with internal drives) relied on enterprise-class (SCSI) hard disk drives for local storage. Higher performance and reliability requirements made the Advanced Technology Attachment (ATA) drives (desktop-class drives) developed for PCs insufficient for enterprise applications. As a result, SCSI drives commanded a 300% price premium over similar-capacity ATA drives. Today, virtually all storage sys-

tems use enterprise-class SCSI drives or even more expensive Fibre Channel interfaces.

The price differential is not unjustified; SCSI and Fibre Channel drives have seen markedly increased performance levels in resistance to vibration and error correction. Reliability is more than twice as high for SCSI drives as for similar-capacity ATA drives, and testing regimens are more intense for enterprise-class drives than they are for desktop-class drives.

However, high-performance systems and mission-critical applications account for a small portion of the overall storage workload in most organizations. Recent IDC interviews with 900 U.S. IT managers found that collaborative applications (including email) and basic services such as file-sharing and Web services are the fastest growing consumers of IT spending for new servers and storage systems (Figure 1).

These application workloads are primarily Intel-based servers running Windows or Linux. They're overserved in terms of performance and reliability (but not capacity) by SCSI drive-based arrays. Cost-conscious IT managers seek drive technologies that satisfy less strenuous performance metrics at lower cost.

The introduction of serial ATA (SATA) interface for ATA, improvement in component performance and reliability in ATA drives, and the capacity advantage over enterprise-class drives are advancing desktop-class mechanisms to a point where solution providers must consider their integration into storage systems.

Recognizing SCSI's limitations, the SCSI Trade Association developed a recently approved interconnect standard, Serial Attached SCSI (SAS). SAS promises to boost SCSI interconnect performance while maintaining, or even reducing, cost. In a positive move for customers and storage suppliers, SATA and SAS developers agreed in 2002 to employ a standard interconnect across both technologies. SAS silicon will control both drives, helping enterprises deploy the mix of drive mechanisms while leveraging common elements such as enclosures and controllers.

Low-cost arrays

The most obvious offering is a standard array product that uses large-capacity SATA drives instead of enterprise-class SCSI drives. Such a system will deliver greater capacity at a much lower price but won't deliver comparable performance or reliability. IT managers at small and medium-size businesses, and those at larger enterprises deploying low-end servers, should consider SATA solutions.

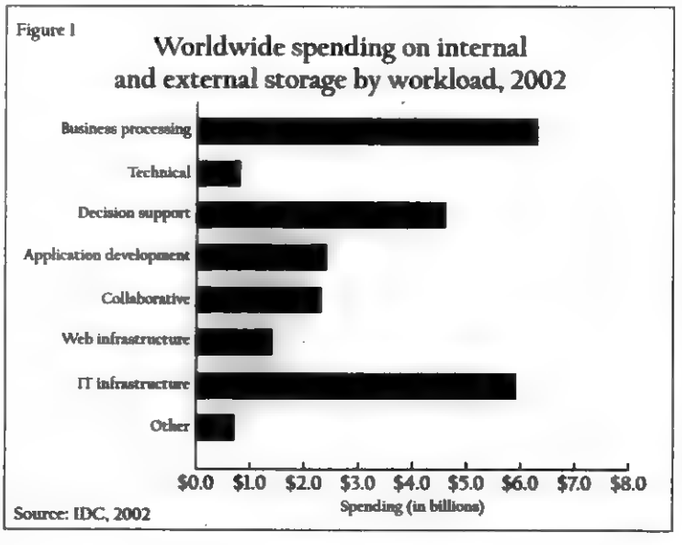
Don't expect to see entry-level SATA products before late 2003. Integrating SATA drives into existing environments and completing product certification will take time. This means standard storage systems with SATA drives won't deliver the full cost benefits of desktop-class drives, though savings will be significant.

Businesses with extensive investments in storage assets should keep an eye on another SATA deployment option. Within 18 months, major vendors will announce or deliver upgrades to existing mid-range products that will enable them to support different interconnects (Fibre Channel, SCSI, SAS and SATA).

Disk-based backup and recovery

One SATA-based development that bears close watching is the disk-

Figure 1



based backup solution as an enhancement to existing tape systems.

The widespread use of tape for backup and recovery is based on two value propositions: cost and portability. Potential weaknesses include slow recovery times, an inability to provide simple access for small randomly located amounts of data and potential downtime.

Disk-based storage systems — essentially near-line storage servers — are faster than tape when servicing frequent restores of small amounts of data. They also provide the level of functionality and ease-of-use required by enterprise users.

Existing data replication and backup systems, whether based on tape or expensive disks, provide time-based restore. IT managers can only recover to the system state at the time that the backup was performed. Lower priced disk-based storage will offer continuous versioning by leveraging new software tools, rapid access speeds and disk availability to offer event-based restore (recovery at virtually any point in time).

Several vendors are already delivering near-line storage solutions based on less capable parallel ATA technology at a price per gigabyte that is often one-third the cost of their other product offerings. And soon, IT managers should look for many tape- and optical-based back-up-and-recovery providers to integrate near-line storage products and functions into existing solutions. Don't expect these systems to replace existing tape solutions; rather, look for solutions that leverage low-cost disk technology to address local and

remote data and disaster-recovery requirements more cost-effectively.

Fibre Channel is the predominant interconnect standard today for storage-area networks (SANs). It offers high performance and reliability; enjoys broad industry support; and is a critical element in enterprise efforts to improve storage capacity utilization and remove servers as a bottleneck in data backup and recovery. In 2002, companies across the globe spent $2.4 billion on Fibre Channel SAN switches and host bus adapters (HBAs) for servers and tape systems.

The trouble with Fibre Channel solutions (especially for medium-size and small businesses) is the initial cost to connect servers and storage systems. The cost of a Fibre Channel HBA for an Intel-based server can range from 20% to 50% of the cost of the server itself. Even large enterprises have trouble justifying the use of Fibre Channel SANs for their low-end servers, especially at remote sites.

As a result, in 2002, SAN attached storage arrays accounted for just 38.8% of all array sales in Western Europe. The rest were either network-attached storage (NAS) filers or directly attached to the servers. The direct attachment of storage to servers remains the most significant contributor to poor disk utilization. With direct attached servers, IT managers cannot shift storage from a server using 20% of capacity to one exceeding 80%. In aggregate, utilization rates range from 25% to 50%; by comparison, in mainframe environments, utilization can top 80%.

One way to reduce SAN connectivity costs is to take advantage of existing widely deployed, low-cost technologies: Ethernet and TCP/IP. The result is the development of the iSCSI standard, which enables the connection of servers (initiators) and arrays (targets) via IP networks.

The most promising short-term use for iSCSI is as a gateway between IP networks and Fibre Channel-based backup systems. Many low-end servers in large enterprises are not attached to the corporate SAN, either because the connection is too expensive or the server is at a remote site. While everyone focuses on the disk utilization shortcomings of these "stranded" servers, they often overlook the wasteful necessity of deploying expensive, isolated tape backup systems — often inconsistently deployed and prone to high failure rates when a recovery is attempted.

The deployment of software to turn these stranded servers into iSCSI initiators allows them to use pre-installed features (an Ethernet card and an IP stack) and existing LAN- and WAN-based IP networks to forward data to higher performing, more cost-effective and more reliable SAN-based tape or (emerging) disk-

based backup systems.

Companies, such as Cisco Systems Inc. and QLogic Corp., have already announced iSCSI-to-Fibre Channel gateways (iSCSI routers or bridges), and virtually all other major IP and Fibre Channel network equipment vendors will introduce competing products in the next 12 to 18 months.

Riding the SATA wave

The other major iSCSI opportunity is as a key supporting technology for several of the ATA-based solutions. Integrating SATA into low-end arrays and near-line storage promises to reduce the cost of storage for small and medium-size businesses. Much of this cost benefit is lost if IT managers deploy expensive Fibre Channel arrays, switches and HBAs. By employing SATA-based arrays with iSCSI interconnects, IT managers can take advantage of technologies that come pre-packaged with servers as well as inexpensive and well understood Ethernet switches.

IDC recommends that IT managers evaluating iSCSI-capable storage systems deploy a physically separate Ethernet network rather than attempt to accommodate this new traffic type within an existing network. While this approach is modestly more costly, it avoids the security and network performance issues that can slow initial testing and deployment of such systems.

Virtualization remains one of the most hyped but least understood technology concepts in IT. Many vendors have announced next-generation IT strategies based on the concept of "virtualizing" resources. Over the next 12 months, vendors will begin to deliver virtualization products.

Technology promises to lower TCO and improve ROI. But what is real?

What practical value can storage managers actually expect from these solutions? It comes down to two straightforward goals: improving the utilization of all existing storage assets (the long-term goal), and reducing the expense and time required to migrate data from one storage system to another, even across non-homogenous systems (the short-term goal). Solutions that address these goals deliver enterprise-wide volume management and data replication.

Overcoming the limits of existing SANs

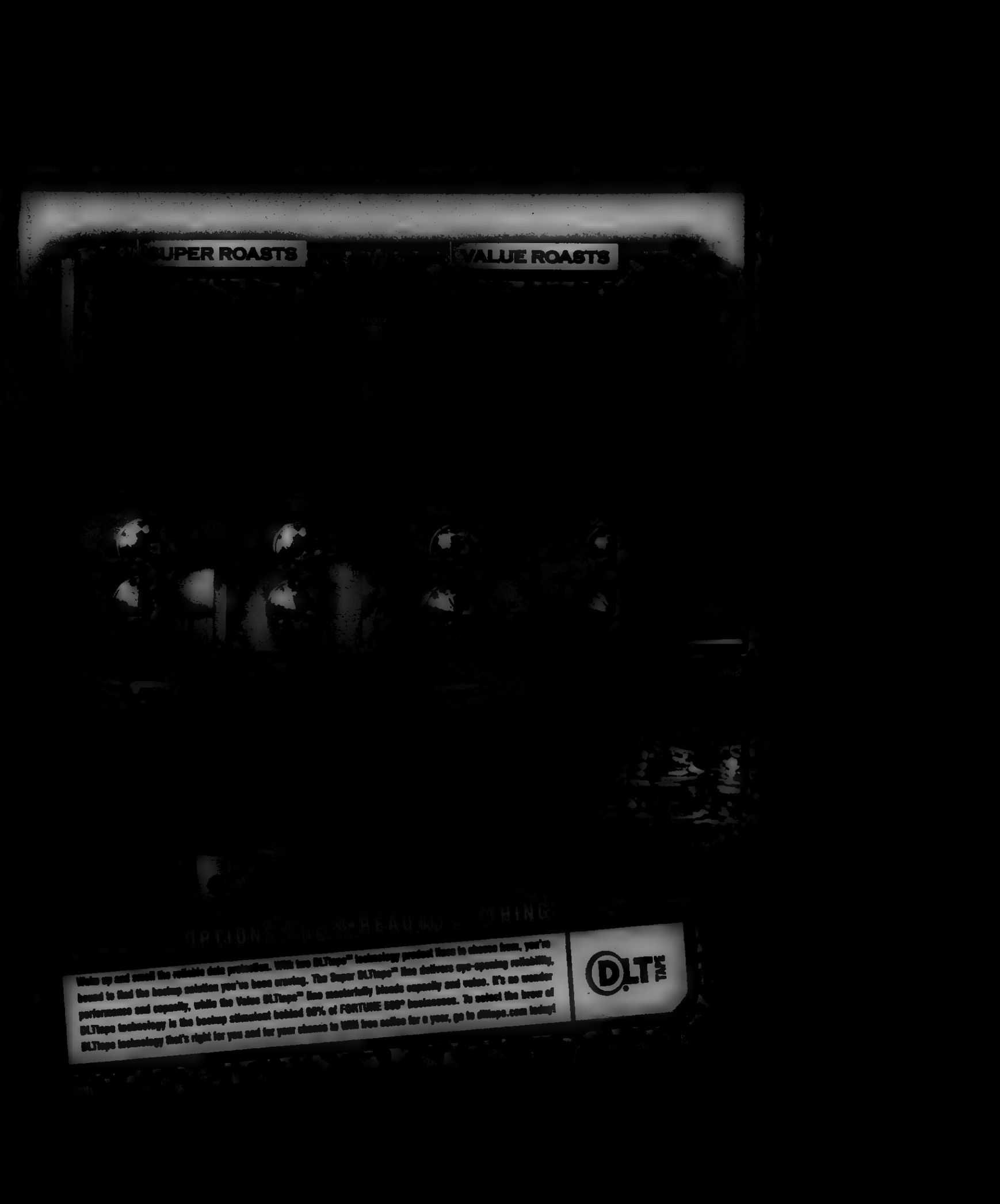
The popularity, diversity and size of SANs present IT managers with new manageability issues related to increasing numbers of pooled arrays; a growing variety of storage controllers; and disparate supporting software solutions for data migration and replication. This heterogeneity results in many isolated SANs, increasing cost and introducing additional management complexity.

Virtualization is a new approach to storage system design that introduces a layer of logical abstraction between physical blocks of data on storage devices and the logical volumes of information that servers and applications require. The goal is to disassociate blocks of storage capacity — logical unit numbers (LUNs) — from specific volumes required by server applications, eliminating the need to continually manually reconfigure both server and storage connections when changes are made.

By leveraging controller functions for LUNs and volume management in a networked storage controller, IT managers can introduce a logical layer of abstraction between LUNs and volumes. That means IT can connect applications to specific virtual volumes without needing any knowledge of the underlying disk environment, even across heterogeneous systems. Moreover, IT can add capacity to virtual volumes without server reconfigurations.

The deployment of data replication functions and volume management within a networked storage controller leads to several significant improvements in the way IT approaches data protection and recovery. Replication will be performed at the logical volume level, making it possible to replicate volumes across heterogeneous storage arrays, rather than only on homogenous systems.

IT can take advantage of installed systems or use lower cost storage systems for near-line storage without sacrificing system integrity. Performing data replication functions on networked controllers provides a foundation for consistent data replication and recovery policies.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Sifting through the choices

IT managers will soon be confronted with virtualization solutions from a variety of software, storage, networking and systems vendors. A second family of virtualization solutions, based on an appliance model, will hit the market shortly. Finally, there are blade-based virtualization systems that reside within the SAN switch, similar to appliances that move many storage management functions fully into the network.

Implementation is the key

The delivery of products for network-based volume management and data replication represents a significant change in traditional storage architecture and processes. Installing such systems won't guarantee better capacity utilization and reduced management costs. Effective implementation is a critical concern for these emerging solutions. IT managers need to establish rules and procedures for everything from naming conventions to provisioning and replication policies. They must then set up volume management and data replication systems.

[redacted] Storage

For all organizations, stored data falls into three broad categories:

- Structural data, such as flat-file transactional systems; business intelligence tools; and relational databases that typically support mission-critical business systems. High reliability, recoverability and performance are the critical features here.
- Fixed content, such as end-user office productivity files, email archives, audio, video and images. Unstructured data is stored in printed or analog form, on dispersed file servers or within relational databases as large binary objects.
- Archival data, such as backup copies of critical transaction data and select unstructured data for disaster recovery and long-term record keeping. Tape and optical systems are the preferred option for both local and remote storage of this data.

Soon, storage vendors of all stripes will implement the SNIA's SMIS.

Fixed-content applications are a new market in which companies' storage needs focus on different performance measures that are either over- or underserved by today's disk and tape solutions. While NAS may reduce some costs, it does nothing to resolve the problem with existing storage systems used today for fixed content: non-existent and/or ineffective organization and management.

Making storage content-aware

By mid-2004, a number of new storage-related technologies will begin to address the cost of provisioning and managing capacity. Capacity-oriented SATA mechanisms, virtualization and iSCSI promise to reduce cost and boost data mobility while maintaining performance levels that are more than satisfactory for fixed content.

Inexpensive capacity, improved data mobility and less costly connectivity solutions address only a part of the fragmentation and lack of organization that lead to lost data, wasted capacity and excess management costs. For enterprise IT, the key to cost-effective storage for fixed content will be software solutions that separate information about content from information about its physical location.

Content-aware storage (CAS) solutions, sold initially as integrated storage and software systems, will store data as objects, not simple files. CAS will require no knowledge of the storage environment or physical location of the objects (it will leverage underlying virtualization services to handle this issue). Each object has attributes, including a unique footprint, allowing data to be stored only once to service all requests.

Object-oriented data structures and distributed file system services implemented in CAS deliver improvements on several dimensions relative to traditional file-based systems. These include allowing for customized searching, adding verifiability (e.g., ensuring specific content has been unaltered) and eliminating the need for duplication. These attributes will significantly change the cost of fixed-content disk-based storage for applications such as email and image archives.

CAS options

A number of software startups were early champions of content-aware storage solutions, but the most significant early participant has been

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IDC expects other major storage system suppliers to introduce CAS solutions in the next 12 months. Initial CAS implementations will work best if they target specific needs, such as email archiving or medical record storage.

Another important group of storage suppliers that will play a role in bringing CAS to small and medium-size businesses are current suppliers of backup-and-restore solutions. For these companies, CAS is a sustaining innovation, enabling significant enhancements in the reliability, speed and usefulness of existing backup/recovery solutions. Truly effective CAS solutions for small and medium-size businesses will take more time to come to market.

A recurring theme in each of the previous discussions is the interdependence of the solutions. IT managers can only reap the maximum benefits if these technologies work together. One impediment: the "certification crisis."

Customers understandably demand extensive testing of different combinations of arrays, tape systems, servers, operating systems and applications. In the days of direct attached storage and relatively homogenous environments, this requirement, while resource-intensive, was manageable for most vendors. But in today's world of diverse server platforms, operating systems, SAN infrastructure products and storage products, the testing required is growing exponentially.

Testing is now a major barrier to entry for storage startups. The time to roll out features and functions is stretching to more than six months for many products. Even the largest vendors find it hard to keep pace with testing needs. The result is reduced choices and less interoperability.

Learning to trust standards

The storage sector is not the first IT industry to face such a crisis. Networking was in a similar predicament in the 1980s. The adoption of standards for network connectivity significantly improved product interoperability while reducing the need to test every possible product combination.

The Storage Networking Industry Association (SNIA) has long championed the development of standard processes and protocols. The SNIA storage model helped define the logic behind many of today's new technologies, including virtualization and CAS. Another critical SNIA effort has encouraged interoperability testing and certification for storage solutions such as iSCSI.

SNIA's most important effort, however, is to drive the creation of the Storage Management Interface Specification (SMIS) for monitoring and managing all storage-related systems. Today's version, approved early this year, by no means represents the final iteration. Over the next six months, storage vendors of all stripes will begin to implement SMIS.

For the first time, IT managers will be able to collect and access common information for storage systems throughout the enterprise, regardless of which vendor supplied those systems. Such information is a powerful resource for monitoring interoperability, better managing storage capacity and limiting the impact of inevitable failures.

New versions of SMIS-capable management products will provide additional functions in the areas of auto-discovery, configuration and performance monitoring. When these standards arrive, IT managers will finally have the ability to automate repetitive storage configuration tasks and introduce more policy-driven management systems across diverse storage environments.

The ultimate success of the SMIS is in the hands of IT managers. SMIS and its brethren certainly won't solve all storage management woes on day one, but greater reliance on these standards will help reduce the level of certification testing needed. Only by insisting that suppliers use interoperability and management standards will IT ensure continued upgrades to these standards.◆

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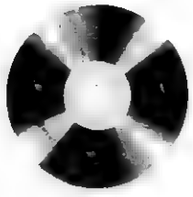

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disgust with the way Microsoft does business could thwart the company's ambitions in the server market.

And that threat is causing Microsoft to do some pretty bizarre things.

Microsoft employees have been hiding their identities as they impersonate independent computer consultants and OEM reps at trade shows in the U.S. to get information about competitors. Microsoft doesn't see anything amiss in these deeds.

And the company continues to argue that the slush fund will be used wherever it's needed.

It's great that Bill Gates wants to spend his millions improving health standards and supporting education around the world, but if his company continues to operate without any ethical standards, what kind of world is he helping to create?

As the saying goes: If you want to know what God thinks of money, just look at the people He gave it to.

THORNTON MAY

Harvard Flunks IT

HARVARD BUSINESS School has many successful graduates (our CEO in chief, George W. Bush, to name but one) and a proud history of IT scholarship. But I fear that the time has finally come to stick a fork in it as far as thought leadership in IT is concerned. All of us in the profession have, at least once during our careers, bowed reverentially to capitalism's Mecca on the Charles as we sought to merge the historically different and often nonconvergent disciplines of technology and business management. No more.

Nicholas G. Carr, writing in the latest issue of the school's highly influential publication, the *Harvard Business Review*, has penned a neo-Luddite, could-have-been-written-by-the-Unabomber (another Harvard guy) antitechnology article, "IT Doesn't Matter." It pretty much tells IT leaders that they should pack their bags and go home. As I read the article, barely a sentence went by without me gasping.

We are told that IT is no longer strategic, that the now-and-forevermore infrastructure is pretty much built out, that vendors are "rushing to position themselves as commodity suppliers" and that we should no longer "seek advantage aggressively" but instead should "manage costs and risks meticulously." The article makes Bill Joy's "technology will destroy the world" speech look upbeat.

He is dead wrong on all counts. Of more concern, however, is the sad fact that many weak-minded, vision-challenged business executives will use this as ammunition to further reduce the influence and impact that appropriately managed IT can have.

An oft-lobbed criticism against Harvard Business School is that it gets the past perfectly and is pretty close to correct on the present but still manages to flunk the future. This may have something to do with its fetishlike obsession with the case study method, which by its very nature is an exercise in historical analysis.

What Carr doesn't seem to understand is that the future is all about the evolution and blurring of the interface between people and our machines. The environment we will live, work and play in will become inexorably more digital. The Darwinistic forces of information natural selection are just now beginning to exert themselves. Our aptitude for information management will determine much of our lives. "Being digital" is the next step in the evolution of our species. Whether our endpoint is Digital Eden or High-tech Hades is very much up to us.

Carr overfocuses on the current pre-Edenic environment, a time when machines are just machines — relatively simplistic, nonintelligent chunks of metal and silicon. When they break, we are screwed. When they work, we are victimized; pagers, for example, are little more than electronic leashes. But in Digital Eden — a place we will never see if we follow Carr's advice — the machines will work for us.

In closing, let me paraphrase yet another Harvard guy. Bobby Kennedy was defining youth, but I will apply it to IT: "IT is not a menial task waiting to be outsourced, but a state of mind, a temper of will, a quality of imagination, a predominance of courage over timidity, of the appetite for adventure over the love of ease."

IT does matter.

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READERS' LETTERS

Carr Draws Fire: IT Remains Relevant

IF NICHOLAS G. CARR were correct about the commoditization of IT and the related lack of strategic value to business ["Get Over Yourself," QuickLink 37990], every CEO would get the same answer to the question, "What is the cheapest IT solution?" Just as with electricity, companies' needs would vary only in quantity, not quality. However, those of us who have spent our careers in IT know that the answer to this question is always, "It depends." And what it depends upon, more than anything else, is a company's strategy.

Typically, competitive strategy leans toward one of two forms: being the low-cost provider of a commodity product or service, or being a value-added provider of a differentiated product or service. The variety and complexity of IT solutions are such that there is an almost infinite number of "correct" IT solutions and investment strategies for either of these competitive strategies; however, the set of solutions that works for one will not be the same as the set that works for the other. This, I think, makes IT management, which includes the selection, maintenance and deployment of new and ongoing IT capability, a key strategic issue.

Getting IT right is a difficult problem that many executives face, and while some will appreciate the silver bullet Carr offers, most, I expect, will find his naiveté discouraging.

Cathy Hyatt
IT consultant, San Francisco, cathyhyatt@sbcglobal.net
Editor's note: *A longer version of this letter appears online at QuickLink 38709.*

HISTORY TEACHES that technology is highly cyclical. It is simply absurd that anybody would believe that technology no longer provides a source of competitive advantage. It's never been the technology that creates advantage in the marketplace; it's how companies strategically implement their business processes around the technology. From the general tone of recent issues, *Computerworld* seems bent on punishing the IT profession for unspecified past sins. The truth is that our industry and profession are in the middle of a normal cyclical downturn. I wonder what you will publish when the tech sector rebounds and businesses return to gaining long-term advantages from technology.

Steve Thornton
IT director, San Ramon, Calif., Stevo64@yahoo.com

NEWS FOR NASA: Put that plan for a manned mission to Mars in the trash can; Nicholas G. Carr is already there! Carr's comments are so far removed from earthbound reality, he simply must be on a different planet. While his planet has apparently already exploited the Internet to its maximum potential, developers still here on planet Earth are struggling to get Windows applications to talk to Unix servers.

Mike Watts
Lead systems engineer, AIG American General, Neptune, N.J., michael_watts@aigag.com

NICHOLAS G. CARR does indeed have a point, in that IT technology has become something any company can own at the same level as its competitors. The only advantages in computers now are simply in automating faster, organizing information better, transmitting it easier and doing it all for less than your competition. Still, technology as a whole will keep evolving. New technology will appear, as the Web did in the '90s. These new technologies will create temporary barriers that will allow short-term strategic advantages. IT will also have a branch that will become the "bird dogs" of technology to help scout out these new avenues.

Just as economists attempt to determine financial advantages for companies, IT will do the same with technologies. As revolutionary as IT has been for quite a while, it will be the leaping-off point for even more wondrous technology, just as electricity was the wonder technology that eventually led to computers.

John E. Columbus
Owner, Columbus Consulting Group, New Hope, Minn.

AMEN to Patricia Keefe's rebuttal to Nicholas G. Carr ["IT Does Matter," QuickLink 38298]. As a former IT manager doing CIO-level work for a small company, I believe there is still plenty of room for the strategic use of technology. The tools may be commoditized, but the majority of companies for which those tools will be useful are still learning how to take hold and make use of them. Keefe was right on the money.

Shannon Mellenhauer
IT management consultant, ComputerLand of Peoria, Peoria, Ill., Shannon@computerlandpeoria.com

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06.02.03

SUMITOMO MITSUI BANKING CORP.
turns to an online process to comply with requirements of the USA Patriot Act. Page 26

NEW YORK UNIVERSITY
expands its digital library to include electronic journals, sound and moving images. Page 27

APEEJAY SURRENDRA GROUP
is using IT to support Oxford Bookstore's growth from a single shop to a nationwide retail chain. Page 29

The advances made by IT are enabling other professions to push the envelope – arming scientists with supercomputers to model disaster cleanups, and surgeons with 3-D imaging to locate and remove tumors. Read how this year's **Computerworld Honors** finalists are helping to shape society's future through technology.

THE Greater Good

UNIVERSITY OF MANCHESTER

Doctors Bring **3-D Imaging** Into the Operating Room

BY EUGENE A. DEMAITRE

HE HAS A JOYSTICK in one hand and his eyes are glued to a screen, but this surgeon isn't playing a video game. He's in an operating room, rehearsing an incision by looking at a projection of 3-D images of a patient's internal organs. He can rotate and move among "slices," studying fine anatomical details before his real attempt to remove a tumor.

Researchers at the University of Manchester have developed a 3-D display of imaging data sets that doctors can navigate during operations. Until now, surgeons have largely relied on 2-D images from computerized tomography (CT) scans to show the locations of organs and tumors.

Current CT scanners produce 400 to 2,000 cross-sectional image slices, but only about one-tenth of them are typically used, says Dr. Rory McCloy, lead surgeon of the 3-D Volume Visualization in the Operating Room project, also known as Op3D.

Although many radiology departments have already been using 3-D image reconstruction at

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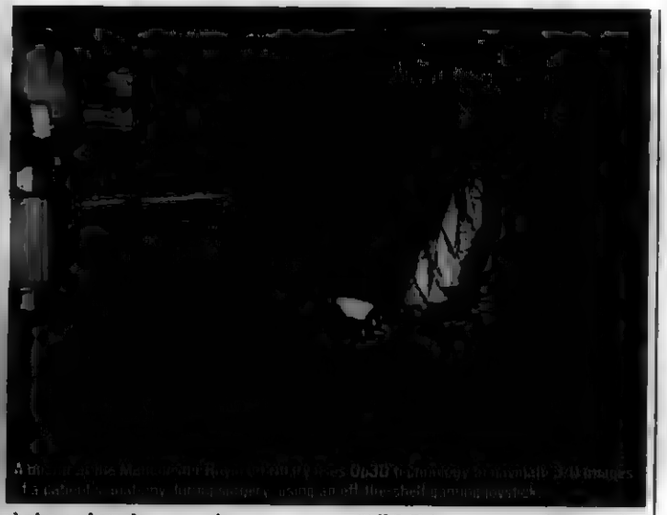

their workstations, one impetus of the Op3D project was getting those scans to "the sharp end" — the operating room — where they could be better used, McCloy says.

The computing power of a conventional desktop PC or a physician's laptop wouldn't be sufficient for such a task, says Nigel John, head of the Manchester Visualization Centre at the university. The Manchester, England-based center has developed a custom application using the OpenGL Volumizer application programming interface. It takes graphical data from the Manchester Royal Infirmary's Onyx 300 Silicon Graphics Inc. server and allows for volume-rendering segmentation in real time, he explains.

"We had the power at the university, but [McCloy] needed the data distributed across the network," John says. For that, Op3D uses Manchester University's 1GB backbone, which has a 100Base-T Ethernet link to the surgical theater, he says. Mountain View, Calif.-based SGI's OpenGL Vizserver system is used to distribute data across the network.

There is a trade-off between image quality and speed, but "we wanted both and required the highest-quality image possible," says John. The slices, which an XVGA data projector displays on an operating room wall, can rotate at more than 10 frames per second, depending on network traffic.

"There's a big 'wow' factor when I show the resolution and mobility [of these images] to X-ray doctors," says McCloy.

"All 3-D images must have an interface that does not require laborious image editing and that is real time in its performance, or it will be rejected as a hindrance to workflow," says Dr. Leo Lawler, an assistant professor at Johns Hopkins University in Baltimore.

Navigating 'Tiger Country'

To move through and among images, McCloy uses an ingenious solution: an off-the-shelf gaming joystick wrapped in a sterile bag.

"A surgeon can change modes, zoom in with a single click. The interface is quite intuitive and was designed to be simple for surgeons to use," says McCloy, who has trained surgical residents to use it. He has applied the Op3D system to surgery involving the liver and pancreas, which he says are "right in the middle of what we call 'tiger country' — in the middle of the body, surrounded by arteries, veins and vital plumbing."

Since the project began in April 2002, Op3D has been used with about 15 patients. Through this technique, McCloy has observed tumors that are inoperable, meaning that their removal would not improve a patient's chances of survival.

"We didn't appreciate the nature of inoperable tumors before with 2-D scans," he explains. "Surgeons normally have got to go in to find the context of a liver tumor, but now they can check the image to avoid cutting into the tumor and spreading cancer."

"The question is no longer why do 3-D reconstructions, but rather, why not," says Lawler.

SUMITOMO MITSUI BANKING CORP.

Bank Uses **Online Workflow** To Comply With USA Patriot Act

BY PATRICK THIBODEAU

THE USA PATRIOT ACT, an anti-terrorism law enacted in 2001, gives the government the power to demand more information from financial services firms about their customers and to require that it be produced quickly for investigators.

The law asks for a lot, but it didn't rattle Pete McCormick, CIO at Sumitomo Mitsui Banking Corp. in New York.

First, there was no choice but to comply. The government regulates financial services firms, and meeting federal law isn't optional. Moreover, McCormick, who works only a few miles from Ground Zero, says he had that nearby reminder of the need to stomp out terrorism.

Second, if done right, compliance wouldn't necessarily be a big burden. The bank already had many of the pieces in place. For example, it routinely looked for money-laundering activities and had to meet federal requirements to keep track of certain assets. The Patriot Act "isn't so new and so scary," McCormick says.

But the issue McCormick faced was how to improve those processes, scale them to reach throughout the company and turn these monitoring capabilities into "a more seamless manifestation" of existing abilities, he says.

Instead of building a new system, the bank wanted to leverage existing technologies and functions. It turned to an online process that used a browser front end, middleware and workflow engines developed by Sybase Inc. in Dublin, Calif., to automate these processes and speed access to information.

A key requirement was speed. The Patriot Act requires financial services firms to respond to subpoenas in five days or less; normally, it could take weeks to assemble the data.

Manbir Sawhney of New York University's Digital Library Technology Services

MARC ASNIN/FOCUS

The law also requires the bank to check government lists of suspicious persons against its own customer records.

"If [banks] are going to invest in this system and have a more complete view of their customers, they might as well leverage this," says Jessica Goepfert, an analyst at IDC in Framingham, Mass.

That's just what Sumitomo Mitsui did. The workflow and improved analysis capabilities will be used in other bank processes apart from compliance and will enhance the bank's ability to know its customers.

"All the technology was there; everyone was using it. I think [the law] created a catharsis," says McCormick.

NEW YORK UNIVERSITY

Scholars Archive Artifacts in A Multimedia Digital Library

BY THOMAS HOFFMAN

COLLEGES AND UNIVERSITIES have been digitizing their libraries for the past 10 years to help capture, store and preserve different types of analog content electronically.

But many of those efforts have focused primarily on capturing text or still images. Over the past four years, librarians, technologists and scholars at New York University have pushed hard to expand its digital library to include myriad content types — from electronic journals to sound and moving images.

"This is a rapidly changing environment, and we need to look ahead to the future," says Carol Mandel, dean of NYU's Office of Libraries.

For Mandel and other NYU officials, digital content can take all shapes and forms. For instance, the university has an extensive collection of materials on activism and radical politics that is accessed by people from all over the world, says Mandel. That collection includes political pamphlets that have been archived to NYU's Web site in digital form (*www.nyu.edu*).

Meanwhile, NYU's School of Medicine is developing multimedia modules that can be used to teach medical students how to conduct procedures such as gall bladder surgery.

NYU has also been working on preserving unique video materials, such as the hearings and videotaped testimony of the Women's International War Crimes Tribunal on Japan's Military Sexual Slavery. In another project that was spearheaded by a professor in NYU's Middle Eastern Studies department, the university was able to electronically archive rare and often fragile historical documents that were discovered in Afghanistan following the U.S. military invasion in 2001.

The university uses a highly integrated set of technologies to help support its digital library. The core platform is hosted by a Sun Microsystems Inc. Enterprise 15000 server, which runs on Solaris 2.9 and uses Sun's StorEdge T3 disk arrays and a StorEdge L700 tape library system for backup, says Jerome McDonough, NYU's digital library development team leader. NYU also uses an Enterprise 3500 server running Solaris 2.9, which it uses as a research-and-development and testing platform.

For content management, NYU relies on a mix of commercial and homegrown software, including DigiTool from Ex Libris (USA)

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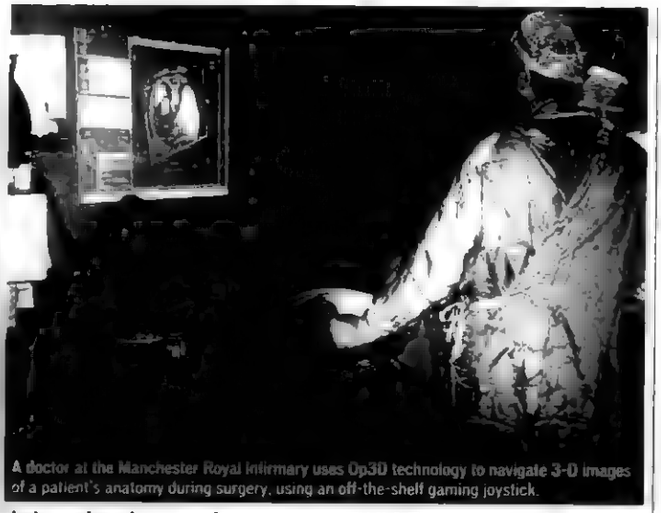

A doctor at the Manchester Royal Infirmary uses Op3D technology to navigate 3-D images of a patient's anatomy during surgery, using an off-the-shelf gaming joystick.

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"The question is no longer why do 3-D reconstructions, but rather, why not," says Lawler.

Bank Uses **Online Workflow** To Comply With USA Patriot Act

BY PATRICK THIBODEAU

THE USA PATRIOT ACT, an anti-terrorism law enacted in 2001, gives the government the power to demand more information from financial services firms about their customers and to require that it be produced quickly for investigators.

The law asks for a lot, but it didn't rattle Pete McCormick, CIO at Sumitomo Mitsui Banking Corp. in New York.

First, there was no choice but to comply. The government regulates financial services firms, and meeting federal law isn't optional. Moreover, McCormick, who works only a few miles from Ground Zero, says he had that nearby reminder of the need to stomp out terrorism.

Second, if done right, compliance wouldn't necessarily be a big burden. The bank already had many of the pieces in place. For example, it routinely looked for money-laundering activities and had to meet federal requirements to keep track of certain assets. The Patriot Act "isn't so new and so scary," McCormick says.

But the issue McCormick faced was how to improve those processes, scale them to reach throughout the company and turn these monitoring capabilities into "a more seamless manifestation" of existing abilities, he says.

Instead of building a new system, the bank wanted to leverage existing technologies and functions. It turned to an online process that used a browser front end, middleware and workflow engines developed by Sybase Inc. in Dublin, Calif., to automate these processes and speed access to information.

A key requirement was speed. The Patriot Act requires financial services firms to respond to subpoenas in five days or less; normally, it could take weeks to assemble the data.

"The knowledge that can be gained through digital content is what excites me," says Carol Mandel, dean of New York University's Office of Libraries.

The law also requires the bank to check government lists of suspicious persons against its own customer records.

"If [banks] are going to invest in this system and have a more complete view of their customers, they might as well leverage this," says Jessica Goepfert, an analyst at IDC in Framingham, Mass.

That's just what Sumitomo Mitsui did. The workflow and improved analysis capabilities will be used in other bank processes apart from compliance and will enhance the bank's ability to know its customers.

"All the technology was there; everyone was using it. I think [the law] created a catharsis," says McCormick.

Scholars Archive Artifacts in A Multimedia Digital Library

BY THOMAS HOFFMAN

COLLEGES AND UNIVERSITIES have been digitizing their libraries for the past 10 years to help capture, store and preserve different types of analog content electronically.

But many of those efforts have focused primarily on capturing text or still images. Over the past four years, librarians, technologists and scholars at New York University have pushed hard to expand its digital library to include myriad content types — from electronic journals to sound and moving images.

"This is a rapidly changing environment, and we need to look ahead to the future," says Carol Mandel, dean of NYU's Office of Libraries.

For Mandel and other NYU officials, digital content can take all shapes and forms. For instance, the university has an extensive collection of materials on activism and radical politics that is accessed by people from all over the world, says Mandel. That collection includes political pamphlets that have been archived to NYU's Web site in digital form (*www.nyu.edu*).

Meanwhile, NYU's School of Medicine is developing multimedia modules that can be used to teach medical students how to conduct procedures such as gall bladder surgery.

NYU has also been working on preserving unique video materials, such as the hearings and videotaped testimony of the Women's International War Crimes Tribunal on Japan's Military Sexual Slavery. In another project that was spearheaded by a professor in NYU's Middle Eastern Studies department, the university was able to electronically archive rare and often fragile historical documents that were discovered in Afghanistan following the U.S. military invasion in 2001.

The university uses a highly integrated set of technologies to help support its digital library. The core platform is hosted by a Sun Microsystems Inc. Enterprise 15000 server, which runs on Solaris 2.9 and uses Sun's StorEdge T3 disk arrays and a StorEdge L700 tape library system for backup, says Jerome McDonough, NYU's digital library development team leader. NYU also uses an Enterprise 3500 server running Solaris 2.9, which it uses as a research-and-development and testing platform.

For content management, NYU relies on a mix of commercial and homegrown software, including DigiTool from Ex Libris (USA)

Continued on page 28

finalists

- Olam International Ltd.
- PolyFuel Inc.
- TXU Energy
- U.S. Department of Energy's Pacific Northwest National Laboratory
- China Merchants Bank
- Health Management Corp.
- IntesaBci SpA
- RBC Royal Bank Financial Group
- Sumitomo Mitsui Banking Corp.
- Church World Service
- CyberSoft
- NASA Ames Research Center
- Network for Good
- South Australia Department of Human Services
- U.S. Agency for International Development

Inc., a library software maker in Chicago. The university also draws on a homegrown database system for metadata capture during digitization that it affectionately calls "Zero," named for the library computer in the original *Rollerball* film, says McDonough. The system is built on top of Oracle9i and uses a Web-based front end, written primarily in Perl, that allows users to input descriptive administrative and structural metadata for objects, he adds.

One of the biggest challenges NYU has faced throughout the expansion of its digital library has been maintaining sufficient storage capacity, says Mandel. For instance, one hour of high-quality video can require 120GB of storage. A single video collection — such as NYU's compilation of artists in downtown New York — can include up to 500 hours of video footage, requiring 60TB of storage. Mandel credits the relationship NYU has formed with Sun in helping it work through its capacity requirements.

Beyond that, universities such as NYU have found themselves pitted against businesses that want to charge a fee for digital content. "Sharing content for scholarly purposes is what we're all about," says Mandel.

But these challenges haven't dimmed Mandel's vision of the future. "The knowledge that can be gained through digital content is what excites me," she says. "Suddenly, scholars have access to history about a country like Afghanistan that historically has not been well understood."

That's also something that excites John Parkinson, chief technologist for the Americas at Cap Gemini Ernst & Young in Chicago. Although Parkinson didn't have previous knowledge of NYU's efforts, he is familiar with what other universities, such as Johns Hopkins University and the University of Chicago, have been doing to make extensive use of digitized content.

"This opens up a whole new set of opportunities for researchers," Parkinson says. Once content is in digital form, he adds, scholars can conduct research "on patterns across geographies and time that would be very difficult to do using analog documents." ▶

"We can solve problems here that can't be solved anywhere else," says Scott Studham, technical lead of molecular science computing facility operations at Pacific Northwest

PACIFIC NORTHWEST NATIONAL LAB

Scientists to Test **Disaster Scenarios** With Supercomputer

BY TODD R. WEISS

AS POWERFUL COMPUTERS are harnessed together to create even more powerful supercomputers, scientists continue to find new ways to exploit this strength by conducting experiments they could only dream about in the past.

At the Pacific Northwest National Laboratory in Richland, Wash., a massive Linux supercomputer that will be completed this month will be used to help model some of the most challenging and dangerous environmental cleanup scenarios in the world.

Scott Studham, technical lead of molecular science computing facility operations at the laboratory, which is part of the U.S. Department of Energy, says the goal was to create a supercomputer that would allow scientists to model disasters that wouldn't be feasible to test in real life.

One such disaster might be an accidental spill of radioactive uranium, Studham says. Using the new supercomputer, scientists will be able to model a wide variety of substances, including enzymes, in their search for materials that could help in the cleanup.

"That would be an example [of testing] that's too dangerous or expensive to do in a real lab," Studham says. With a supercomputer, such high-risk experiments are safe because the testing is theoretical.

Using a powerful custom chemistry modeling program called NWChem, the lab's researchers can peruse particles to search for better ways of cleaning up environmental hazards. "We can solve problems here that can't be solved anywhere else," Studham says.

Other programs can model different types of environmental disasters, including oil spills. The core research areas for the machine are chemistry, subsurface modeling, biology modeling and regional climate experimentation.

When completed, the machine will include 1,900 Intel 1.5-GHz Itanium 2 processors in 950 nodes, which is believed to be the largest Linux cluster in the world. The supercomputer, which is designed to perform 11.7 trillion floating-point operations per second, will cost $24.5 million.

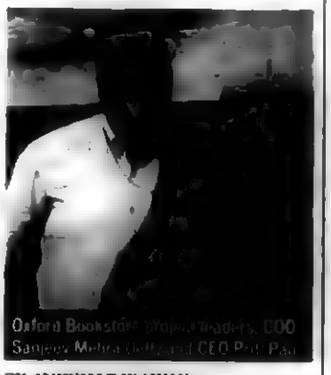
Two problems had to be sorted out as the system was being built. One was figuring out how to make 256TB of total hard-disk space across the 950 nodes appear as one seamless storage area. This was solved by using and tweaking the Lustre global high-performance file system from Cluster File Systems Inc. in Mountain View, Calif. Also difficult was creating an air-conditioning system powerful enough to cool the massive, hot-running machine.

Barton Miller, a professor in the computer sciences department at the University of Wisconsin – Madison, says this kind of supercomputer is just what scientists need to test the stability of stored nuclear bombs, for example, or drug interactions in genetics research, he says.

"They can't test these things out in a meaningful way [in a lab], so you do it using simulation," Miller says. "It's changed the way people do research." ◗

APEEJAY SURRENDRA GROUP

Bookseller Expands its Reach With Integrated Internet Platform



Oxford Bookstore [illegible], COO Sanjeev Mehra [illegible] and CEO Pvt. Pan

BY JAIKUMAR VIJAYAN

Since it first opened its doors in 1920, Oxford Bookstore, a small bookshop in the heart of Calcutta's business district, has been a favorite destination for book lovers. And while the store had always done a brisk business, for 80 years patrons were able to find their literary treasures only at its sole location in India.

In 2000, management at Apeejay Surrendra Group — an industrial conglomerate that now owns Oxford Bookstore — decided to expand the business to reach customers in other major Indian cities. The challenges were huge, says Chief Operating Officer Sanjeev Mehra.

For starters, the idea of a chain store for book retailing was somewhat alien in a country where national consumer chains are still a rarity. The communications and logistics infrastructure was poor, and there was no information available on the book-purchasing habits of consumers in the metropolitan areas of India.

"Chain-store retailing had just about started in India [in 2000]," Mehra says. As a result, much of the infrastructure and information required to deliver the economies of scale that retail chains need was missing, he says. "At that time, the Internet seemed to be the best bet" to address some of these issues, Mehra says.

As it began its expansion into other cities, the company decided to launch an integrated Internet platform that would tie new brick-and-mortar shops back to the mother ship in Calcutta. It would also open up an online presence for the bookseller, says Niloy Mukherjee, the project's technical architect.

In that sense, Oxford's initiative was different from those of companies such as Amazon.com Inc., which started as an online store, or Barnes & Noble Inc., which already had an established retail presence when it launched its online store, Mehra says.

Three years into the effort, the project has begun to pay off. Oxford opened new retail stores in three Indian cities and recently launched a fourth in the southern city of Bangalore. Its retail Web site was one of the first in the country to accept credit card payments.

The underlying Internet system that has driven much of the expansion was built by Cognizant Technology Solutions Corp., a Teaneck, N.J.-based provider of outsourced services. The three-tier architecture features Microsoft Corp. servers running Active Server Pages at the front end, application servers running Internet Information Server software in the middle tier and Oracle Corp. database server software at the back end, says Mukherjee, who works at Cognizant.

The system gives Oxford a single, consolidated view of its online and retail store operations around the country. For example, the company can use it to centrally track sales, consolidate orders, replenish inventories, study purchase trends and forecast sales across both physical and online stores. New stores immediately become part of the network when they plug in.

The integration of its online and physical store operations has yielded other benefits as well. For instance, Oxford is able to serve up personalized service at its retail stores for customers who have purchased from its Web site.

"If we didn't have the system, it would have been chaotic to set up stores," Mehra says, adding that this approach "has allowed us to achieve better costs, control, security and audit." ◗

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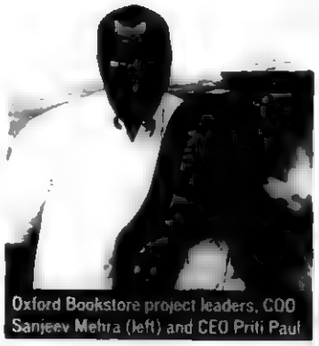

Oxford Bookstore project leaders, COO Sanjeev Mehra (left) and CEO Priti Paul

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...nalists

- Manchester Visualization Centre
- Rita Medical Systems Inc.
- TeraMedica Inc.
- Institute of Atmospheric Physics
- Pittsburgh Supercomputing Center
- Russian Academy of Sciences
- Sequenom Inc.
- SpotFire Inc.
- American Express Corporate Travel Solutions
- CMG Unwired Concepts and NoordNed Personeel vervoer BV
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SECURITY MANAGER'S JOURNAL

Single Sign-on Stalls as Kazaa Gets the Boot

A directory integration project trips over numeric user names, but Mathias Thurman moves forward in blocking the use of file-swapping programs on the corporate network. **Page 36**

OPINION

Road to IT Renaissance

Columnist Paul A. Strassmann says that Web services will change both IT and the power structure within organizations. **Page 38**

QUOTE OF THE WEEK

"We've had tapes that were in the bottom of a Dumpster swimming in Dumpster juice. That was gross, but it was a good recovery."

– Dan Gardner, vice president of development, Renew Data Corp.

PORTAL POWERS GE SALES

A sales portal integration project at GE Power has substantially increased productivity, giving the sales team more time for calls. By Gary H. Anthes

IT WAS SEPTEMBER 2001, and Jeff Immelt had just become General Electric Co.'s new chairman. His predecessor, Jack Welch, had come up through the engineering ranks, but Immelt was a marketing guy, and one of his first actions was to survey the company's sales force. He was dismayed to find that members of the sales team were spending far more time on deskbound administrative chores than in face-to-face meetings with customers and prospects.

"He put a personal challenge before all the business units," recalls Venki Rao, an IT leader in global sales and marketing at GE Power Systems, an Atlanta-based division focused on energy systems and products. "He said we needed to turn that around, to spend four days a week in front of the customer and one day for all the admin stuff."

FIELD REPORT

GE Power hasn't yet reached that goal, but it is making progress, thanks to a new sales portal that went live in April last year. The portal, a complex amalgam of products that pulls information from multiple data sources, was developed in just six months, thanks in part to its high-level sponsorship and the use of an IT project methodology based on GE's Six Sigma quality program.

GE Power's salespeople spent much of their time at their desks because they had to go to many sources — some manual and some electronic, some internal and some external — for the information needed to sell multimillion-dollar turbines, turbine parts and services to energy companies worldwide. Now, Rao says, they have a "one-stop shop" for just about everything they need.

Various existing GE databases, previously unconnected, are the primary data feeds into the portal, providing everything from sales tracking and customer data to parts pricing and information on planned outages. GE Power also added external data such as news feeds.

"I have the sales portal as my home page, and I use it as the gateway to all the applications that I have," says Bill Snook, a sales manager at GE Energy Services in Canada and one of 2,500 users of the portal. "Before, you were randomly searching for things. I'd go to a site, and if it didn't have the answer, I'd go to another site." Snook says he used to go from one application to another, and each required a separate sign-on and password. The portal has "made multitasking much more efficient" and has increased face time with customers, he says.

The heart of the system is the Java-based Epicentric Foundation Server from Vignette Corp. in Austin. This portal software gives users a single unified view into a wide variety of information sources and applications. It dynamically assembles personalized "portlets," such as a customized view of industry news, a look at the user's own customers or his sales performance year-to-date, and presents them in a unified way to the user's Web browser.

GE Power uses BEA WebLogic Server from BEA Systems Inc. in San Jose for the front-end Web server functions. A product for single sign-on, SiteMinder from Netegrity Inc. in Waltham, Mass., gets users into the

THE PAYOFF

TOM CEROVSKI, sales digitization leader at GE Power Systems, says the sales portal and other automation efforts have increased the productivity of the sales force by some 25%. "Salespeople are spending less time searching for information," he says.

The portal has also resulted in some unexpected benefits. "As we built the data mart underneath the portal, it became clear that we could leverage that data for management as well," says Samir Saini, IT sales program manager. "So we built modules geared for performance management." Sales managers can now look at data such as sales leads, orders and receivables, and they can generate reports.

At GE, a project must have at least a 2-to-1 payback. Venki Rao, an IT leader in global sales and marketing, says GE Power spent $450,000 for software licenses, but he declines to quantify other costs. Jim Young, a former GE consultant who worked on the project, says, "The global sales portal came in at a very salvage $1.2 million."

As for the financial benefits, Cerovski says that with a 50% annual return on investment, the project "will achieve the target 2-for-1 investment payback."

– Gary H. Anthes

sales portal and to multiple applications behind the portal using just one password. At the bottom of the three-tier architecture sit various Oracle Corp. and Siebel Systems Inc. databases running on mammoth Sun Microsystems Inc. Solaris servers at the company's Cincinnati data center.

The sales portal sits on top of an Oracle data mart created specifically for it. The system pulls data needed in real time, such as updates to the customer master file, into the mart using special "adapters" created with the Integration Platform from webMethods Inc. in Fairfax, Va.

The adapters connect to a variety of applications and database types. GE Power loads data updates that are needed less often, such as turbine installations, once a week using an extract, transform and load process.

Passing the Toll Gates

GE Power kicked off the project in September 2001, had a pilot portal running by January 2002 and had the production system up three months later. Project managers say much of that rapid deployment stemmed from the use of the company's life-cycle Project Management Methodology (PMM).

PMM, which draws on the principles of GE's Six Sigma quality practices and principles, divides the development process into six phases, each of which ends at a "toll gate" that must be passed before the next phase begins.

One of the more rigorous steps in the PMM is the evaluation and selection of vendors.

The portal software was evaluated against two dozen technology criteria, says Jim Young, president of Infotech Consulting Inc. in Atlanta and a former GE Power consultant who served as one of the project managers during the development process.

The most important criteria were cost, the ability to run the portal on multiple application servers and operating systems, and ease of integration with Verity Inc.'s search engine, with other GE applications, with tools like webMethods', and with standards such as XML, HTTP and SOAP.

Epicentric nosed out portal products from IBM, Computer Associates International Inc., Plumtree Software Inc., iPlanet (now part of Sun), BEA and Oracle, Young says. It was chosen largely for its ease of integration; ability to span multiple, heterogeneous databases; and ability to be customized by end users, he says.

"A huge criterion for GE was they wanted the power in the hands of users: salespeople and management staff," Young says. "And as you go across the enterprise, you want to go across lots of different products, lots of different databases and not have to go back to IT."

Young says GE Power experienced some difficulties because it was under pressure to bring up the portal at the same time that other important pieces of software, including the Netegrity single-sign-on software and the Verity search engine, were being introduced at the company.

For example, because single sign-on wasn't in place for all the applications that the sales portal needed to touch, the portal had to check user permissions by going directly to some applications using the Lightweight Directory Access Protocol (LDAP), rather than to a single table in SiteMinder.

Security Issue

"Because Epicentric could go to either Netegrity [SiteMinder] or LDAP, it presented a small security issue internally, but there was no other way to do it," Young says. Nevertheless, he says, the issue was resolved by the time the portal system went into production, and all permissions are now verified via the authorization table in SiteMinder.

THE SIX SIGMA EFFECT

Here's how GE Power's Six Sigma quality program shaped its sales portal project:

QuickLink 30429
www.computerworld.com

The hardest part of the project was getting past the first two Six Sigma toll gates: project definition and cost-benefit measurement, Rao says. Defining requirements was tough because the sales portal's primary users are salespeople scattered around the world. Also, the system was intended to address the needs of disparate sales groups throughout GE Power.

"Because Power Systems has nine different businesses, you have to go and sell it to each and every business leader," Rao says.

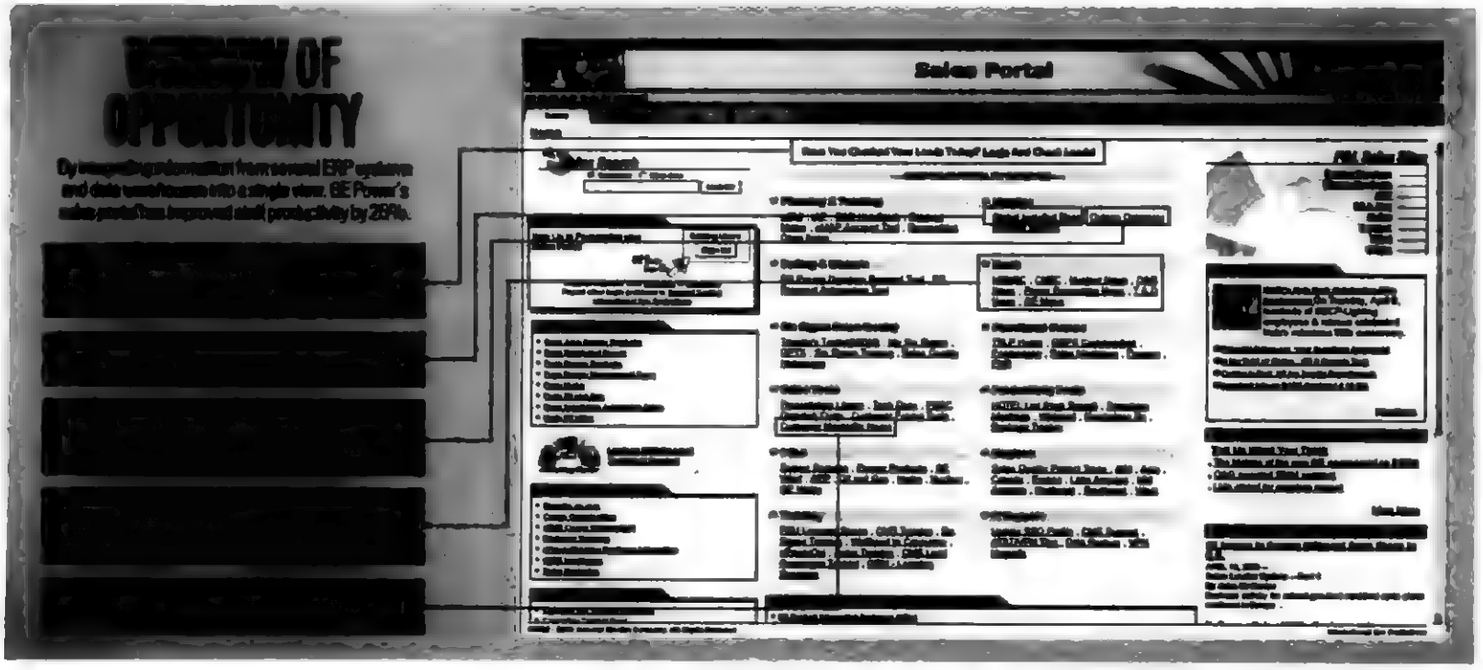
The project team used a kind of rapid prototyping — a "launch-and-learn process," as Tom Cerovski, sales digitization leader, calls it — to focus and win the minds of the sales force.

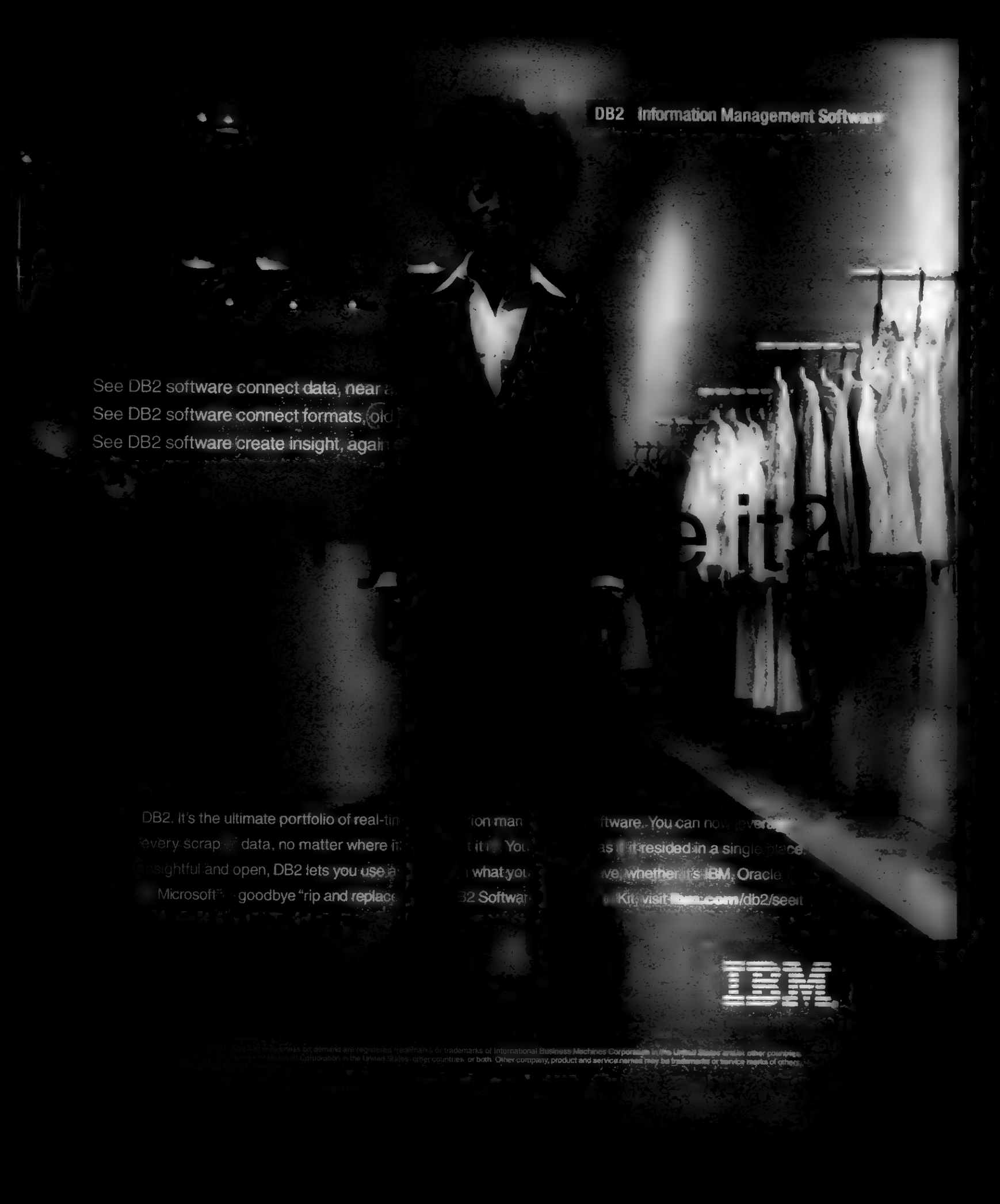
"For example, we say we are going to focus on cash and receivables, and so we put cash and receivables metrics on the portal and start getting feedback immediately," he explains. "If we spent a month putting something rough together, about three months later we'll have it fine-tuned based on the feedback."

Developers also put portal prototypes on PCs in the common areas at the company's annual sales conference. Salespeople could take a quick look and then type in their reactions and suggestions, Rao says.

The open architecture and flexibility of the sales portal software make it especially easy to enhance and extend it, and GE Power plans to do so, Rao says. Over time, his group plans to add new tables and new fields to existing tables the portal accesses.

For example, travel and living expenses could be automatically loaded into the data mart, and the portal could show those expenses for individual salespeople or roll them up for group or regional management review. Future customizations could even include extranet extensions to customers and sales channel partners, Young adds.





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How to Cut Your Data Losses

Data recovery specialist Dan Gardner offers tips on how to avoid losing data and what can be done when disasters happen. By Lucas Mearian

As vice president of development at Renew Data Corp., an electronic evidence and data recovery services provider in Austin, **Dan Gardner** *played the leading role in the development of the company's proprietary forensic and data recovery software. Gardner recently spoke with* Computerworld's *Lucas Mearian about data recovery best practices, how Renew Data restores lost data and how administrators can minimize the risk of data loss.*

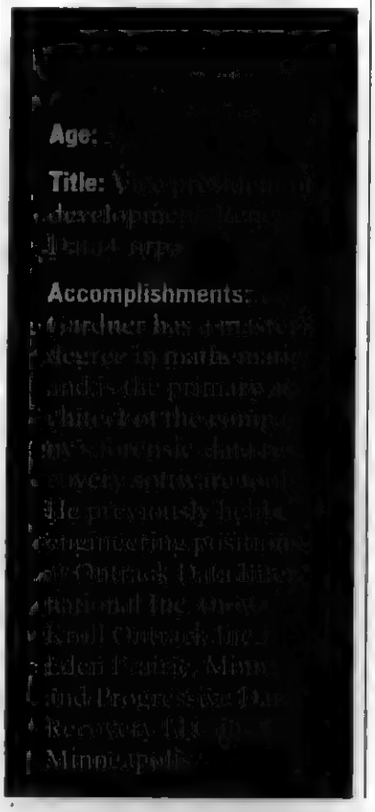
What should administrators do when faced with a storage media failure? Our advice is if the hard drive is making a noise or a tape is stopping, don't try to fix it yourself. Once the media starts to fail, it's got a pretty limited lifetime. I recommend pulling the plug. Powering down can take time and cause further damage.

Don't be hasty to try things that may cause further damage, or don't try things that may cause logical damage or data loss. It doesn't cost a nickel to call us and just get a quick assessment of whether or not there is a data recovery scenario involved.

What can IT do to protect against the most common causes of data loss? One point that gets overlooked in policies and procedures for disaster recovery is testing. There's an old saying, "One test is worth a thousand opinions."

Which types of problems are the toughest to remedy? By far, the physical damage. These types of things involve taking it into a clean room and trying to attempt a repair of what's repairable and then attempting to read what's readable. It's very labor-intensive and requires the skill of someone who knows what they're doing in order to manipulate the hardware into a readable state.

At what point do you decide that data is unrecoverable? Generally speaking, we don't give up. There's obviously clear situations, like when all the magnetic substrate is scrapped off platters, when it's obvious. As long as there's an outside chance of getting something, we continue.



What other types of media can you recover? Things like flash cards from the digital cameras, SmartMedia, Memory Sticks, [and] all forms and manner of removable storage, such as floppies, optical drives, Zip drives, Ditto drives, CD and DVD media.

What can administrators do to reduce vulnerability to media failures? Given the fact that there is a certain failure rate among all backup media, you need to audit that media. Make sure it works. Make sure you backed up what you think you backed up. Make sure you can restore what you've backed up. We've seen backup tapes come in under the assumption that they've backed something up but never actually did.

That's a really tough thing to tell customers. They send in a tape for data recovery because they can't restore a certain file, and we tell them we can't either because it wasn't there in the first place.

If forensic evidence needs to be preserved, what do you do that IT can't with a forensic disk-imaging software package? That revolves not so much around capability but around legal conditions. We bring in an objective third party if we're talking about evidence, because there's a real credibility issue there. There are chain-of-custody issues that require someone being a witness.

From a technology point of view, EnCase is the standard in the forensics area and therefore it's used by investigators. But our people are also very well trained on the whole chain-of-custody issue, which generally IT people aren't.

What were some of your more unusual successes? We've had tapes that were in the bottom of a Dumpster swimming in Dumpster juice. That was gross, but it was a good recovery.

Some of the most challenging recoveries we've done involved proprietary systems, like GE's MRI systems, where from a computer point of view, it's not in the mainstream [and] there's a pretty hefty amount of work involved in determining how to get data off the media.

How quickly can you restore my data? There's a number of possible scenarios. If we're talking about single hard drives, first we have to assess if there's anything physically wrong. If the magnetic media on the platter has been damaged and completely scraped off, that's an unrecoverable scenario.

Generally, it's one day for the initial process of reading the data, and then it's another day for processing the data, and then it's another day for restoration of data on return media.

What's it going to cost me to get my data back? The most common scenario is a single hard drive. Depending on the type of failure, whether it's a logical failure or to a severe physical failure, it's between $300 and $2,000. ▶

Top 10 Causes Of Data Loss

1. Mechanical hard-drive failure
2. Data structure corruption, such as invalid File Allocation Table partitions
3. Accidental or intentional data deletion
4. RAID server failure
5. Backup tape malfunction
6. Physical tape damage
7. Accidental overwrites
8. Software corruption
9. Viruses
10. Natural disasters

SOURCE: RENEW DATA CORP., AUSTIN

How to Cut Your Data Losses

Data recovery specialist Dan Gardner offers tips on how to avoid losing data and what can be done when disasters happen. By Lucas Mearian

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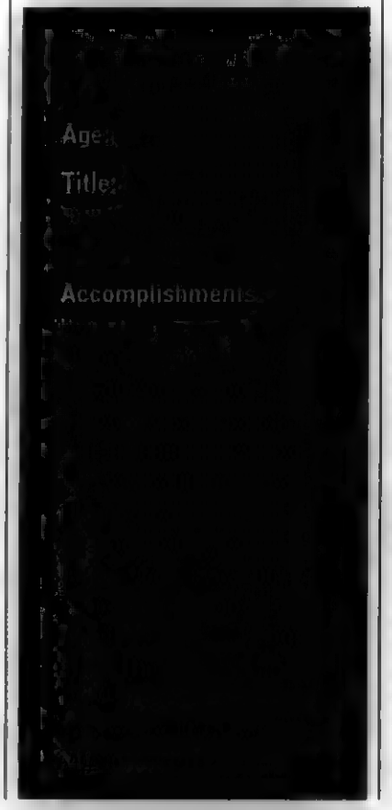

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SOURCE: RENEW DATA CORP., AUSTIN

WebSphere

Single Sign-on Stalls as Kazaa Gets the Boot

Numeric user names derail directory integration work, but a network redesign enables blocking of bandwidth-hogging file-swapping programs. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

SINCE MY ACTIVATION by the Air Force Reserve, I've had to dedicate almost all of my time to my new duties. For now, I'm in a location stateside that has Internet access, so I can log into my corporate LAN to check e-mail and access server resources. I've also been able to dial into several meetings on projects that I've been managing or that I'm contributing to.

One such project involves creating a centralized authentication system for our Solaris servers. We're having problems with Novell eDirectory and its ability to effectively handle authentication requests from those servers.

One of the issues involves user names, which are typically based on a simple naming convention such as the first letter of the user's first name followed by his last name. However, my company's human resources department decided to use employee numbers as user IDs for access to the PeopleSoft system. My team uses eDirectory to store those numeric user names, and we want to use the same eDirectory system for our Unix authentication so employees have single sign-on access to any resource. Unfortunately, it appears that Solaris doesn't like user names made up of only numbers. I've been told that some Solaris authentication modules may not work with such names.

Another problem involves our RSA SecurID servers, which are responsible for two-factor token-based authentication. We configured these to recognize standard user names that conform to our network log-ins.

To add to the complexity, we use Windows 2000's Active Directory to store network log-in credentials. We use these credentials to log into the Microsoft Exchange Server e-mail system and to access Windows file-server drive shares. The PeopleSoft log-in is for access to HR and payroll services.

We'll probably configure the eDirectory to have two user name attributes: one for PeopleSoft and the other for Unix authentication.

The beauty of directory services is that the rest of the attributes, such as the user's home directory, default shell and group, can remain and be correlated to the Solaris user identification without affecting the PeopleSoft log-in.

Another issue involves Solaris 8 incompatibility with eDirectory. To resolve this problem, we were planning on using either Novell's DirXML or the PADL open-source libraries, a Lightweight Directory Access Protocol (LDAP) integration tool from Melbourne, Australia-based PADL Software Pty. We could solve the problem by upgrading to Solaris 9, since that version's LDAP client works better with eDirectory. But that migration is at least a year off, so for now we have to make do.

I've just learned that Sun has released a patch for its Solaris 8 LDAP client that improves compatibility with eDirectory, but I don't have much information on that yet.

> **We could configure our firewalls and routers to block access to . . . unauthorized applications and Web sites. The problem is that they're not unauthorized for everyone.**

Network Abusers

I'm also working on a project to control the abuse of instant messaging and file-sharing programs. Our general counsel has signed off on a policy that prohibits employees from using company resources for nonbusiness activities. Reading our intrusion-detection logs, we discovered that most of the abuse comes from users of Yahoo Messenger and file-sharing programs like Kazaa and Morpheus. The use of these programs reduces productivity, ties up network bandwidth and raises security issues when employees download files infected with spyware or viruses.

We could configure our firewalls and routers to block access to those unauthorized applications and Web sites. The problem is that they're not unauthorized for everyone. For example, our technical support group uses Yahoo Messenger extensively to help customers with software problems, and IT security needs access to hacker Web sites for research purposes.

We also haven't been able to block users' access by IP address because we use a Dynamic Host Configuration Protocol server, which gives users a different IP address every time they log on. Also, we use a single range of IP addresses for all corporate campus PCs, so we can't even block a range of addresses from accessing these services.

The good news is that our network department has started redesigning the IT infrastructure and is segmenting the network. Network operations, engineering, quality assurance, security, HR, finance and many other departments will each have their own range of IP addresses. That will make is possible to configure our firewall or router access-control lists by department.

We will be able to block access not only to illegal programs, but also to legitimate applications for users outside a given department. The network team will be able to configure the firewall to, for example, prevent tech support from accessing the payroll application — and to prevent everyone except the tech support group from using Yahoo Messenger. At our next meeting, we will discuss how to restrict access to even more unauthorized Web sites.

Meanwhile, as military needs wind down, I'm hoping for an early release from my Reserve duties. I hope to be writing the next column from my home office.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink a1560

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Tivoli

ware that self-configures, self-heals,
demand business more manageable
than ever. You'll spend less time on routine tasks and more time on important things –
like business results. To see how Tivoli can help you, visit **ibm.com**/tivoli/seeit

IBM

BRIEFS

Redline Announces Wireless Device

Redline Communications Inc. in Markham, Ontario, last week announced a long-range broadband wireless device designed to replace leased T1 lines. The AN-30T provides up to four time division multiplexing links by using Orthogonal Frequency Division Multiplexing at up to 72Mbit/sec. It works in the unlicensed 5.8-GHz band and functions at distances greater than 50 miles. The AN-30T will ship by the end of June. Pricing wasn't disclosed.

IBM Launches Low-end Server

IBM last week introduced the eServer p615, a new low-end server that includes a Power4+ processor running either Linux or IBM's AIX operating system. The server, which can be equipped with one or two processors, is priced beginning at $5,745.

Emulex Integrates HBAs with Brocade

Emulex Corp. in Costa Mesa, Calif., last week announced that its LightPulse LP9802 and LP982 PCI-X host bus adapters (HBA) have been tested to work with Brocade Communications Systems Inc.'s line of storage-area network switches. The HBAs offer 30% more I/O processing power than previous models and are backward-compatible with existing 1GB/sec. and 2GB/sec. Fibre Channel Peripheral Component Interconnect installations.

SAP Apps Joined With Dassault Tools

SAP AG announced last week that it was integrating its mySAP Product Lifecycle Management application with Dassault Systèmes SA's CATIA V5 product development software. SAP claims this will allow manufacturers to more easily collaborate with partners and suppliers on engineering and procurement.

PAUL A. STRASSMANN

Web Services: Road To IT Renaissance

IN MY MAY COLUMN, I discussed why the enterprise computing solutions investment cycle was coming to an end, to be displaced by Web services [QuickLink 38250]. Unfortunately, a technical description of how Web services function doesn't explain why we've entered a new evolutionary stage in how computing will affect organizations.

The idea that computing has evolved over several cyclical stages is now accepted wisdom. Various authors have discerned a succession of three-, four- or even eight-stage cycles since 1950, depending on how they sliced up the written record. Whenever the computer industry experiences one of its periodic slumps (about every six to eight years) the gurus, investors and entrepreneurs engage in a guessing game of what will be the next cycle to spawn yet another bonanza.

Almost everyone agrees that technological innovation is needed to bring about the next growth cycle. There is also a consensus that the next wave will have something to do with Web services. However, just tagging Web services as the engine to create another round of trillion-dollar investment is a dead end. For the next cycle to happen, CEOs and CFOs will demand demonstrable gains in added value.

In this environment, anything tagged as a technological improvement won't sell in the boardrooms. Therefore, market planners and consultants are repackaging Web services as "customer-centric computing," "human-centered computing," "ubiquitous computing" and so forth. This emerging list of hyphenated labels suggests that the control over IT will migrate closer to the customer. Such reshuffling will be enormously expensive because it will require junking much of what's in place right now.

The real story is that the next wave of IT investments will shift much of the control over IT from the producers of IT (vendors, CIOs, consultants) to those who can decide what information is worth getting in order to do their jobs more effectively. When I talk about Web services, I really mean a practical demand for CIOs to restructure technology to ease the traumatic shifts from supply-side economics to demand-side economics.

I'm sure that there will be many debates about whether such a transformation will actually happen, and if so, how rapidly. Before making predictions, it's useful to examine how employees will acquire the capabilities to decide what information to obtain and how much to pay for it, and those are tough questions.

Moving decision-making about the uses of IT calls for a radical cultural change. Right now, with the exception of what they fix up on their PCs, employees are largely force-fed from a menu that has been cooked by a few decision-makers, mostly technologists. The current organization of IT is like a 13th century European town, where the local guilds and the bishop decide what people may wear and discuss. Introducing a Wal-Mart of choices into such a setting is likely to upset those who hold power.

But Web services must be seen not just as a technologically advanced method for managing and distributing information. Internets and intranets must also be understood as an instant marketplace where individuals can exercise a wide range of choices about what information to acquire and how to take advantage of an enormous variety of information-processing capabilities.

If the exercise of individual choices is the key to the empowerment of a vastly more productive information workforce, we must set out now to lay the foundation for a software architecture that will make that feasible.

After an examination of what is actionable now, I have concluded that vendor-independent portal technology will be one of the principal means of making Web services valuable. CIOs should go back to their architectures and remove vendor-specific ways in which people are forced to interface with applications.

In their place, CIOs should promote the adoption of generic and universal portals that can be adapted to employees' scope of work, skills, literacy and habits.

I see infinite opportunities for the expansion of Web services if people are offered the opportunity to shape their portals as a friendly companion for trips into the world of networked knowledge.

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QUOTE OF THE WEEK

"A few years ago, people got jobs just by having certifications. Today, you've got to be able to break down your accomplishments and provide specific ROI."

– Jeff Markham, manager, Robert Half Technology

OPINION

The ROI of Privacy Seals

BBB privacy logos on Web sites aren't cheap, but they might be worthwhile in boosting consumer confidence, says privacy columnist Jay Cline. **Page 42**

HOW TO

Talking Long-Distance

As more companies conduct job interviews by phone to save time and money, job candidates need to make the best impression they can. Here's some advice for handling those calls. **Page 41**

BUY! NO, BUILD!

The debate between buy and build advocates continues. By Steve Ulfelder

RICHARD BORGE

DO YOU BUY? OR DO YOU BUILD AND ADJUST?

It is an elder among IT debates. It is our own "Tastes great!" "Less filling!"

When you need a new enterprise software tool, what's wiser: buying a packaged application from a major vendor and customizing as needed? Or developing it yourself from scratch? Interviews with IT leaders show this conundrum is no closer to resolution today than it was a quarter-century ago. But that doesn't mean that things haven't changed.

Build advocates need only wave a fistful of *Computerworld* articles dating back to the mid-1990s, when enterprises discovered the joy of ERP. It is hardly a secret that many ERP, CRM and supply chain management implementations have blown up — wasting millions, causing corporate turmoil for years and, in a few cases, being named as factors in bankruptcies. Moreover, CIOs and business executives alike have grumbled in recent years that even when such projects "succeed" (that is, when they don't fail utterly), return on the investment comes slowly — if at all.

On the other hand, there's clearly a limit on how large an application IT can create. "You don't see enterprises trying to re-create SAP," jokes Jennifer Chew, an analyst at Forrester Research Inc. in Cambridge, Mass. Many of the applications CIOs point to as triumphs of the build philosophy are relatively modest — making data easier for users to access via a browser, perhaps, or allowing previously isolated software tools to communicate with one another.

So what'll it be, buy or build? Some of today's arguments may surprise you.

Buying and Crying

Rich Bursek, CIO and senior vice president at Lydian Trust Co., recently made the decision to buy a packaged application, and the process reinforced his philosophy to build his own software whenever possible.

Lydian, a Palm Beach Gardens, Fla.-based parent company to several financial-services businesses, needed Web-based mortgage-origination software that the lenders use to receive and process loan requests. Many vendors offer mature applications that fill this vertical need. "It would have taken us a

year to build it" at a cost of about $1 million, Bursek says. The price of the packaged application selected by Lydian (Bursek declined to name the vendor because the contract has yet to be locked in) is about $250,000, he says, and another $250,000 in resources — in-house developers' time and consulting — is needed to get the application running.

The capper is that Lydian hopes to put the packaged application in production in six months. "So that's a half-million-dollar savings, plus we're six months closer [to a functioning application]," Bursek says. "When I took those two factors to the board, it was pretty persuasive."

While the 50% savings made this a clear-cut buy decision, Bursek discusses the experience with enthusiasm usually reserved for a pulled groin. Lydian's senior management team has a strong IT background and prefers to build applications whenever possible — and despite the overwhelming cost advantage of purchasing packaged mortgage-origination software, this experience is doing little to change their minds about the non-finance-related advantages of the build approach. (Bursek believes the unpleasantness isn't his specific vendor's fault, but rather the nature of the buy beast.)

BUY

"It would have taken a year to build it"

RICH BURSEK, senior vice president and CIO, Lydian Trust Co.

In January, after running the numbers, Bursek knew he would purchase a packaged application and began vendor meetings. "That took us a month, which everyone told us was very aggressive, and another [month] to negotiate and sign the contract," he says. (As noted above, there are still T's to be crossed, I's to be dotted.) The software was installed in March and was scheduled to go live May 1.

"We have five people dedicated to managing this project," Bursek groans. "Five dedicated resources doing nothing else." Three are business analysts who act as conduits between Lydian's business units and IT, and two are developers writing code to make sure the company's existing applications work with the new mortgage-origination software. "When you're working with vendors there's this ongoing battle," Bursek says. "Things snowball; you can lose control." He contrasts this experience with a recent build project — an extranet sales tool for third-party brokers and account executives who do business with Lydian.

The company needed to give those professionals real-time, browser-based access to mortgage approval status. Bursek simply grabbed a few developers from his six-member team and went at it. "I met with an analyst and a systems architect" to sketch out the basics, he says. "Then we made a presentation to two people in operations and started development the same week. From problem analysis to going live took three weeks."

Bursek shakes his head. "With vendors, it's just a grueling process." In particular, he chafed at the vendor selection process, the contract negotiations and the need to rely on outside developers. But in the case of the mortgage-origination software, the massive price differential trumped all other arguments and made the buy decision unavoidable.

Customize With Caution

One of the popular build arguments is that there's really no such thing as a major packaged application — vendors' suites must be customized so heavily that getting your allegedly off-the-shelf application running requires a massive amount of developer time and a shotgun wedding with an integrator. But some IT leaders turn this argument inside out. According to David Schwartz, CIO at George Washington University in Washington, the big problem with ERP implementations is that companies overcustomize software. "A lot of these modifications are simply preferences," he says. "People change the way a screen looks or what appears on a report."

"If you buy packages, you want to keep customization to an absolute minimum," agrees Chuck Mackey, IT director at the Elkay Division of privately held Elkay Manufacturing Co. in Oak Brook, Ill.

The diversified manufacturer of plumbing products and cabinets built its own software until 1997, when it put in place a PeopleSoft Inc. ERP suite. And despite a lousy experience with a systems integrator (Mackey declines to name the firm but says, "They did a very poor job for us"), he has no regrets. Elkay's annual PeopleSoft maintenance fee is equivalent to two or three developers' salaries, Mackey estimates. And for that fee, he says, "today we're totally Web-enabled. There's sure no way we would have gotten here with two or three more developers."

In 2000, when George Washington embarked on an implementation of an Oracle Corp. ERP suite, Schwartz minimized customization and instead updated the university's business processes to match best practices recommended by Oracle. "That's tough. You go through a chain of pain when you're re-engineering and changing corporate culture," he says. "But now our systems reflect recognized best practices."

Working with systems integrator BearingPoint Inc. (formerly KPMG Consulting Inc.), the university implemented the ERP suite in two years at a total cost of $25 million, Schwartz says. Between George Washington developers, BearingPoint consultants and line-of-business representatives, the implementation team numbered 50 to 60. Schwartz claims there are Ivy League colleges (which he declines to name) "that paid two or three times" $25 million because they went wild on customization.

BUILD

"The last thing we wanted to do was build this app ourselves."

RICK PELTZ, CIO, Marcus & Millichap

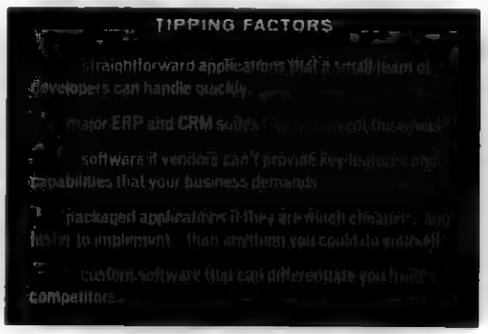
Build If You Must

"The last thing we wanted to do was build this app ourselves," says Rick Peltz, CIO at Marcus & Millichap. Late last year, the Encino, Calif.-based real estate investment brokerage company shopped around for off-the-shelf tools that would let its sales agents pull data from many sources (photos, published articles, government information and others), use it to generate marketing packages for individual properties and send that information back to the company's SQL Server database. Peltz assumed that he would use Microsoft Corp.'s PowerPoint, a tool the agents were familiar with, as a front end. Surely it would be simple to find a package that could send the data back to headquarters.

But even with his two consultants "on the phone all the time with Microsoft" trying to pull something together, Peltz found that PowerPoint's architecture made it impractical to set up a way to prevent users from deleting information they had created. This feature was a must-have; turnover among real estate agents is high, and many are technology neophytes, so Peltz was concerned that users would accidentally delete marketing packages they had just created.

As a result, Marcus & Millichap was forced to spend its budget ($250,000 to $500,000) "to re-create PowerPoint from a [user interface] perspective, but without all the functionality," Peltz says — and with the ability to build "whiteboard" fields that users can't delete. While the company would have preferred to buy a packaged application, Peltz did find some advantages in building his own. Four months after work began, the tool was already being beta-tested because Marcus & Millichap set its own aggressive timetable. And the consultants who were initially earmarked for integrating packaged software have instead been writing code and auditing one another's work.

About the only thing that's certain in enterprise software today is that even passionate build advocates aren't about to create true ERP or CRM suites from scratch. But at the sharp end of business, where money is made or lost, perhaps no vendor can truly meet your company's needs — perhaps you're on your own. AMR Research Inc. analyst Eric Austvold believes a new mind-set is required: "In the past, people thought of packaged apps as the endgame," he says. "But we need to start thinking of them instead as the foundation — the system of record."



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BUYING TO EASE INTEGRATION

Buying multiple applications from one vendor helped cut integration costs and headaches at WilTel Communications.

QuickLink 38538
www.computerworld.com

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"We have five people dedicated to managing this project," Bursek groans. "Five dedicated resources doing nothing else." Three are business analysts who act as conduits between Lydian's business units and IT, and two are developers writing code to make sure the company's existing applications work with the new mortgage-origination software. "When you're working with vendors there's this ongoing battle," Bursek says. "Things snowball; you can lose control." He contrasts this experience with a recent build project — an extranet sales tool for third-party brokers and account executives who do business with Lydian.

The company needed to give those professionals real-time, browser-based access to mortgage approval status. Bursek simply grabbed a few developers from his six-member team and went at it. "I met with an analyst and a systems architect" to sketch out the basics, he says. "Then we made a presentation to two people in operations and started development the same week. From problem analysis to going live took three weeks."

Bursek shakes his head. "With vendors, it's just a grueling process." In particular, he chafed at the vendor selection process, the contract negotiations and the need to rely on outside developers. But in the case of the mortgage-origination software, the massive price differential trumped all other arguments and made the buy decision unavoidable.

Customize With Caution

One of the popular build arguments is that there's really no such thing as a major packaged application — vendors' suites must be customized so heavily that getting your allegedly off-the-shelf application running requires a massive amount of developer time and a shotgun wedding with an integrator. But some IT leaders turn this argument inside out. According to David Schwartz, CIO at George Washington University in Washington, the big problem with ERP implementations is that companies overcustomize software. "A lot of these modifications are simply preferences," he says. "People change the way a screen looks or what appears on a report."

"If you buy packages, you want to keep customization to an absolute minimum," agrees Chuck Mackey, IT director at the Elkay Division of privately held Elkay Manufacturing Co. in Oak Brook, Ill.

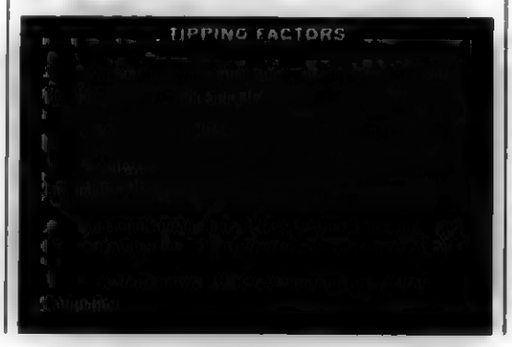
"The last thing we wanted to do was build this app ourselves."

RICK PELTZ, CIO, Marcus & Millichap

The diversified manufacturer of plumbing products and cabinets built its own software until 1997, when it put in place a PeopleSoft Inc. ERP suite. And despite a lousy experience with a systems integrator (Mackey declines to name the firm but says, "They did a very poor job for us"), he has no regrets. Elkay's annual PeopleSoft maintenance fee is equivalent to two or three developers' salaries, Mackey estimates. And for that fee, he says, "today we're totally Web-enabled. There's sure no way we would have gotten here with two or three more developers."

In 2000, when George Washington embarked on an implementation of an Oracle Corp. ERP suite, Schwartz minimized customization and instead updated the university's business processes to match best practices recommended by Oracle. "That's tough. You go through a chain of pain when you're re-engineering and changing corporate culture," he says. "But now our systems reflect recognized best practices."

Working with systems integrator BearingPoint Inc. (formerly KPMG Consulting Inc.), the university implemented the ERP suite in two years at a total cost of $25 million, Schwartz says. Between George Washington developers, BearingPoint consultants and line-of-business representatives, the implementation team numbered 50 to 60. Schwartz claims there are Ivy League colleges (which he declines to name) "that paid two or three times" $25 million because they went wild on customization.



Build If You Must

"The last thing we wanted to do was build this app ourselves," says Rick Peltz, CIO at Marcus & Millichap. Late last year, the Encino, Calif.-based real estate investment brokerage company shopped around for off-the-shelf tools that would let its sales agents pull data from many sources (photos, published articles, government information and others), use it to generate marketing packages for individual properties and send that information back to the company's SQL Server database. Peltz assumed that he would use Microsoft Corp.'s PowerPoint, a tool the agents were familiar with, as a front end. Surely it would be simple to find a package that could send the data back to headquarters.

But even with his two consultants "on the phone all the time with Microsoft" trying to pull something together, Peltz found that PowerPoint's architecture made it impractical to set up a way to prevent users from deleting information they had created. This feature was a must-have; turnover among real estate agents is high, and many are technology neophytes, so Peltz was concerned that users would accidentally delete marketing packages they had just created.

As a result, Marcus & Millichap was forced to spend its budget ($250,000 to $500,000) "to re-create PowerPoint from a [user interface] perspective, but without all the functionality," Peltz says — and with the ability to build "whiteboard" fields that users can't delete. While the company would have preferred to buy a packaged application, Peltz did find some advantages in building his own. Four months after work began, the tool was already being beta-tested because Marcus & Millichap set its own aggressive timetable. And the consultants who were initially earmarked for integrating packaged software have instead been writing code and auditing one another's work.

About the only thing that's certain in enterprise software today is that even passionate build advocates aren't about to create true ERP or CRM suites from scratch. But at the sharp end of business, where money is made or lost, perhaps no vendor can truly meet your company's needs — perhaps you're on your own. AMR Research Inc. analyst Eric Austvold believes a new mind-set is required: "In the past, people thought of packaged apps as the endgame," he says. "But we need to start thinking of them instead as the foundation — the system of record."

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

BUYING TO EASE INTEGRATION

Buying multiple applications from one vendor helped cut integration costs and headaches at WilTel Communications.

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Talking Long-Distance

How to ace telephone job interviews.

By Alan S. Horowitz

IF HE PLAYED BASEBALL, Kevin Arensdorf would be an all-star; he's batting .500. A Unix systems administrator at Iowa Telecom in Newton, Iowa, Arensdorf has had phone interviews for four different jobs, and he's landed two of them, including his current one.

Rick Sheeley is also hitting well in the telephone-interview game. Previously an independent IT contractor who had many jobs and now a data warehouse administrator at a major Las Vegas casino company, Sheeley has had about 100 telephone interviews over the past 25 years and estimates that he has landed 15 to 17 jobs from them.

Telephone interviews are becoming more common in today's soft IT hiring market because they save time and money compared with face-to-face interviews. Here are some tips for job seekers to boost their success rates when interviewing by phone.

First, recognize that in most cases, telephone interview are used to screen candidates, not to hire them, says Edwin Pollock, regional president in San Francisco at career management company Bernard Haldane Associates. "They're asking questions to cut down the pack."

That means your goal for the interview should be to secure a face-to-face interview, not to get the job, notes Laurie Levenson, president of DirectAccess Staffing Inc., an IT staffing firm in Carlsbad, Calif. Show your enthusiasm. If you're in another city, say you'd be happy to fly in for a personal interview.

Don't be overbearing, and don't oversell yourself; just work to get to the next level, recommends Ken Hill, who worked for 17 years in human resources before moving over to IT. He's now CIO at defense contractor General Dynamics Corp. in Falls Church, Va.

Make clear how technically adept you are. Look for articles about a prospective employer's IT department, Hill advises. For example, you might learn that it has just finished an SAP implementation. Try to tie that piece of information to your own background and experience.

And don't assume that it will be easy to get the next interview. For instance, for any given IT position, Jace Mouse, manager of application development at Cars.com in Chicago, conducts about 15 telephone interviews and asks only four candidates to come in for a face-to-face meeting.

Don't try to wing a telephone interview. "My first objective [in a telephone interview] is to see how

VIOLET LEMAY

seriously the candidate prepared," says Oren Ezra, vice president of products services at Atlanta-based Jacada Ltd., which develops legacy-integration applications. "If they haven't taken the time, I get disinterested very quickly."

Preparation Is Key

One benefit of a phone interview is that you can have all your research laid out on your desk because the interviewer can't see you. Take advantage of this.

Sheeley tries to anticipate questions about his technical skills and prepares a cheat sheet with notes about his experiences with technologies and his project successes.

Be ready to describe a few of your accomplishments. Arensdorf makes sure he's comfortable and prepared and in a quiet place for the interview. He reviews his résumé and research material beforehand. He likes to schedule interviews in the morning, leaving the rest of the day for other things.

Research the employer. "One of things that turns me off the quickest is the candidate who doesn't know what we're about," says Hill. Candidates who prepare have the edge over those who don't.

Jeff Markham, a manager in the San Francisco office of staffing and placement firm Robert Half Technology, says a lot of candidates take the telephone interview for granted, thinking that the company liked their résumés and that it's just a formality to get interviews. Not true. You can't make up for a lack of preparation with personality, body language or eye contact when doing a telephone interview, he explains.

Phone interviews tend to be fairly short — 15 to 45 minutes. So be prepared to talk more about what projects you have worked on and what you have done rather than the actual skills you have, says Hill.

Provide Your Own ROI

And don't underestimate the interview's importance. Says Markham: "A few years ago, people got jobs just by having certifications. Today, you've got to be able to break down your accomplishments and provide specific ROI." For example, if a programmer claims C++ development as a strength, Markham might say, "Give me an example of an application you developed with C++ that had measurable results, where it was better, faster, stronger."

Jacada's Ezra likes candidates who are "proactive" and ask him questions about the company, its competitors and growth opportunities on the job. "These types of questions show me the candidate is confident," he says.

Anything you can do to help the interviewer picture you in the job position will help move you to the next level, says Mouse. One of the best candidates he ever interviewed talked about the most difficult challenges he had on the job, specific solutions he devised for them and the benefits that followed. The candidate then asked if there were similar challenges in Mouse's organization. "He let me know what he succeeded in and weaved in a probing question about my company," Mouse recalls.

And smile. Yes, smile, even though the interviewer can't see you. "The other person can hear [a smile]," says Levenson. Show enthusiasm and interest. This is more important with a telephone interview than a face-to-face one because you have such limited interaction with the interviewer.

Horowitz is a freelance business and technology writer in Salt Lake City. Contact him at alan@ahorowitz.com.

BRIEFS

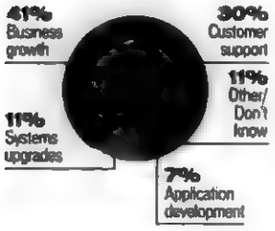
CIOs See Pockets Of Improvement

Although IT hiring remains "conservative," some companies are going ahead with systems upgrades that were previously on hold, according to a survey by Robert Half Technology, an IT staff placement firm in Menlo Park, Calif.

Other survey highlights include the following:

- CIOs in New England and the Pacific region project a 9% increase in hiring activity.
- 80% of CIOs say Microsoft Windows administration skills are most in demand.
- 50% of CIOs who are hiring will be seeking staff-level professionals, and 24% will be hiring midlevel managers.
- 69% of CIOs expect no change in hiring activity.

Factors Driving Third-Quarter Hiring



BASE: More than 1,400 CIOs nationwide at companies with 100 or more employees

SOURCE: ROBERT HALF TECHNOLOGY, MENLO PARK, CALIF., MAY 2003

Study Reveals High Cost of Passwords

Labor costs for configuring and maintaining password systems in companies with more than 100,000 users average $300 to $360 per user, according to Aberdeen Group Inc. in Boston. These large companies also incur unnecessary overhead expenses averaging $35 million. The good news, Aberdeen says, is that identity management systems are eliminating those overhead expenses and showing positive incremental returns.

JAY CLINE

The ROI of Privacy Seals

WE'VE ALL SEEN THEM — the green Truste images, the BBBOnLine padlocks and a host of other privacy and security seals. More than 2,000 companies are paying up to $13,000 per year to display these logos on their Web sites.

But do they pay off?

If the Internet is key to your company's future growth strategy, then you need them to pay off.

Poll after poll says the top reason people don't spend more online is that they're afraid their credit card numbers will be stolen. Visa and MasterCard say they'll reimburse any fraudulent charges, but so far this doesn't seem to be enough for consumers. Web users either don't know about this promise, don't believe it or don't want the hassle of having to seek a reimbursement.

The big question is, do privacy seals give these worried customers the assurance they need to type in their charge-card information? Will their added sales justify the cost of the seals? Use this checklist to find the answers for your company:

■ **Are we like the companies that already have seals?** If you're a world-class e-commerce site, the answer is yes. Almost half of the 50 most-visited Web sites, by my count, display some type of privacy seal. If you hope to be a major technology company, the answer is also affirmative. Of the 14 IT firms in the Fortune 100, 10 display a privacy seal.

■ **Which seal is best?** If you need a privacy seal, either of the two market leaders will do. Truste has the highest market share among the seals, listing 1,374 Web sites, compared with BBBOnLine's 701. Truste has nearly a 2-to-1 edge over BBBOnLine among the top 50 Web sites and a 3-to-2 edge among the Fortune 100. That said, the Better Business Bureau, with its 91-year history, has higher name recognition among Internet users (93%) than 6-year-old Truste, which claims a 69% rate.

■ **What will it cost us for a seal?** Both Truste and BBBOnLine charge an annual fee based on your yearly revenue. With Truste, companies bringing in less than $5 million are charged $599, while those grossing over $2 billion must pay $12,999. The pain is less with the BBB: Small companies are charged $200, while those grossing over $2 billion pay $7,000.

■ **What is required to qualify for a seal?** Applying for a privacy seal will require internal staff time to complete the paperwork and assure that your company meets the seal standards. You'll need to post a privacy policy that conforms to the seal's standards. And you'll need to provide your customers with a way to opt out of direct marketing and having their information sold to third parties, as well as a way to access their information and file complaints.

■ **What return can we expect?** If you're a large corporation and your average Internet transaction nets you $10 in profit, you'll need your privacy seal to add as many as 125 more sales per month to make it a worthwhile investment. If you're a small company, you'll need only a few extra sales per month to pay for your fee. A sample of small clients of ScanAlert, an emerging security seal provider, attributes Internet sales increases of 10% to 33% to that seal's placement.

What's my recommendation? If you're a small business with online ambitions, this is an easy call. A privacy seal will pay for itself many times over. If you're a major corporation doing any level of online sales, you may also be leaving money on the table if you lack a privacy seal.

Consider conducting a trial run: Make a one-year commitment to maintaining a seal. Split your Web traffic in two, with only half of your traffic viewing the seal. By comparing the sales from the two versions of your site, you'll have hard proof of whether a seal will be a long-term winner for your business.

Looking over the horizon, your return will be higher if more online consumers come to trust the privacy seals. This may depend on the seals raising their standards — and your requirements — over time. Privacy purists deride Truste and the BBB for not holding companies to a higher level of privacy and for not being more aggressive in their enforcement.

Critics aside, everybody wins if the seal programs are a success. Seal members will do more to protect customer privacy, and online shoppers will have less to worry about when they click Submit.

CORPORATE PRIVACY VIEWS

Jay Cline is *Computerworld.com*'s regular privacy columnist. See more of his online columns at

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8:00am to 8:30am	**Registration and Networking Breakfast**
8:30am to 9:00am	**Welcome and Opening Keynote** **Outsourcing Watch 2003: The Best of Both Shores** Maryfran Johnson, Editor in Chief, Computerworld
9:00am to 9:30am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners (an IT consultancy)
9:30am to 10:00am	**Business Case Study** Ron Glickman, SVP and CIO, The DFS Group
10:00am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Marty Chuck, CIO, Agilent Technologies ■ Ron Glickman, SVP and CIO, The DFS Group ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Greg Schueman, Vice President and CTO, Mercury Insurance Group
11:30am to Noon	Open Forum

Maryfran Johnson

Bart Perkins

Ron Glickman

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Seeking qualified applicants for the following positions in Memphis, TN: Senior Project Analyst Sales. Serve as advisor for new services, sales and compensation systems projects. Requirements: Bachelor's degree or equivalent in MIS, business or related field plus 5 years of experience in planning and analysis. Experience in developing database queries for performance trend analysis and in developing/maintaining variable compensation programs also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Bibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree* in computer science, business, math, engineering or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with SQL, CGI environment and J2EE environment also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Bibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

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Software Engineers: Design, develop, code, test and implement software systems & apps. par hardware interface specifications in Linux Kernel, Perl, Tel/Tk, AWK, Bourne Shell, Visual Source Safe, CVS, RCS utilizing Micro/RISC-processor designs and storage protocols-RAID iSCSI, SCSI, Fibre Channel, etc. Prevailing wage & benefits. Send resume to Susan Chitsaz, iVivity, Inc. 5555 Oakbrook Parkway, Ste. 280, Norcross, GA 30093. EOE.

Software Engineers to analyze, design, develop/customize business apps using Oracle Fin and Manuf. Appls, Oracle, SQL, PL/SQL, Dev 2000, Designer 2000 etc. under Windows, UNIX and Sun Solaris envir; interact with end users, gather and document reqs; prioritize functional specs formulated from user reqs, evaluate product functionality and design to assure quality. Require: Masters or foreign equiv. in CS/Engg.(any branch)/ Science/Bus Mgmt. Travel involved F/T position Competitive salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

Software Engineer
Design, development, coding, unit testing and debugging of financial systems and applications utilizing Progress 4GL and Java/J2EE platform, interfacing Progress with C. In addition, provide technical support to existing systems and DBA activities and Unix shell scripting. Must have Masters Degree in CS & 1 yr exp or 1 yr exp in a related position willing to use: VPAS, J2EE, and Progress. 40.0 hrs./wk 9:00 AM - 6:00 PM. **Send cover letter and resume to:** McCamish Systems, LLC, 6425 Powers Ferry Road, 7th Floor, Atlanta, GA 30339, Attn: Donna Perlmutter.

DBAs to install, administer, upgrade, perform performance tuning & backup/recovery on Oracle/SQL Server, Lawson ERP & EDI; administer HP-UX in multi server envir; design, implement appls using Dev 2000, PL/SQL, Oracle in client/server envir., write back-end stored procedures, packages, triggers, screens using PL/SQL Forms, Reports. Require: BS or foreign equiv in Buss Admin/CS/ Engg (any branch) & 2 yrs of exp. in IT. S/W Enggs to analyze, design, develop appls using C++, Java, CORBA, EJB, JDBC, Rational Rose, CGI, SQL Oracle, Crystal Reports, Weblogic under Windows/UNIX OS; perform project scoping, planning, time/cost schedules, quality of deliverables, study, evaluate new tech/methodologies; provide technical guidance for user problems. Require MS or foreign equiv in CS/Engg (any branch) & 1 yr exp in IT High Salary. F/T. Travel involved. Respond to: HR, Unilinx, Inc., 4525 Alexander Dr., Ste 110, Alpharetta, GA 30022.

Lead Programmer Analyst, TSYS, Columbus, GA Plan, analyze, design, and develop batch & online (e.g., CICS, MQSeries) applications to meet business & technical requirements; understand problem identification and utilize problem management processes; determine efficiency & impact of programs on systems including those that interact across functional areas; document and interpret technical specifications and design, develop, & complete testing procedures for assigned projects.

Competitive Salary. Bachelor's degree or BCIS equivalent in Computer Science, Computer Applications, or Information Systems + total of (5) yrs of professional experience programming in a mainframe environment using COBOL, VSAM, JCL, and DB2. Of total 5 yrs, must include 4 yrs with CICS and IMS and 2 yrs w/ MQSeries, File-AID, Endevor, Abend-AID, & Lotus Notes. Must have legal authority to work in the U.S. Please send resume demonstrating all minimum requirements to **Kerry Alexander, 1000 1st Ave., Columbus, GA 31902. Ref # LPA0001.**

SYNAPSE GROUP, INC., a leading computerized magazine marketing company, is looking to hire a qualified PROGRAMMER ANALYST, to plan, develop, test, document and update computer programs to increase operating efficiency; to install program codes into computer systems; to evaluate user requirements, and to monitor performance and provide technical assistance to program users. Qualified applicants are required to possess a Bachelor's degree in Computer Science or it's equivalent; Experience/knowledge in Unix, Oracle, System and Network administration preferred.

The company offers a competitive compensation/benefit package and an environment where achievements are recognized & professional growth is encouraged. Qualified applicants are encouraged to mail resumes to Department of Human Resources, Synapse Group, Inc., Four High Ridge Park, Stamford, CT 06905.

Programmer Analyst. Nashua, NH Analyze, schedule, design, develop, test, implmt, install s/ware applics using (a) MS Visual C/C++, VB, OWBasic, Win SDK, MFC, Direct-IV for Win & (b) C/C++ on Unix platforms. Analyze, schedule, design & dvlp enhancements for base product. Write Install Prog using InstallShield. Eval user requests for new/modified prog, dvlp prototypes for same. Write user manuals for installation & operating procedures. Analyze upgrade/migration reqts for applics, evolve solutions for same. Coord maintenance & qualification work activities by planning, design & scheduling. Analyze & resolve customer support level issues. Use Oracle & Informix. Reqr. Bach or equiv in Sci/Math/Engg/Electronics + 2 yrs exp in duties listed. Resp to: Datamatics (America) Inc., 20 Trafalgar Square, #445, Nashua, NH 03063, email: datamy@datamatics.com

System Engineer. Provide instrumental support to tech. aspects of CCTV, Access Control Systems, Intrusion Detection, & Intercom systems through res. design & impl. Support & train customers during inst & operation onsite & remotely. Impl & maintain all facets of comp network oper.: DHCP, DNS, TCP/IP, Print Server, SQL Server, IIS5.0 Server, VPN, & Firewall. Maintain PCs & servers incl troubleshooting of hardware & software problems; inst & confi of new software, comp & peripherals. Req: B.S. in Industrial, Electrical Eng., or rel & abil. to use comp network operations, Print Server, SQL Server, Firewall, Access Control, CCTV, Intercom systems, Security Alarm systems, Unix, SQL, HTML, ASP. Able to travel nationwide 40.0 hrs/wk. 8-5. Resume to Mr. Jerry Clark, Sr. Vice Pres., Tech Systems, Inc., 3400 Corporate Way, Ste. F, Duluth, GA 30096.

System Admins to install, maintain, administer Windows NT, Linux, HP-UX,SCO/Solaris; plan, maintain, troubleshoot LAN/WAN; manage networking protocol TCP/IP (IPX/SPX, etc; install, upgrade network hardware/software. Require: B.S. or foreign equiv with concn in CS/Science/Engg.(Any branch) and 2 yrs exp in IT. Programmers to analyze, design appls using Java, VB, Oracle, SQL Server, ASP, ActiveX, HTML, JavaScript, Lotus 123, etc. under Windows OS; write triggers, stored procedures to account for business processes; perform req analysis; develop user interface prepare reports. Require: Bachelor's degree of foreign equiv in CS/Engg.(any branch) & 6 months of exp in IT in lieu of BS. 2yrs of academic studies towards a Bachelors plus 2 yrs of exp in IT will be accepted. Travel involved. High salary. Respond to: HR, Radiant Technologies, Inc., 335 Majestic Cove, Alpharetta, GA 30004.

COMPUTER SYSTEMS ENGINEER
MEDICAL SYSTEMS INTEGRATION

Designs, develops and maintains computer systems to import data from multiple platforms/sources, and to manage data within private wide area network. Must have B.S. in Electrical Engineering, Computer Science or equivalent, and at least two years experience in the job offered. 50+ hours per week. EOE. Drug Free Workplace. Send resume to: 21st Century Oncology Attn: Joyce White, 2234 Colonial Blvd., Ft. Myers, FL 33907 or fax (239)931-7381.

NET2S

NET2S is a leading international e-business, information technology, and communication infrastructure consulting firm. We are currently seeking for the following positions:

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All positions require BS/MS degree with a minimum of 2 to 3 years of experience in the field. Must possess excellent communication skills as well.

NET2S, 82 Wall Street, Suite 402, New York, NY 10005; Fax (212) 279-1980; Phone (212) 279-6555, or Email: jobs-nyc@net2s.com

Software Engineer. Perform system analysis, design development, testing and documentation of company's web portals. Work with Creative Content and Engineering Teams to design deliver and deploy high-class medical portals. Develop web portals using Cold Fusion, Macromedia Spectra, Perl, HTML, DHTML, Java Script, Microsoft Visual Source Safe and SQL Server 2000. Utilize content management system, Cold Fusion scripting and CFML extensively to create objects, methods, PLP, workflow, content categorization and inbound news syndication streams. Develop detailed test plans and perform extensive testing of current applications using QA software by developing SQL and CFML scripts. Develop logging and reporting applications for medical portals using Spectra, Cold Fusion, Perl, Webtrends and IIS. Work on hardware and operating systems such as DELL, HP servers, Windows 2000 and Unix. Define direction for future application development using Java and other development tools. Requirements include Master's degree or equivalent in Computer Science, an Engineering discipline or related field and three years of work experience in the job offered or related field of web application development. Applicants must have unrestricted authorization to work in the United States. Salary $81,946/year. 40 hours/wk. Respond with two copies of resume to Case #200200675, Labor Exchange Office, 19 Stanford St., 1st Fl. Boston, MA 02114

QUALITY ASSURANCE SOFTWARE ENGINEER II. Will test proprietary factory automation software to uncover defects. Will evaluate new or modified software to verify that program function according to requirements, and conform to corporate quality standards. Will design, develop, and deploy test plans and automated tests at the UI and API levels. Will follow accepted quality procedures and participate in continuous improvement activities. Will employ MES products, UNIX, Windows NT/2000/XP user, including Administration functions, VB or C++, SQL, Rational Robot, WinRunner, Oracle ClearCase, and other automation tools. Requirements: B.S. (or for equiv.) in CS, Electrical or Electronic Engineering or related field and two (2) years of experience in the job offered or two (2) years experience in the related occupation of Software Development or Programming. Also, demonstrated expertise in the following: MES Automation Tools, UNIX Operating Systems, and Oracle DB. Offered salary is $58,000/year for full-time employment (min. 40 hours per week) and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2202201604, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114

Pictures Inc. (Anavision America) is looking for programmer and Oracle DBA using XP, ME, 9X, UNIX, Novell Network. Applicant must have at least Bachelor with experience in Oracle, Novell. We offer competitive wage, standard benefits. Please contact joanna@sunwoo.com

Software engineers, programmer/system analysts wanted by Byzan Tech, a small dynamic company. We require minimum BS with experience as programmer or IT consultant. Competitive salary with full benefits. Please contact career@byzantech.com. No calls. EOE.

Senior Quality Assurance Engineer-Automation
Duties: Design the systems and configurations which will allow QA to automate their testing of both SBR and Proxy; evaluate GUI automation tools; setting up the GUI automation process within the QA department and; acting as the GUI automation evangelist within QA. Daily duties include: client-side multi-threading programming; server-side programming in Perl as well as duties as a system programmer Java, C, C++, VB programming; working in Windows NT and Unix environments. Daily work QA Automation Test Tools such as Winrunner and Loadrunner required. Work with: Support and Sales Engineering to support ongoing projects and new functionality. Understand and explain new technologies and how these technologies relate to existing functionality. Min. Reqts: BS/BA (foreign equiv. accepted) in CS, IT, Engin, Communic. Engin or related field of study and 2 years exp. in the occupation or 2 yrs exp. in a related occupation (i.e. QA engineering, automation or consulting in SW development or related). PLUS: Demonstrated working knowledge of the following required: (1) Winrunner, Loadrunner and RSW software; (2) Bug tracking SW tools (TestDirector & Lotus Notes); and (3) Testing Methodologies including manual, automated and performance/load testing. Offered salary range is $58,000 to $75,000 year (40hrs/wk). Send resumes to: Labor Exchange Office, Case #2002-01554, 19 Stanford St., 1st fl., Boston, MA

Principal Engineer
Duties: Developing a Java Swing based toolkit for creating user interfaces in XML. Specific duties include: Internationalization with all aspects of the development cycle. From OO design through implementation to testing. Developing object oriented software design using Java and XML on Windows NT and Unix platforms. Development using public key infrastructure, cryptography toolkits, and manipulation of computer algorithm models and theory. Min. Reqts: Masters degree or foreign equivalent in CS, Engineering or related field of study OR in the alternative, BS/BA and 5 yrs progressive exp. in job offered or 5 yrs progressive exp. in a related occupation (i.e. programming, development, systems analyst or related). PLUS: Demonstrated working knowledge and expertise of the following required (pre-or post MS experience accepted): (1) Computer algorithms theory and practice; (2) Client-server programming using Java Swing, XML, and DOM; and (3) Public key infrastructure and cryptography programming. Offered salary is $90,500 year (40hrs/wk). Send resumes to: Labor Exchange Office, Case #2002-01555, 19 Stanford St., 1st Fl., Boston, MA 02114.

A home health care services provider in Sterling Heights, MI seeks a Database Administrator. Requires a Bachelors degree or equivalent in Computer Science & 1 yr of exp as a Database Administrator, Software Systems Analyst, Web Designer OR Programmer. Please send resume to: President/CEO, Ace Homecare Network, Inc., 2567 Metro Parkway, Sterling Heights, MI 48310.

Software Engineer. Design, build, maintain and enhance a desktop system using Microsoft technologies including VB 6.0, SQL MS SQL Server C++ and MS Access that we track and administer executive deferrals in a non-qualified deferral (401(k) Mirror) plan; work with Web Application Developers in the web-enablement of the product; design and ensure database integrity; improve system optimization on a variety of platforms; work in conjunction with software quality analysts to define testing parameters and enhance system performance. Daily work includes applying VB knowledge in developing n-tier Internet applications, object-oriented solutions, creating reusable components from source code for a client/server solution, Relational Database Modeling, and developing code for applications illustrating financial projections. Minimum requirements: BS/BA (foreign equiv. accepted) in CS, IT or Engin. plus 2 yrs of work exp. in the job offered or in a related occup. performing: Systems Analysis, SW Engin or program. PLUS: must possess demonstrated expertise: (1) In applying VB knowledge in developing n-tier Internet applications, object-oriented solutions using inheritance, polymorphism and overloading and reusable components for a client/server solution. (2) With Relational Database Modeling to convert stand alone database systems into multi-user client/server solutions; and (3) Applying Mathematical principles to accurately develop code for applications illustrating financial projections, including matrix manipulation calculus and analysis of algorithms. Offered salary is $56,410 per year full-time 9-5 p.m. Benefits. Send (2) resumes to: Labor Exchange Office, Case #200201084, 19 Stanford St., 1st fl., Boston, MA 02114

Software Engineer (Bioinformatics)

Genaissance Pharmaceuticals, Inc. has an immediate opening in its New Haven, Connecticut facility for a Software Engineer (Bioinformatics). Will develop and execute software system test plans and perform various database, data mining, integration research, and design and testing assignments in the development of computer systems and applications in the field of Bioinformatics. Must possess a Ph.D. in Life Sciences, Mathematics, Physics or Computer Science; and relevant work experience including experience with mathematical modeling and concepts, such as probability and statistical inferences and algorithms; proofs; spatial programming for BSD Kernel and Java; Oracle computing-based environment; Java and SQL programming languages and UNIX operating system.

Resume and/or cover letter must reflect each requirement above and specify reference code SZ/SEB or it will be rejected. Forward resume to: Leigh Webb, Human Resources Associate, Genaissance Pharmaceuticals, Inc., Five Science Park, New Haven, CT 06511. We are an equal opportunity employer.

Computer Programmer I: Draw flowchart, program and test environmental GIS software application with AML, C/C++ for on Calpuff; Debug program and convert database with CICS, Oracle. Write programming changes with: JCL and op manual. 8-5, 40hrs, BS in Comp. Sci. & six month exp. involving AML, CICS and Calpuff. Resume to Janicki Environmental, Inc. Janicki03@yahoo.com/fax: 727-695-4333.

A position is available for an International Senior Industry Analyst - Business Center in Atlanta, Georgia with a technology solutions company. The company architects and designs next generation software for point-of-sale and Internet systems in the retail industry including entertainment, petroleum with convenience or food stores, and restaurants.
The International Senior Industry Analyst - Business Center is primarily responsible for international order management and collections functions that delivers $140 million in products and services globally. Specific responsibilities include designing, developing, building, maintaining and troubleshooting configuration based order methodologies for order placement, pricing, and flow.
Candidates for this position should possess a Master's degree in Business Administration in Finance, one year's experience performing financial statement analysis, commercial forecasting, and budget administration, enterprise system (ERP) with systems such as SAP, BAAN, JD Edwards, or PeopleSoft, Visual Basic or VBA programming languages, relational databases including Access and MS-SQL server, process optimization and operations management software, and demonstrated knowledge of international business environments including logistics issues and methods.
Reference Job Code #0012
Apply with resume by mail to
Vickie Olsen
Radiant Systems, Inc.
3925 Brookside Parkway
Alpharetta, Georgia 30022

Advisory Software Engineer, Waltham, Massachusetts. Provide technology consulting to support WebSphere family of products in Solution Partnership Centers primarily interfacing with business partners, including Independent Software Vendors, Systems Integrators and Web Integrators, assist partners in enabling WebSphere Portal Family of products, application scalability, reliability and performance testing, negotiate with internal brand sponsors to ensure overall project goals are achieved including interlocking measurements, targets and product support requirements, utilizing Mercury Load Runner, Test Director, WebSphere Portal Server and DB2. 40 hrs/week 8:30 - 5:30. $95,000 per year. Requires Master's degree or equivalent in Computer Science, Engineering, or Management Information Systems & 1 year experience in the job offered or 1 year career in the related occupation of Consultant. Employer will accept a Bachelor's degree plus five (5) years of progressively more responsible work experience in lieu of a Master's degree. Send resume in duplicate to #200201773, Labor Exchange Office, 19 Stanford St., 1st Floor, Boston, MA 02114

Application Development Analyst III. Provide expertise in tech system design for complex projects & development of management tools incl web functionality for growing businesses. Utilize C, C++, Java, RDB-MS, & Rogue Wave Tools in UNIX and NT environments, design & implement C++ & Java class hierarchies for trading applications, complete projects in research, analysis, design, coding, testing, debugging & implementation, ensure project efficiency & adherence to schedule formulate & define systems scope & objectives, devise procedures to solve problems w/ equip capacity & limitations, provide daily user support & nightly on-call support. Min req's Master's degree in Comp Sci, EE, or rel field + 4 years exp in position offered or as Soft Engr. Exp must include C & C++, UNIX shell script, XWindows/MOTIF, Rogue Wave Tools, MFC, RDBMS, CDM or Corba, NT Server, Java & Java Script & JSP Servlets. Must have unrestricted authorization to work in U.S. M-F 9AM-5PM, 40 hours/week. Salary range $82k-$122,500/yr. An EOE. Send 2 copies of resume to Case No. 200201838, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114

Sr. Consultant. Job location: Hartford, CT. Duties: Perform database admin. & analysis, design, data modeling, & troubleshooting tasks & testing activities. Design & develop complex solutions from customer's business reqmnts. Translate business/func Reqmnts into code. Implement system enhance. & changes from tech. reqmnts & specs. Develop, modify, test & deploy Oracle forms, reports, PL/SQL stored procedures & complex SQL queries & views using Oracle. Perform Pro*COBOL coding required to maintain & enhance existing product set. Requires: M.S. in Comp. Sci., Eng. or a related field & 3 yrs. exp. in the job offered or 3 yrs. exp. as a Database Admin or Consultant. Concurrent exp. must incl 3 yrs. exp. performing database analysis & 3 yrs. exp. using Oracle. Send resume (no calls) to: Marcy Baldwin, CTG, Inc., 3 Neptune Dr., Ste. Q17, Poughkeepsie, NY 12601-5571.

Programmer/Analyst: Analyze, design, develop, test, implement and maintain customized software applications in a client/server environment. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have Bachelor's or equivalent in CS/Engineering/Math or related. Must have 2 yrs exp in job offered or in related software development. Such experience must include Windows NT, HTML, ASP, SQL Server, and Visual Basic. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $75,000/yr. Hrs. 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case No. 200201990, Labor Exchange Office, 19 Stamford St., 1st Fl. Boston, MA 02114.

Sr. Programmer/Analyst: Analyze, design, and develop customized computer software in a client/server environment using Oracle, PL/SQL, PRO C and SQL loader tools. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have BS or equivalent in CS/Math/Engineering or related. Must have 2 yrs exp in job offered or in Software Development in client/server environment using Oracle. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $77,015.38/yr. Hrs. 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to Case No. 200201898, Labor Exchange Office, 19 Stamford St., 1st Fl. Boston, MA 02114.

Senior Programmer/Analyst: Analyze, design, implement, test and support multiple enterprise J2EE applications. Will also design, build and maintain N-tiered enterprise component based applications. May serve as team leader. Must have BS or equivalent in CS/Math/Engineering or related. Must have 2 yrs exp in job offered or related Software Development using Java technologies. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $80,000/yr. Hrs. 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to Case No. 200201989, Labor Exchange Office, 19 Stamford St., 1st Fl, Boston, MA 02114.

SYSTEMS ANALYST to analyze, design, develop, test, implement, maintain and support large volume client-server and web-based application software systems in multi-hardware/software environment using Java, J2EE, Servlets, EJB, XML, JSP, OOPS, C, C++, VB, MS Access, Oracle, SQL Server, Sybase, Tibco, Cognos, Informatica, MQ Series, UML, Rational Rose, Clearcase, J2EE Application Servers and ASP under UNIX, Linux and Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs. of exp. in the job offered. Competitive salary offered. Apply by resume to Frank Beaman, Global Software Development Services, Inc. 10 South Fifth St., Ste 600, Minneapolis, MN 55402. Attn: Job SB.

Seek Level I & II Computer Programmers/Software Engineers w/ strong communication skills & any of following skills: VB/PB, SQL & any database: AS/400, RPG/400, COBOL/400, CL. Visual C++ or C++, NT Admin, JAVA/HTML/CGI, COBRA, PERL, Oracle/Sybase/Informix/SQL Developers & DBAs, Lotus notes, Domino and ERP packages. Level I: B.S. degree and 2-3 years exp. Level II: M.S. or B.S. and 5 yrs. exp. Assignments may be anywhere in the U.S. Multiple open positions in Florida, Minnesota, Illinois, Delaware, Kansas, Texas. Forward resumes to Manager@MilestoneConsulting.com, 8625 NW. 8 street, Suite 422, Miami, FL 33126.

LongBoard, Inc., provider of telecom application server & service Development tools is seeking a SW Designer in Durham, NC. Min Req: MS in Eng, CS, or related plus 2 yrs exp in software devel or related. Exp must incl: product development exp in building distrib software sys using industry std middleware sys or Unix platform; use of programming lang such as C++ & Java; use of relational database servers & SQL; & use of object oriented design in software devel. Email resume to careers@lboard.com

Database Administrators - Oracle DBA activities, logical/physical design of database. Software Engineers-analyze, design & implementation of software on integration project using C++ & Java. Min Edu-BS in Comp.Sc./Engg or equi, Min Exp-2 yrs. Job may involve working at various locations throughout the US. Please send resumes to Attn: RR, 1022 East Divide Ave Suite D, City of Bismarck, ND 58501

Software Engineer to analyze, design, develop, test and implement client/server applications using Power Builder and SQL Server. Responsible for SQL Server database design, development and administration on Windows Platforms. Require: BS Degree in Science/Engineering or a closely related field with 2 years of progressively responsible experience in the job offered or in the related occupation of Programmer/Analyst. Extensive travel on assignments to various client sites within the US is required. Competitive salary offered. Apply by resume to Ravi Kandimalla, Everest Computers, Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076. Attn: JobAB

Manager - Technical Recruiter sought to be responsible for recruiting of IT profls. Reqs: Masters or equiv in Personnel Mgmt or Bus. Admin. w/at least 2 yrs exp in IT field as HR Rep/Executive or Admin. Mgr. Bach w/over 5 yrs exp acceptable in lieu of Masters. Excellent Pay & Benefits. Mail resume to: Job Code: MTRBPS, HR Dept, Blue Planet Solutions, Inc., 36 Route 10, Ste E, East Hanover, NJ 07936 or via email to hr@blueplanetsolutions.com

CUSTOMER ENGINEER – To design and develop software systems to maintain and enhance Internet related systems using Java, C++ and Object Oriented methodologies. Salary $762.60 per/hr. 40 hr. work wk (9:00 a.m. to 5:00 p.m.). Requirements: B.A. in Computer Science & Engineering & One yr. Experience as System Analyst. Applicant must have completed vocational workshop in Object Oriented Analysis and Design. Employer Paid Ad. Send resumes to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170 (Ref. No. 210343). Employer paid ad.

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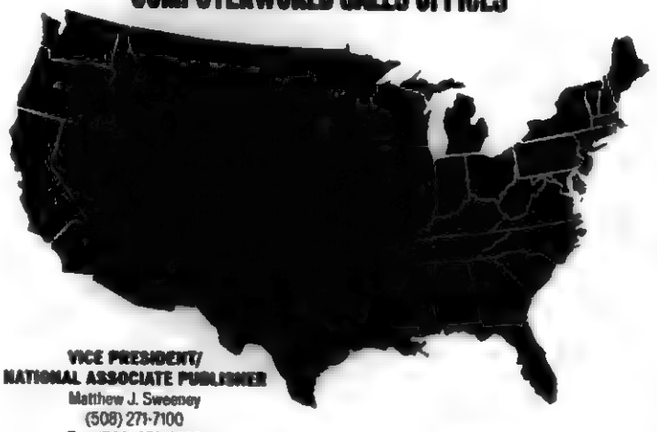

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Sarbanes Apps

Caribbean Cruises Ltd., said the Miami-based cruise line is using software and services developed by Netherlands-based KPMG International as part of its compliance efforts.

Having a wide range of packaged applications that can automate Sarbanes-Oxley compliance is expected to become increasingly important for IT managers in the coming months. According to survey results released last week by Boston-based AMR Research Inc., 85% of the 60 Fortune 1,000 companies that responded said they plan to modify their IT systems to support the compliance process.

But some IT leaders are still trying to get their arms around the requirements of the Sarbanes-Oxley Act — which was signed into law last summer — before deciding on technologies that can help their companies meet the new standards.

"We have yet to investigate the tools associated with the S-O Act," said Bob Schwartz, CIO at Matsushita Electric Corporation of America's Panasonic Co. division in Secaucus, N.J. Schwartz added that Panasonic officials haven't fully digested the new financial reporting requirements and don't plan to consider buying new software until they have done so.

Part of the problem is that CIOs and other corporate managers are "awaiting additional guidance" from the Securities and Exchange Commission on the specific steps they need to take to achieve Sarbanes-Oxley compliance, said Harald Will, president and CEO of ACL Services Ltd., a Vancouver, British Columbia-based vendor of software for financial executives.

San Jose-based Nth Orbit Inc. last week introduced software called Certus that's aimed at helping companies develop the necessary internal compliance processes. The software is priced at $100,000 to $500,000, depending on the user company's annual revenue, said Deidre Paknad, Nth Orbit's vice president of marketing and business development.

Certus uses a framework-driven approach that no other technology vendor has taken, said AMR analyst John Hagerty. Other vendors, such as Hyperion Solutions Corp. in Sunnyvale, Calif., "have tried to take what they have and fit it into Sarbanes-Oxley," Hagerty said. Early last month, Hyperion added built-in capabilities for meeting the Sarbanes-Oxley reporting requirements to its financial management software [QuickLink 38358].

In addition, document management vendors like Documentum Inc. and OpenText Corp. have added workflow and audit-trail templates to their software in a bid to help users meet some Sarbanes-Oxley requirements, said Rebecca Wettemann, an analyst at Nucleus Research Inc. in Wellesley, Mass.

"We see a lot of [business-intelligence] and workflow companies saying they're providing Sarbanes-Oxley compliance solutions now," Wettemann said. But, she added, it's not clear whether the vendors are "providing the level of process [support] that's needed."

SEC Extends Its Deadline for Compliance

Under a new rule announced last week by the SEC, large publicly held companies are being granted a nine-month extension on the deadline for meeting the financial reporting and certification requirements of Sarbanes-Oxley.

The SEC is now requiring most public companies to include an assessment of their internal accounting controls that shows compliance with Sarbanes-Oxley as part of all year-end financial statements filed after June 15, 2004. Smaller U.S. businesses and foreign companies will have until April 15, 2005.

The SEC's decision to extend the compliance deadline provides companies "with a bit more breathing room" on Sarbanes-Oxley, said AMR Research analyst John Hagerty. That could relieve some pressure, because there's still "a tremendous amount of confusion" among IT managers about what they need to do to comply, he added.

But Hagerty said he's concerned that some companies could use the extension as an excuse to put off needed IT work. "Corporate governance mandates are inevitable, and smart companies will not delay efforts to get core processes and controls in place now," he wrote in a research note.

Some companies with multiple business units that run a mix of financial applications hope to use the Sarbanes-Oxley requirements as an opportunity to standardize on a single corporate finance system, said Rebecca Wettemann, an analyst at Nucleus Research. "We see that as a key motivation for companies considering ERP [investments]," she noted.

– Thomas Hoffman

Oracle Tools Designed to Help Monitor Financial Controls

New app automates audits, sends alerts about potential fraud

BY MARC L. SONGINI

Oracle Corp. is rolling out software tools that it said will enable companies to automate a key part of the process of meeting the financial reporting requirements imposed by the Sarbanes-Oxley Act.

Oracle last week announced Internal Controls Manager, an addition to its E-Business Suite applications that can be used to document corporate financial controls and test internal processes to ensure they comply with Sarbanes-Oxley mandates. The vendor said it developed the product with help from auditing firm PricewaterhouseCoopers LLP, which offered input on accounting best practices.

According to Steve Miranda, vice president of application development at Oracle, Internal Controls Manager provides functionality for establishing a certifiable auditing process, plus control features that can alert auditors or corporate executives to potential reporting errors or fraudulent activities. For example, users could get an on-screen prompt if an expense was mistakenly entered as an asset.

Companies can also link the software's documentation capabilities directly to their financial-control procedures so end users can access information such as when the last audit was performed, who is responsible for a particular phase of the auditing process or how revenue is being booked, Miranda said.

Internal Controls Manager is due for release this summer as part of E-Business Suite and will also be sold as a standalone application for companies that use other ERP systems. However, Miranda said users will have to develop their own software hooks to link the tool to applications from other vendors.

Oracle isn't alone among ERP software vendors in its efforts to help companies deal with the financial reporting law. SAP AG and PeopleSoft Inc. already offer technologies similar to Internal Controls Manager, according to officials at those two vendors.

PeopleSoft introduced an initial financial reporting application last year, and the Pleasanton, Calif.-based company announced the addition of Sarbanes-Oxley compliance support at a conference last month — though the new capabilities are being provided partly as a services offering.

A spokeswoman for SAP said its mySAP Financials software now "delivers almost everything needed to enable Sarbanes-Oxley compliance."

"Everyone is jumping on this bandwagon," said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. "It's hard to find an enterprise resource planning company that hasn't mentioned something about how their solutions or new enhancements can help companies comply."

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Sarbanes Apps

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Having a wide range of packaged applications that can automate Sarbanes-Oxley compliance is expected to become increasingly important for IT managers in the coming months. According to survey results released last week by Boston-based AMR Research Inc., 85% of the 60 Fortune 1,000 companies that responded said they plan to modify their IT systems to support the compliance process.

39% of companies surveyed said they will evaluate their existing applications and try to take advantage of functionality that's now unused.

But some IT leaders are still trying to get their arms around the requirements of the Sarbanes-Oxley Act — which was signed into law last summer — before deciding on technologies that can help their companies meet the new standards.

13% are considering upgrading their financial systems to the latest release of the software they use.

"We have yet to investigate the tools associated with the S-O Act," said Bob Schwartz, CIO at Matsushita Electric Corporation of America's Panasonic Co. division in Secaucus, N.J. Schwartz added that Panasonic officials haven't fully digested the new financial reporting requirements and don't plan to consider buying new software until they have done so.

Part of the problem is that CIOs and other corporate managers are "awaiting additional guidance" from the Securities and Exchange Commission on the specific steps they need to take to achieve Sarbanes-Oxley compliance, said Harald Will, president and CEO of ACL Services Ltd., a Vancouver, British Columbia-based vendor of software for financial executives.

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3% said they would consider replacing existing systems with applications from a new vendor.

"We see a lot of [business-intelligence] and workflow companies saying they're providing Sarbanes-Oxley compliance solutions now," Wettemann said. But, she added, it's not clear whether the vendors are "providing the level of process [support] that's needed."

SEC Extends Its Deadline for Compliance

Under a new rule announced last week by the SEC, large publicly held companies are being granted a nine-month extension on the deadline for meeting the financial reporting and certification requirements of Sarbanes-Oxley.

The SEC is now requiring most public companies to include an assessment of their internal accounting controls that shows compliance with Sarbanes-Oxley as part of all year-end financial statements filed after June 15, 2004. Smaller U.S. businesses and foreign companies will have until April 15, 2005.

The SEC's decision to extend the compliance deadline provides companies "with a bit more breathing room" on Sarbanes-Oxley, said AMR Research analyst John Hagerty. That could relieve some pressure, because there's still "a tremendous amount of confusion" among IT managers about what they need to do to comply, he added.

But Hagerty said he's concerned that some companies could use the extension as an excuse to put off needed IT work. "Corporate governance mandates are inevitable, and smart companies will not delay efforts to get core processes and controls in place now," he wrote in a research note.

Some companies with multiple business units that run a mix of financial applications hope to use the Sarbanes-Oxley requirements as an opportunity to standardize on a single corporate finance system, said Rebecca Wettemann, an analyst at Nucleus Research. "We see that as a key motivation for companies considering ERP [investments]," she noted.

– *Thomas Hoffman*

Oracle Tools Designed to Help Monitor Financial Controls

New app automates audits, sends alerts about potential fraud

BY MARC L. SONGINI

Oracle Corp. is rolling out software tools that it said will enable companies to automate a key part of the process of meeting the financial reporting requirements imposed by the Sarbanes-Oxley Act.

Oracle last week announced Internal Controls Manager, an addition to its E-Business Suite applications that can be used to document corporate financial controls and test internal processes to ensure they comply with Sarbanes-Oxley mandates. The vendor said it developed the product with help from auditing firm PricewaterhouseCoopers LLP, which offered input on accounting best practices.

According to Steve Miranda, vice president of application development at Oracle, Internal Controls Manager provides functionality for establishing a certifiable auditing process, plus control features that can alert auditors or corporate executives to potential reporting errors or fraudulent activities. For example, users could get an on-screen prompt if an expense was mistakenly entered as an asset.

Companies can also link the software's documentation capabilities directly to their financial-control procedures so end users can access information such as when the last audit was performed, who is responsible for a particular phase of the auditing process or how revenue is being booked, Miranda said.

Internal Controls Manager is due for release this summer as part of E-Business Suite and will also be sold as a standalone application for companies that use other ERP systems. However, Miranda said users will have to develop their own software hooks to link the tool to applications from other vendors.

Oracle isn't alone among ERP software vendors in its efforts to help companies deal with the financial reporting law. SAP AG and PeopleSoft Inc. already offer technologies similar to Internal Controls Manager, according to officials at those two vendors.

PeopleSoft introduced an initial financial reporting application last year, and the Pleasanton, Calif.-based company announced the addition of Sarbanes-Oxley compliance support at a conference last month — though the new capabilities are being provided partly as a services offering.

A spokeswoman for SAP said its mySAP Financials software now "delivers almost everything needed to enable Sarbanes-Oxley compliance."

"Everyone is jumping on this bandwagon," said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. "It's hard to find an enterprise resource planning company that hasn't mentioned something about how their solutions or new enhancements can help companies comply."

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FRANK HAYES ■ FRANKLY SPEAKING

SCO's Sordid Mess

LET'S SEE IF WE'VE GOT THIS RIGHT: It turns out that SCO Group doesn't actually have the Unix-related copyrights and patents it led people to believe it had. It turns out that Novell, from which SCO implied it had acquired those copyrights and patents, refused to transfer them to SCO. And it turns out that SCO has known this for a while, because SCO kept sending Novell letters asking Novell to transfer the copyrights and patents to SCO, and Novell ignored SCO's letters (see story, page 7).

So lots of what we thought we knew about this SCO mess turns out to be wrong. Which raises an obvious question: What *do* we know?

Well, we know SCO does have the right to license Unix source code to companies like Microsoft. And SCO does have Unix license contracts with IBM, Sun, Hewlett-Packard and other hardware and software vendors, some of which it inherited from AT&T, which created Unix at its Bell Labs.

And we now have a pretty good idea of SCO's philosophy on the subject of software licenses and other contracts. As the company put it in a terse, inelegantly worded statement last week: "Contracts are what you use against parties you have relationships with." No doubt that's useful to know for SCO's 6,000-odd Unix licensees. They probably thought those contracts were about a mutual benefit. Now they know SCO sees them as a weapon.

We know SCO is now explaining that its lawsuit against IBM is really just a contract dispute, not a suit over copyrights and patents — a fairly safe position for the moment, since we don't know exactly what's in the IBM Unix contract.

But SCO isn't offering explanations for why it recently sent threatening letters to nearly 1,500 large companies, suggesting that their use of Linux might put them in legal jeopardy because of copyright and patent issues. Most of those companies don't have contracts that SCO could use against them. In fact, one of those companies was Novell, which actually owns the Unix copyrights and patents that SCO was suggesting it had.

We finally do have an explanation for why IBM's legal brief responding to SCO's lawsuit was so, well, brief. If you haven't read it or heard about it, IBM's legal response was little more than a statement that said that virtually nothing in SCO's lawsuit is true. Thanks to Novell, we now know that as far as ownership of the copyrighted Unix source code IBM originally licensed from AT&T goes, IBM was exactly right.

And thanks to Novell, we now have a pretty good idea of what happens when hard facts meet heavy FUD. Last Wednesday morning, SCO issued a healthy quarterly financial report — the company was actually profitable again. That same morning, Novell made its statement that it had never transferred Unix copyrights and patents to SCO.

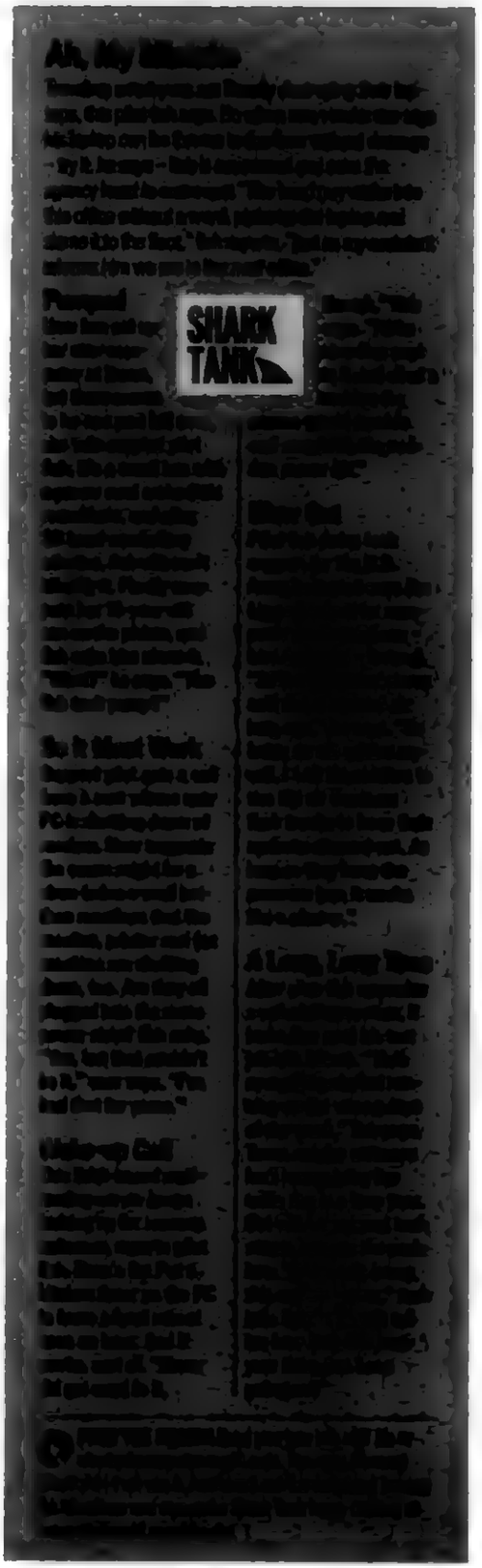
Result: SCO's stock plunged, losing nearly 25% of its value by Wednesday night. That lets us know pretty decisively what investors were looking at when they bid up the price of SCO. SCO's biggest asset was the saber rattling it did for its billion-dollar lawsuit against IBM. And now investors no longer believe there's any saber left to rattle.

So, to summarize: SCO's lawsuit against IBM turns out to be a lot narrower than SCO had implied. SCO's claims against companies that don't have contracts with SCO turn out to be nonexistent. And SCO's inflated stock turns out to have nowhere to go but down.

Which means there are really just two things left that we don't know when it comes to SCO.

We don't know whether SCO can actually be saved from the hole that CEO Darl McBride has dug for it — reputation damaged, credibility shot, customer hostility at an all-time high.

And we don't know how much longer it will take before Ray Noorda, who owns nearly half of SCO, will finally pull the plug on this sordid, sorry mess.



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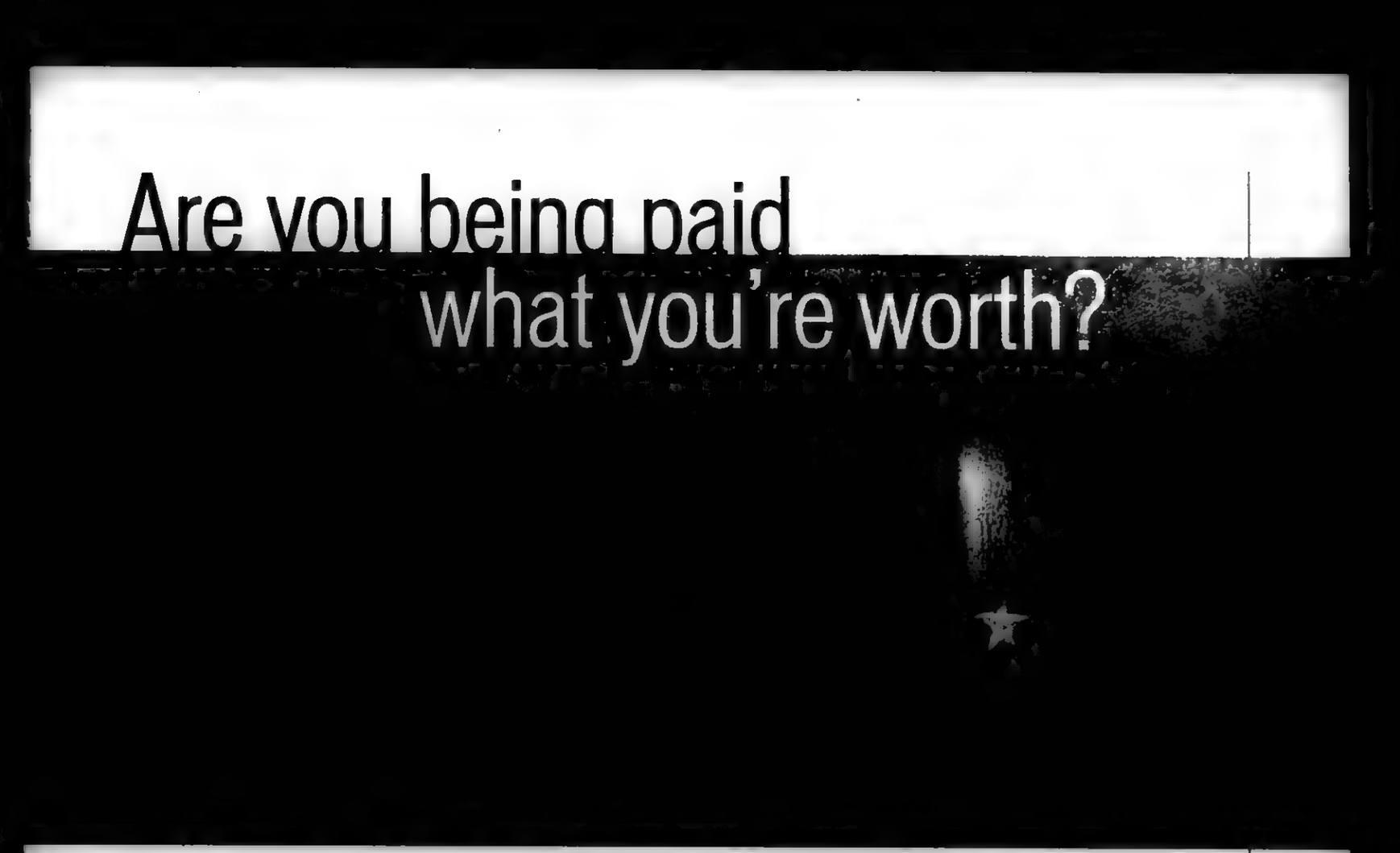

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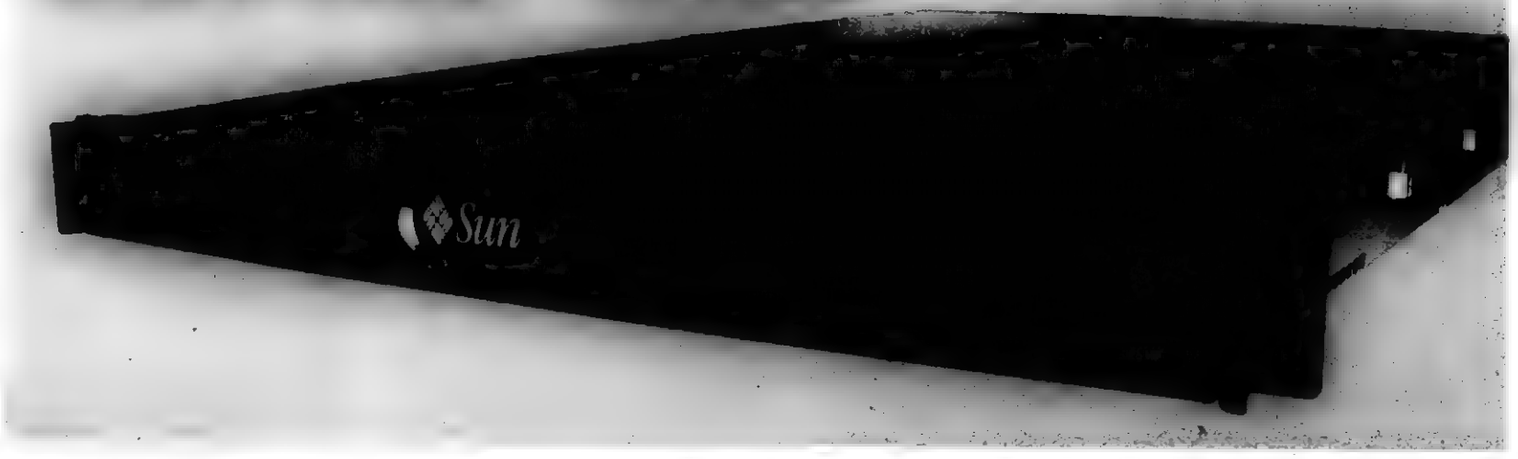

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Computerworld Honors winners to receive their prizes at a Washington awards ceremony

It will take IT men and women of steel to defend against a regulatory onslaught, says Patricia Keefe

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Buyout Bids Rock ERP Landscape

Oracle makes hostile offer for PeopleSoft

BY MARC L. SONGINI

In a stunning turn of events, Oracle Corp. on Friday said it will make an unsolicited $5.1 billion offer to buy rival PeopleSoft Inc., a maneuver that came just four days after PeopleSoft announced a merger with J.D. Edwards & Co. that would propel it past Oracle in sales of business applications.

PeopleSoft and J.D. Edwards users reacted with dismay to the hostile takeover bid by

PeopleSoft, page 61

Baan sale breathes life into struggling vendor

BY MARC L. SONGINI

Users of Baan International BV's ERP software welcomed with relief last week's sale of the struggling company to new owners that plan to combine it with SSA Global Technologies Inc., a second-tier applications vendor that is also trying to rebound from years of financial problems.

"I think this will be a good thing for Baan," said Keith Bearden, CIO at A-dec Inc., a

Baan, page 61

ACQUISITIONS

IT Managers See Need for Risk Metrics

Pressure on to prove security effectiveness

BY JAIKUMAR VIJAYAN
WASHINGTON

Technology managers trying to justify and prioritize IT security spending are searching for some way to quantify the risk management benefits.

But a lack of standard processes and the wide variability of factors that affect risk are making it hard for companies to collect such metrics, users said last week at a conference here organized by Gartner Inc.

"There is an increasing focus on measuring security effectiveness," said Carl Cammarata, chief information security officer at automobile association AAA Michigan in

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Help From the Feds

A NIST standard covering security risk assessment in the government may also be helpful for corporations.

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100 Best Places to Work in IT

IT workers have taken their lumps in this dismal economy, but not everyone is struggling. Even in hard times, **Computerworld's top 100 IT employers** shower their staffs with the promotions and projects they crave. **Our 10th annual special report** shows how these Best Places find inventive ways to keep their IT employees focused, challenged and proud of their work. **Stories begin on page 23.**

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100 Best Places to Work in IT

IT workers have taken their lumps in this dismal economy, but not everyone is struggling. Even in hard times, **Computerworld's top 100 IT employers** shower their staffs with the promotions and projects they crave. **Our 10th annual special report** shows how these Best Places find inventive ways to keep their IT employees focused, challenged and proud of their work. **Stories begin on page 23.**

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What does it take to be a top IT employer? More than 11,500 IT workers told us what they value in their employers in our 10th annual Best Places survey. It's more than competitive pay, health insurance and sufficient vacation time. IT workers want to use cutting-edge technology, work family-flexible hours and have access to the training they need to enhance their skills. Our special report shows how the 100 Best Places for 2003 are giving their staffs what they crave.
STORIES BEGIN ON PAGE 28.

28 Layoff Survivors. The economic downturn forced even Best Places to lay off IT workers last year. How did they survive? Open communication was the driving force. "Our employees expect that we will tell them what we know when we know it," says Allmerica CIO Greg Tranter (left). In addition, we offer some tips for managers on handling layoffs with directness and honesty.

28 Cream of the Crop. We offer a look at the technology projects, challenges and unique management approaches at the top three Best Places.

- At No. 1-ranked Hershey Foods, the pace of technology innovation keeps things interesting for the IT staff (120 projects are currently under way). "From a techie standpoint, you never get stale," says one employee. **Page 28**
- IT staffers at Harley-Davidson (No. 2) ride high on the company's ultracool mystique and a slate of new projects, including one that allows potential buyers to customize their dream bikes. **Page 28**
- No. 3-ranked University of Miami boasts a location that offers its IT staff surf and sun. Add to that the opportunities for education, flextime and upward mobility. **Page 32**

34 Balancing Act. Demands on IT workers are increasing. But Best Places give managers the power to help IT employees find individualized alternatives for managing work and personal time.

> **We looked at how can we . . . put our employees closer to home, and we've used our internal network to do that.**
>
> KEVIN DEMICHELE, SOUTHERN CALIFORNIA EDISON

38 100 Best Places to Work in IT. See the full list of top 100 companies, sorted by overall ranking, with data on training, staff turnover and promotions. Plus, how we conducted this year's survey.

50 Stress-Busters. In our survey, 34% of IT employees said they find their work stressful. Check out tips from IT workers and managers about stress-reduction initiatives that work, such as the on-site workout room at Freddie Mac.

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A CLOSER LOOK

Computerworld columnist David Foote delves deep into this year's Best Places survey numbers to look at the components that make for a top 100 employer.
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BEST PLACES PROFILES

At Network Appliance (No. 4), the executives have an open-door policy that promotes collaboration. QuickLink [illegible]

A full slate of technology projects is keeping IT workers at Vision Service Plan (No. 5) focused on the future.
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INTERACTIVE CHART

Which companies offer the most enticing days or best promotion rate for their IT employees? Check out our interactive chart online, sortable by key data points and with links to the winners' Web sites.
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AT DEADLINE

Credentials of DHS Official in Question

Laura Callahan, deputy CIO of the U.S. Department of Homeland Security (DHS), was put on administrative paid leave last week after questions surfaced about her academic qualifications, a DHS spokeswoman confirmed. The move came after members of Congress contacted the DHS about allegations that Callahan had received her academic credentials from a "diploma mill" and about the department's policy on background checks.

Sun to Demo Rapid Development Tool

Sun Microsystems Inc. at JavaOne this week will announce a tool code-named Project Rave and aimed at corporate developers who need to rapidly build Web-based applications. The tool, expected to ship next year, will enable developers to build applications that can be deployed on any standards-based Java application server, officials said.

Outlook for Tech Spending Still Weak

While a majority of North American companies surveyed separately by Forrester Research Inc. and Meta Group Inc. said they're holding steady with their IT budgets for the year, 23% and 30% of the respondents, respectively, said they plan to shrink their technology spending. The results led Forrester to revise its 2003 IT spending forecast downward from the 1.9% average budget increase it projected to 1.3%.

Short Takes

INTEL CORP. and SUN today said they're collaborating in an effort to optimize Java applications for mobile devices based on Intel's XScale processors. . . . The U.S. DEPARTMENT OF DEFENSE officially authorized the use of open-source software internally.

Asia's Rise as Chip Power Causes Security Concerns

Production shift also a labor issue, U.S. senator warns

BY PATRICK THIBODEAU
WASHINGTON

NATIONAL SECURITY — and high-tech jobs — could be endangered if the U.S. doesn't stop semiconductor manufacturing's accelerating shift to countries in Asia, particularly China. That was the warning of U.S. Sen. Joseph Lieberman (D-Conn.) in a report delivered to U.S. Secretary of Defense Donald Rumsfeld last week.

A continuing migration of semiconductor manufacturing to Asia, along with the potential loss of research-and-design centers, has grave national security implications, according to the report, titled "National Aspects of the Global Migration of the U.S. Semiconductor Industry."

If that trend continues, "the U.S. will lose the ability to reliably obtain high-end semiconductor integrated circuits from trusted sources," the report states.

Reversing the trend will require a variety of actions, including enforcement of trade regulations to prevent Chinese companies from discounting their chips and the use of defense contracts to help build up the U.S. semiconductor industry, according to the report.

Despite the stark security warning, Craig Casey, a professor of electrical and computer engineering at Duke University in Durham, N.C., who has advised defense agencies on electronics issues, said the shift overseas "is more of an economic than military threat."

Casey said the U.S. remains the leader in high-performance semiconductor development on the strength of Intel Corp., Texas Instruments Inc. and IBM. And that lead will be retained "until Intel pulls up its stakes and leaves California. . . . Then it's another game," he said facetiously.

"The reality for us is that it's a global market," said Intel spokesman Chuck Mulloy, who noted that 70% of its sales come from outside the U.S. and that Asia-Pacific is its largest geographical market.

Of Intel's 78,700 employees, 65% are based in the U.S., a percentage that has remained fairly constant for the past several years, Mulloy said. And four of the company's five most recently built fabrication plants are in the U.S.

But revenue numbers from Framingham, Mass.-based IDC show significant growth in the Asia-Pacific chip market. Last year, total semiconductor revenue in that region was just over $51 billion, a 28% increase from 2001. Revenue in North America, meanwhile, was $31 billion, representing a 13% decline from the previous year.

George Scalise, head of the Semiconductor Industry Association in San Jose, said there has been an unquestionable shift to manufacturing in the Asia-Pacific region. But he said 80% of the manufacturing by U.S.-based semiconductor companies is still done in the U.S., representing 40% of the world's output.

The U.S. clearly is the leading chip innovator, Scalise said, adding "I think we can maintain that."

China, in particular, is gaining ground in semiconductor manufacturing.

Nortel Technology Links IP, Digital PBX Systems

Common operating software due in Oct.

BY MATT HAMBLEN

Nortel Networks Ltd. today will unveil plans to deliver common operating software for its Succession line of IP private branch exchange (PBX) systems and its older Meridian 1 digital voice switches.

The announcement will be made at the annual International Nortel Networks Meridian Users Group conference, which is being held in Las Vegas. However, Nortel doesn't plan to ship the Succession Enterprise Software Release 3.0 technology until October.

Once the software is available, companies with Meridian 1 switches will be able to use them to provide the same functionality as an IP-based PBX, said Ann Swenson, a senior product marketing manager at Nortel in Brampton, Ontario.

The cost and complexity of investing in IP devices has been a barrier to many companies, so being able to run IP software on a Meridian 1 switch is "a great direction for Nortel to be going," said Marianne Collin, president of the Dallas-based Meridian user group, which has more than 7,000 members and operates independently of Nortel.

Three years ago, Clarica Life Insurance Co., where Collin works as telephony services manager, decided to install Meridian 1 switches instead of IP hardware at an office in Waterloo, Ontario. Collin said she thinks that's an investment Clarica — now a division of Sun Life Financial Services of Canada Inc. — wants to maintain.

USER VIEW
Meridian user group chief gives her take on Nortel's latest moves.
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Swenson said the new software will support Meridian 1 systems as well as Nortel's Succession Communication Server for Enterprise 1000 IP PBX and its upcoming Succession 1000M device, which is also due in October. IP telephony features that will become available to Meridian users include greater scalability and reliability, intelligent call routing and remote access to applications running centrally.

Barry Marks, an analyst at PBI Media LLC's InfoTech subsidiary in Parsipanny, N.J., said the new software will give Meridian 1 users "the opportunity to migrate to an IP telephony platform without a forklift change." Although Nortel's approach won't provide "a truly unified IP environment, it's a solid step in that direction for Meridian users," Marks said.

He added that installing the Succession 3.0 software on a Meridian 1 switch could save tens of thousands of dollars compared with buying an all-new IP PBX from Nortel.

SQL Server Delay May Inflict Pain

Many Microsoft users unfazed, but some early adopters anxious to get new features

BY CAROL SLIWA
DALLAS

The delay of Microsoft Corp.'s SQL Server release code-named Yukon to the second half of 2004 won't matter much to the scores of corporate users who already are hard-pressed to keep up with new releases.

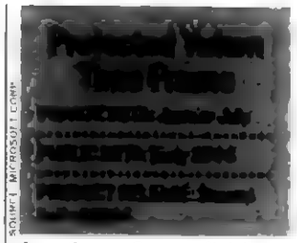
But the slippage, announced last week at the company's TechEd 2003 conference, may cause pain for some users — especially those who are anxious to use the database server's improved features and potentially some who bought into Microsoft's Software Assurance maintenance program.

"Database mirroring looks so useful that we would be testing it today if it were available. It looks like we could use it for applications that require high availability and for applications that require remote disaster recovery," said Bill McNabb, a Concord, Calif.-based database administrator at Bank of America Corp.

Keith Gilbert, an enterprise data architect at Labor Ready Inc. in Tacoma, Wash., said he's excited about the integration of the .Net Framework's Common Language Runtime (CLR) in Yukon, which will mean developers won't be restricted to using T-SQL to program to the database.

"I'm kind of heartbroken about the delay," Gilbert said.

Paul Flessner, senior vice president of Microsoft's Windows Server System division, attributed the slippage to the need for a yearlong beta for quality assurance and the added time required to embed the CLR into SQL Server, a joint effort with the company's tools team. The original time frame for shipment was the end of 2003, according to Stan Sorensen, director of SQL Server product management.



SOURCE: MICROSOFT.COM

"I always said I wouldn't do more than a 36-month release, and here I find myself doing that. But you know, it's the circumstances we're in," Flessner said. He noted that the current version of SQL Server shipped in August 2000.

The longer wait for useful new features isn't the only potential aggravation for some companies. Depending on the month in which Yukon ships in 2004, the delay opens up the possibility that some early adopters of Microsoft's Software Assurance agreement may fail to see a SQL Server upgrade during their contract period. But Flessner said he's less worried about product delays knowing that Microsoft made changes to Software Assurance to bring additional value to the program [QuickLink 38753].

Flessner said Microsoft conducted extensive surveys of customers because "there was a consensus that the value proposition wasn't good enough" for Software Assurance. He said Microsoft asked if they wanted a "guaranteed release," but that offer didn't test well. The "day-to-day value of having support" did, Flessner said.

Starting in September, customers will be able to receive Web or telephone support, depending on their license level.

But several TechEd attendees said they expect an upgrade to be part of a three-year Software Assurance agreement, with support in addition to that.

"You buy it for the whole enchilada," said Gilbert. "I think you should expect at least one upgrade during the three years."

"They should throw in support for what you pay for their products," said Jay Hall, a unit manager of server engineering at Blue Cross and Blue Shield of Alabama in Birmingham. "With IBM and everybody else, we don't have to pay. It's part of what you get."

Microsoft often makes the argument that its products cost considerably less to start with, so its overall costs are lower, even though its maintenance percentages are higher.

Some users said they would expect an extension or a discount if they didn't get an upgrade before Software Assurance expired. "I'd be pretty upset, but what are you going to do? Sue Microsoft?" said Dan Foster, a senior computer specialist at Duval County Schools in Jacksonville, Fla. ▶

Microsoft Exec Draws Server Software Road Map

DALLAS

Microsoft Senior Vice President Paul Flessner last week in an interview at TechEd discussed product plans and issues involving his Windows Server System division.

Is there any chance that SQL Server could slip past 2004? I don't think so. We are really locked down. The SQL Server team is a pretty well-disciplined team. There's not a lot of unknowns. They're narrowing in and getting ready to ship. I would be worried if I were slipping the beta. That would be a bigger danger sign. I'm not slipping the beta.

Were you involved in the work to add value to Software Assurance? Very intensely. We've been working hard on it for over nine months. **Because you anticipated that a product slip date might slip at some point?** No. It was just that there was a consensus that the value proposition wasn't good enough. And shame on us for not doing enough due diligence upfront. We thought we had enough.

You showed a slide pegging the Windows release code-named Longhorn for 2006 and Windows Server "vNext" for "2006+." What's the story with vNext? No code name.

It could be Longhorn or its successor, Blackcomb? We're still sorting through what we're going to do. The server team has just spun off of [Windows Server] 2003, and we don't expect another server release for three years.

The server release could have the Longhorn kernel or it could have the Blackcomb kernel? I don't know. It'll be a kernel. The code names don't mean anything. Whatever we do, we'll have Longhorn changes in it.

Is it correct that the client and server operating systems won't come out at the same time? Yes. And they may decide, "Hey look, we want to ship something with the client because we need some feature in the server." So I wouldn't rule that out. The team needs a little time to sort through it.

– Carol Sliwa

MORE ANSWERS
To read the full interview with Flessner, visit our Web site:
QuickLink 38821
www.computerworld.com

Other Server Product Ship Dates to Slip

DALLAS

Microsoft Corp. last week delivered a beta release of BizTalk Server 2004, calling it the first phase of Jupiter, the code name for its e-business software.

The second phase of Jupiter will feature a fully integrated set of products – BizTalk Server, Content Management Server and Commerce Server – when it ships in 2005, said Paul Flessner, senior vice president of Microsoft's server software division. When it announced Jupiter last fall, Microsoft had pegged Phase 2 for the first half of 2004.

Microsoft's management products will follow a similar pattern. Systems Management Server 2003, due in September, and Microsoft Operations Manager 2004 will simply be bundled in the initial version of the Systems Center Suite, which is due next year.

Flessner said the deeply integrated Systems Center follow-on release is on the planning horizon of 2006. At Microsoft's Management Summit in March, a company executive had said the integrated version would emerge in 2005.

Other parts of Flessner's road map included:

- The successor to Exchange Server 2003, code-named Kodiak, in 2005 or later. Release Candidate 1 for Exchange 2003 was released last week.
- Visual Studio development tools suite, code-named Whidbey, in 2004, and its successor, Orcas, in 2005.

Also last week, Flessner announced the price for a developer edition of SQL Server is being cut from $499 to $49.

– Carol Sliwa

ALSO AT TECHED
Microsoft announced availability of the first beta of BizTalk Server 2004:
QuickLink 38864
www.computerworld.com

BRIEFS

SEC Looking Into IBM's Accounting

IBM disclosed that the U.S. Securities and Exchange Commission has launched a formal investigation of its accounting practices for 2000 and 2001. The company defended its revenue-recognition policies and said the SEC is describing the probe as "a fact-finding investigation" at this point. The probe seems to have been triggered by an SEC investigation of an unidentified customer, IBM said.

Microsoft Warns of Web Browser Holes

Microsoft Corp. warned of two security flaws that affect all current versions of its Internet Explorer Web browser on operating system releases up to Windows Server 2003. But the company said the default configuration of the new operating system isn't vulnerable. As a result, it rated the flaws "moderate" for Windows Server 2003 and "critical" for other versions.

General Dynamics Wins Army Pact

General Dynamics Corp. said the U.S. Army has awarded it a 10-year contract, with a value of up to $2 billion, to provide IT products to the U.S. Department of Defense and other federal agencies. The deal replaces an earlier 10-year contract that was due to expire in April 2005. Falls Church, Va.-based General Dynamics said it has received about $900 million worth of orders under the existing pact.

Short Takes

SUN MICROSYSTEMS INC. said it has cut prices by up to 25% on its eight-processor Sun Fire V880 server and 20% on the four-CPU V480 model. . . . INTEL CORP. released three new versions of the Pentium M processor used as part of its Centrino chip set for mobile PCs.

MARK HALL ■ ON THE MARK

Herding Cowboy Coders to Conform . . .

. . . to standard development practices is one of the toughest jobs for IT management, says Adam Kolawa, CEO of Parasoft Corp. Programmers' individuality and temperament often get in the way of their following even well-defined process procedures. And **saying "pretty please" won't always work,** either. Most managers think that if everyone uses the same product set, standard practices will result. Not so, says Kolawa. "Even if they all have the same tools, it isn't good enough," he argues. "You need to impose uniform settings on the tools and uniform reporting on how they are using the tool in practice." What better place to yank the reins on developers than at this week's JavaOne Conference in San Francisco? That's where the Monrovia, Calif.-based company will unveil Parasoft Java Solution, which provides Java developers with collaboration capabilities and managers with ways to impose "forced coding practices." And just to make sure, the product spits out reports that show how well the group and individuals within it are adhering to those practices. You can **start cracking the whip for $50,000.** ■ Sun Microsystems Inc. gives open-source boosters a, um, boost this week when it teams with Zend Technologies Ltd. in Tel Aviv and seeks expected approval of **Java Specification Request (JSR) #223** by the Java Executive Committee at JavaOne. What's the big deal for this JSR? (JSRs are precursors to officially sanctioned Java standards.) Well, Zend leads the development of the open-source PHP scripting language that is currently used on more than 9.5 million Web sites. It's a preferred tool to invoke all that front-end dynamic HTML we see today. Java, as you know, is widely used on the back end. But getting PHP scripts to be recognized by Java apps isn't easy. A standard process would help. What's interesting here is that **Sun is pushing a non-Java scripting language.** Could it be a defensive move against Microsoft Corp.'s Active Server Pages scripting language? Gee, ya think? ■ PHP gets another shot in the arm when EJB Solutions Inc. adds it to its exclusive 100 top open-source products in its Out-of-the-Box 2.1 open-source collection at the end of the month. Rod Cope, CEO of the Highland, Colo., company, says his team regularly pores over **80,000 open-source projects currently kicking** around on the Internet and chooses the ones that will best serve his Fortune 2,000 customers. The package includes simple install and uninstall features and copious documentation. The 2.1 release will also add plug-ins for Apache; Oracle support for JBoss; and what Cope calls the hottest new open-source developer product, Hibernate, an object-mapping tool for databases. For $70, you can't go wrong. ■ **What IT recession?** Michael Howard, CEO of Campbell, Calif.-based OuterBay Technologies, says his company is doubling its sales force in the next two months and saw 300% revenue growth from 2001 to 2002. Start-ups do that sort of thing. At least, they used to. He's also watching the fortunes of Salesforce.com Inc. and Google Inc. to see when (or if) they go public because his company may follow in their wake. "Salesforce is the spearhead here," he says. In the meantime, he's happy that OuterBay will be announcing Application Data Management 3.0 next week for release next month. ADM 3.0 will let CIOs migrate data from Oracle and PeopleSoft applications to less expensive Linux servers and ATA disk drives. **Siebel and SAP apps are next on the list.** ■ While you're moving application data around, you might want to do the same with databases. Lakeview Technology Inc. in Oakbrook Terrace, Ill., ships OmniReplicator 4.0 next week. It lets you instantly **synchronize databases in different locations** across the street or across the globe. The product has been completely rewritten in Java and can use any JDBC driver. It adds monitoring and control features, and currently works with DB2, Sybase, SQL Server and Oracle. In the third quarter, Lakeview will rekindle Informix support, which it had snuffed out of the 3.4 release. ▶

WorldCom Defends Federal IT Contracts

BY MATT HAMBLEN

The top official in charge of federal contracts at WorldCom Inc. last week said the company hasn't received any special consideration in winning recent government contracts for voice and data services.

"I don't see in that [federal bidding] process, as rigorous as it is, how MCI could be shown any favoritism," said Jerry Edgerton, senior vice president of government markets at WorldCom, at a press conference in Washington. "We've won this stuff fair and square." WorldCom, which continues to operate under Chapter 11 bankruptcy protection, now uses its MCI brand name for all business purposes.

Sen. Susan Collins (R-Maine), chairman of the Senate Governmental Affairs Committee, last month launched an investigation of the government's dealings with the company, including a one-year extension to an umbrella purchase contract that the U.S. General Services Administration (GSA) awarded to WorldCom in November.

The GSA last week released documents to the Senate committee saying that it continued to do business with WorldCom after disclosures of massive accounting problems at the company because WorldCom's new management team was working to deal with the fraud. In addition, WorldCom had provided reliable network service and quick repairs, according to the GSA.

Government business accounts for only about 5% of WorldCom's annual revenue, Edgerton said. He also noted that his unit of 1,500 workers has a strong reputation for ethics inside WorldCom.

Recent government wins by WorldCom include a seven-year deal for high-speed data communications from the National Oceanic & Atmospheric Administration, with a maximum value of $11 million, and a $20 million contract from the U.S. Department of Defense to set up a cell phone system in Baghdad. Both those contracts were awarded last month. ▶

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Start-up Challenges EMC With E-mail Archiving Technology

Persist releases software for message storage, giving Centera competition

BY LUCAS MEARIAN

START-UP Persist Technologies Inc. is releasing archiving and search software that it said uses digital certificates and commodity blade servers to address federal regulations governing the retention of e-mail messages by financial services firms.

Pleasanton, Calif.-based Persist this week plans to announce the general availability of its AppStor technology, which can be combined with any brand of blade server to create an appliance designed to support secure e-mail archiving and instant retrieval of messages via the Internet.

Analysts said AppStor will compete head-to-head with EMC Corp.'s Centera fixed-data disk array, which uses software to create a unique 27-character identifier for every electronic document it stores, ensuring that the information can't be overwritten.

'Signing' E-mail

Persist officials said AppStor sits in front of e-mail servers and automatically assigns a digital certificate based on public-key infrastructure (PKI) technology to each message. The digital certificate is authenticated each time an end user retrieves a stored e-mail, and messages that are modified in any way receive a new PKI signature.

AppStor also works with WORM (write once, read many) storage devices, making it compliant with U.S. Securities and Exchange Commission rules that require financial services firms to retain all e-mail, Persist said. In addition, the software can be used to archive electronic documents, images and audio files.

Lt. Col. Chuck Hoppe, information management officer for the assistant secretary of the U.S. Army, bought AppStor as an early user last August and installed it on a group of six Hewlett-Packard Co. blade servers at an Army base in Radford, Va.

The software is being used to manage an e-mail network for about 195 end users who typically don't delete any of their messages, Hoppe said. He added that if he had simply archived the e-mail on disk drives, it wouldn't be as easy to search for or retrieve the messages as it is with AppStor.

Persist's technology "has a very robust search capability," Hoppe said. End users can search an entire e-mail directory "by block, name, time or keyword," he noted. "I could be anyplace in the world, [but] if I can get to a Web browser, I can get to all of my e-mail."

AppStor is also being evaluated for possible use on two other military e-mail networks, including one that supports about 650 workers at the Pentagon, Hoppe said.

Steve Kenniston, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said AppStor can easily be migrated into data centers as users move toward utility-based computing models built around commodity hardware. Hopkinton, Mass.-based EMC offers excellent technology but will have to continue selling Centera as a stand-alone box, he said.

However, Centera is less expensive than AppStor. For example, EMC's new Centera Compliance Edition model is priced at $148,000 with 4TB of usable storage space. AppStor sells for $45,000 per terabyte of capacity without the blade server hardware, Persist said.

Persist's AppStor Software

- Uses commodity **blade servers to store** e-mail messages.
- Can retrieve e-mails **in less than three seconds** by name, time or content.
- Uses PKI technology to **"sign" each message** as it's stored.
- Works **with WORM** storage devices.

Anti-UCITA Legal Measures Outnumber State Adoptions

Software licensing act stalls; backers continue struggle

BY PATRICK THIBODEAU

A Massachusetts legislative committee's hearing last week on an anti-UCITA bill could herald the state's becoming the fifth to enact a law to protect its residents and businesses from the controversial software licensing legislation.

The hearing underscores the difficulties confronting backers of the Uniform Computer Information Transactions Act. Only two states, Virginia in 2001 and Maryland in 2000, have enacted the model legislation.

LEGAL ISSUES

Meanwhile, four states have adopted anti-UCITA measures, and the law's progress toward state-by-state adoption appears to be stalled.

John McCabe, an official at the National Conference of Commissioners on Uniform State Laws (NCCUSL) in Chicago, said a UCITA adoption bill is pending in the District of Columbia but not anywhere else. With state legislatures generally winding down for the year, the district is "the only expectation that we have at this point," he said.

The measures adopted by the four anti-UCITA states — Iowa, North Carolina, West Virginia and, just last month, Vermont — are referred to as "bomb-shelter" legislation. The intent is to prevent a vendor from applying Maryland's UCITA law provisions on residents in other states, for instance.

The Massachusetts Joint Committee on Commerce and Labor held a hearing on the anti-UCITA bill June 2. No action was taken, a committee spokesman said.

'Bomb Shelters'

UCITA's opponents, which include library and consumer-protection groups, the majority of state attorneys general and some large software users, say they succeeded in preventing UCITA's adoption in Oklahoma and Nevada this year. But despite those successes, they say UCITA remains a threat.

'Not Dead Yet'

"It's not dead yet," said Randy Roth, a principal at Corporate Contracts LLC, a consulting and contract negotiation firm in Urbandale, Iowa. But Roth said awareness and concern among IT managers about UCITA are dwindling — and that worries him. "The message to that group is, 'Don't let your guard down,' " he said. "We can't let up yet."

Carlyle "Connie" Ring Jr., chairman of the NCCUSL's UCITA drafting committee, said proponents will continue to press for state-by-state adoption. He argued that companies need a uniform set of rules for conducting Internet transactions, and if the states don't enact such rules, Congress will.

"The real issue is whether the states are going to work this out among themselves," Ring said.

He attributed the dearth of state adoptions to an agreement with the American Bar Association, under which the NCCUSL refrained from pushing the law for an 18-month period that ended late last year, pending review by the ABA. The ABA ultimately took no action on it, even though a special committee criticized the measure [QuickLink 36306].

According to opponents, UCITA sets default contract terms that favor software vendors and free them of liability for any problems with their products. Supporters say that companies are free to negotiate terms and conditions, and they have attempted, unsuccessfully, to ameliorate concerns by removing some controversial provisions.

One such provision, called "self-help," would have allowed vendors to disable customers' systems during disputes.

MORE ONLINE

For more stories on this topic, visit our UCITA special coverage page.

QuickLink a1690
www.computerworld.com

U.S. Users Weigh Options as Web Host C&W Exits Market

Many not surprised by the move, but schedule is unclear

BY TODD R. WEISS

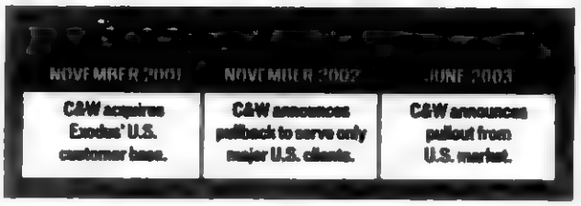
WHEN CABLE & Wireless PLC announced plans to abandon the U.S. Web hosting and services market last week, customers appeared to take the announcement in stride.

Several C&W users said that because of the large overcapacity in the troubled Web hosting market, they foresee little problem finding another vendor. But the uncertainty surrounding the timing of C&W's pullout is causing a headache for some.

Russell Kuteman, vice president of finance for amusement park company Six Flags Inc., which sources content-delivery and Web hosting services from C&W, said it's too early to decide what his company will do. And C&W isn't helping much with that decision.

C&W spokesman Chad Couser said the company's U.S. customer base would be valuable for another vendor that could potentially come in and take over those accounts. Service will continue unaffected during the transition, he said. "We want to maintain the value of the business" while other avenues are explored, he added. But no deadlines have been set for when another vendor must be found or for the end of C&W's service.

That presents a problem for Oklahoma City-based Six Flags, which doesn't know how long to wait before deciding what steps it should take,



Kuteman said. "Companies like us and others that have commerce across their Web sites can't afford to be in a risky situation as far as services go," he said. "We're going to keep a finger on the pulse [of the situation], and the minute our comfort level moves in the negative direction, we'll be gone."

John Godwin, chief technology officer at online movie download service Movielink LLC in Santa Monica, Calif., said C&W's announcement of a sweeping restructuring and complete exodus from its money-losing North American business wasn't a surprise.

"I think a number of companies have been in trouble in this economy," he said. "We think they'll handle this very responsibly" by finding a qualified buyer or giving clients enough notice to make new arrangements. "We just don't think it will have an impact."

Many C&W customers were in the same predicament 18 months ago when C&W took over the U.S. business for bankrupt Web hosting vendor Exodus Communications Inc. [QuickLink 25533].

Rick Thimble, IT manager for the U.S. and Europe at plastic parts maker Moldflow Corp. in Wayland, Mass., said he's not worried, even after having gone through the same experience with Exodus.

The C&W announcement comes less than three months after Moldflow added an IP virtual private network contract to its Web hosting deal with C&W, Thimble said. "We're still implementing the network," he said.

"There's not too many ... companies that haven't gone through this," he said of C&W's cuts. "What are your choices?"

Ron Pellowe, director of systems and networks at online equipment asset marketplace EquipnetDirect Inc. in Braintree, Mass., said he also survived the Exodus meltdown. "Honestly, I don't think it leaves us in a bad place," Pellowe said. "There are a lot of vendors out there who are hungry. I'm not feeling like we're without options."

Palm to Buy Handspring To Bolster Hardware Unit

Merged company expected to be stronger competitor against Microsoft, other rivals

BY BOB BREWIN

Corporate users and analysts last week said Palm Inc.'s planned acquisition of handheld device rival Handspring Inc. should result in a combined company that's better able to compete with Microsoft Corp. and cell phone makers in the mobile markets.

Milpitas, Calif.-based Palm announced that it's buying Handspring in a stock-swap deal that's expected to be completed in the fall. Palm plans to combine its own hardware unit and Mountain View, Calif.-based Handspring under a new name that has yet to be chosen. The merger will coincide with the previously announced spin-off of Palm's operating system division into a separate company.

Gail Browder, executive vice president for products and services at PHT Corp. in Charlestown, Mass., said the Palm/Handspring combination will produce a bigger, more competitive company. PHT has deployed "tens of thousands" of Palm devices over the past 12 months to support clinical trials it runs for drug companies, she said.

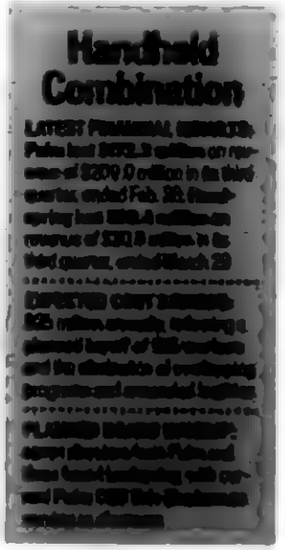
In particular, Browder noted that Handspring will offer Palm expertise in building handhelds with integrated wireless capabilities, which she sees as an essential feature. She also said that bringing back Jeff Hawkins, who co-founded Palm before leaving to help hatch Handspring in 1998, will help Palm "stem the perception of brain drain" that still lingers from his departure.

Palm said Hawkins, who is now Handspring's chairman and chief product officer, will become chief technology officer at the merged company. The company will be run by Todd Bradley, currently president and CEO of the Palm Solutions Group hardware unit.

Extending Its Reach

Sam Bhavnani, an analyst at ARS Inc. in La Jolla, Calif., said Handspring will provide Palm with something it has sorely lacked: strong partnerships with major U.S. cellular carriers. Bhavnani said Handspring has partnerships to sell its Treo smart phones through three cellular carriers: Cingular Wireless, Sprint PCS Group and the T-Mobile division of Deutsche Telekom AG. Palm, in contrast, has a sales and marketing deal with only AT&T Wireless Services Inc.

Dan Wilkinsky, a spokesman for Overland Park, Kan.-based Sprint, described Treo "as a real winner for us." Partnerships with handheld device makers are "absolutely vital" in order to ensure that the products they develop are "integrally woven" into the strategic plan of a carrier like Sprint PCS, Wilkinsky said.



The planned merger was almost inevitable because of the tough market for handhelds in recent months, said Phil Redman, an analyst at Gartner Inc. Handspring was particularly affected by the sales slowdown because Treo hasn't "really reached a wide enough audience," he said. "When there's such a small market overall, it's very difficult for small vendors to compete."

But Redman warned that bringing all the Handspring and Palm hardware executives together at one company could lead to "contrasting visions and disagreements at the top." Such problems led Hawkins and two other executives to form Handspring in the first place, he said.

Reporter Todd R. Weiss contributed to this story.

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Microsoft

BRIEFS

HP to Buy, Manage Ericsson's Systems

Hewlett-Packard Co. and LM Ericsson Telephone Co. formally announced a five-year IT outsourcing deal, as expected. Under a transition that's due to start next month, HP will buy Ericsson's global IT infrastructure and manage it for the Stockholm-based company. About 1,000 IT workers at Ericsson will transfer to HP, the companies said. Financial terms weren't disclosed.

Fiorina Looks to Grab Market Share

In other HP news, CEO Carly Fiorina said at a meeting with analysts in New York that she hopes the company can increase revenue by taking market share from rival vendors. "We don't need IT spending to grow," Fiorina said. "We need customers to spend more of their IT dollars on us." She added that HP expects revenue of $36.6 billion in the second half of its current fiscal year.

EDS Signs PC Deal With Barclays

Electronic Data Systems Corp. said it has won a seven-year, $350 million deal to provide managed desktop PC outsourcing services to London-based Barclays PLC. The contract covers a total of 41,700 PCs across various Barclays business units, EDS said. The Plano, Texas-based company also announced a managed service for mobile devices used in corporate applications.

Short Takes

SIEBEL SYSTEMS INC. said it has bought the assets of BoldFish Inc., a Santa Clara, Calif.-based vendor of permission-based messaging software for use in marketing campaigns. . . . AFFILIATED COMPUTER SERVICES INC. in Dallas announced a seven-year, $143 million IT outsourcing contract with Miller Brewing Co. in Milwaukee.

Users Take Some Blame For Faulty Applications

Share responsibility with vendors for software defects

BY JAIKUMAR VIJAYAN

WHEN IT COMES to placing blame for software defects, users are apparently almost as willing to take it as they are to dish it out to vendors. That was one of the findings of a Gartner Inc. survey of 172 IT professionals that was conducted last week.

"One of the most surprising things about the survey was the extent to which respondents were willing to allocate liability for software defects on themselves," said Richard Hunter, an analyst at Stamford, Conn.-based Gartner.

About 47% of survey respondents said that user companies should be legally liable for damages caused by flaws such as buffer overflows in the software they develop. At the same time, about 57% of the respondents said software vendors should be held legally accountable for flaws in the software they develop.

"The numbers show a logical consistency when it comes to allocating blame" for bad software, Hunter said. Such sentiments come at a time when companies are facing unabated threats from both internal and external attackers.

The results of an annual survey by the Computer Security Institute and the FBI released last week show that the number of major security incidents companies reported in 2002 was roughly the same as in 2001. But the average loss reported from such incidents was only $804,000, a decrease from an average of $2 million the year before.

Companies appear to be bracing for more attacks, with 56% in the Gartner survey saying they expect a major politically motivated cyberattack on critical infrastructure in their industries within the next 36 months. A majority said that if such an attack were to occur today, they feel it would result in brief, multiregional disruptions.

The Gartner survey also showed that a majority of respondents think open-source software is about as secure as other software. Over 46% said they think the federal government should use and develop open-source software.

Continued from page 1

Risk Metrics

Dearborn. Companies are realizing that "you can't manage what you can't measure."

Driving the trend is the fact that security budgets have been rising by 20% annually over the past couple of years, said Richard Hunter, an analyst at Stamford, Conn.-based Gartner.

"These have been pure costs, and CIOs and CEOs are asking what they are getting from all that [spending]," Hunter said. "If the response is, 'You are getting better security,' the next question is, 'How do you know?' "

As a result, security administrators are under growing pressure to find quantitative measures to demonstrate the efficacy of their security strategies.

"You need to have a baseline to measure against. If you don't have any measurements, you don't know where you are," said Gregory Waters, a senior information assurance engineer at TWM Associates Inc., an IT auditing firm in Fairfax, Va.

The numbers can come from a variety of sources. For example, said Gartner, a company could collect metrics on the number of attacks it faced during a specific period, the type of attacks, the percentage of attacks that were successful, the time that elapsed between the onset of an attack and when it was first detected, and the time it took to launch countermeasures.

The metrics could also relate to a company's overall risk profile based on an assessment of the vulnerabilities and threats faced by an organization and the countermeasures in place to deal with them.

Meaningful Metrics

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Consequently, AAA is planning to gather internal metrics to build a one-page "dashboard" that will give managers a better, more relevant picture, he said.

Northrop Grumman Mission Systems in Reston, Va., is pursuing a similar dashboard approach, said CIO Diane Murray. "It will give us a high-level management view of how well we are doing" on the security front, she said.

Such information can also be useful to auditors for evaluating a company's compliance with regulatory requirements.

But gathering such metrics and using them in a meaningful way can be hard, especially when dealing with an issue such as risk, said Bill Spernow, chief information security officer at the Georgia Student Finance Commission in Tucker.

"The raw statistics that we need to create a measurable foundation do not exist," he said. Moreover, numbers may not always tell the full story, because there are too many variables and dependencies involved in measuring risk, Spernow said. At best, they are "trend indicators" that could create a "false sense of security" if relied upon solely, he added.

Standards such as ISO 17779, which covers IT governance and data security, can provide a good basis for understanding what's needed to build effective IT security, he said.

Security Yardstick

Measuring effectiveness of IT security involves the following:

- **Understanding and prioritizing information assets; analyzing impact and likelihood of threats; coordinating efforts and resources**
- **Discovering and targeting infrastructure weaknesses; highlighting larger exposures**
- **Evaluating current spending levels and resource distribution; tracking changes**

SOURCE: GARTNER INC.

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BRIEFS

HP to Buy, Manage Ericsson's Systems

Hewlett-Packard Co. and LM Ericsson Telephone Co. formally announced a five-year IT outsourcing deal, as expected. Under a transition that's due to start next month, HP will buy Ericsson's global IT infrastructure and manage it for the Stockholm-based company. About 1,000 IT workers at Ericsson will transfer to HP, the companies said. Financial terms weren't disclosed.

Fiorina Looks to Grab Market Share

In other HP news, CEO Carly Fiorina said at a meeting with analysts in New York that she hopes the company can increase revenue by taking market share from rival vendors. "We don't need IT spending to grow," Fiorina said. "We need customers to spend more of their IT dollars on us." She added that HP expects revenue of $36.6 billion in the second half of its current fiscal year.

EDS Signs PC Deal With Barclays

Electronic Data Systems Corp. said it has won a seven-year, $350 million deal to provide managed desktop PC outsourcing services to London-based Barclays PLC. The contract covers a total of 41,700 PCs across various Barclays business units, EDS said. The Plano, Texas-based company also announced a managed service for mobile devices used in corporate applications.

Short Takes

SIEBEL SYSTEMS INC. said it has bought the assets of BoldFish Inc., a Santa Clara, Calif.-based vendor of permission-based messaging software for use in marketing campaigns. . . . AFFILIATED COMPUTER SERVICES INC. in Dallas announced a seven-year, $143 million IT outsourcing contract with Miller Brewing Co. in Milwaukee.

Users Take Some Blame For Faulty Applications

Share responsibility with vendors for software defects

BY JAIKUMAR VIJAYAN

WHEN IT COMES to placing blame for software defects, users are apparently almost as willing to take it as they are to dish it out to vendors. That was one of the findings of a Gartner Inc. survey of 172 IT professionals that was conducted last week.

"One of the most surprising things about the survey was the extent to which respondents were willing to allocate liability for software defects on themselves," said Richard Hunter, an analyst at Stamford, Conn.-based Gartner.

About 47% of survey respondents said that user companies should be legally liable for damages caused by flaws such as buffer overflows in the software they develop. At the same time, about 57% of the respondents said software vendors should be held legally accountable for flaws in the software they develop.

"The numbers show a logical consistency when it comes to allocating blame" for bad software, Hunter said. Such sentiments come at a time when companies are facing unabated threats from both internal and external attackers.

The results of an annual survey by the Computer Security Institute and the FBI released last week show that the number of major security incidents companies reported in 2002 was roughly the same as in 2001. But the average loss reported from such incidents was only $804,000, a decrease from an average of $2 million the year before.

Companies appear to be bracing for more attacks, with 56% in the Gartner survey saying they expect a major politically motivated cyberattack on critical infrastructure in their industries within the next 36 months. A majority said that if such an attack were to occur today, they feel it would result in brief, multiregional disruptions.

The Gartner survey also showed that a majority of respondents think open-source software is about as secure as other software. Over 46% said they think the federal government should use and develop open-source software.

Continued from page 1

Risk Metrics

Dearborn. Companies are realizing that "you can't manage what you can't measure."

Driving the trend is the fact that security budgets have been rising by 20% annually over the past couple of years, said Richard Hunter, an analyst at Stamford, Conn.-based Gartner.

"These have been pure costs, and CIOs and CEOs are asking what they are getting from all that [spending]," Hunter said. "If the response is, 'You are getting better security,' the next question is, 'How do you know?' "

As a result, security administrators are under growing pressure to find quantitative measures to demonstrate the efficacy of their security strategies.

"You need to have a baseline to measure against. If you don't have any measurements, you don't know where you are," said Gregory Waters, a senior information assurance engineer at TWM Associates Inc., an IT auditing firm in Fairfax, Va.

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Spending assessment: Evaluating current spending levels and resource distribution; tracking changes

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Lessons of 9/11 Not Lost On Winners of 2003 Computerworld Honors

For this year's group, desire to improve the human condition is a shared theme

BY PATRICK THIBODEAU
WASHINGTON

BEFORE he attended last week's Computerworld Honors ceremony here, Patrick Bennett visited many of the city's monuments and read the testimonials carved in stone to remember the nation's heroes. Winning an award for a digital management system gave Bennett the opportunity to share what he learned from his visit.

"I see this less as a crowning achievement than as a kind of challenge," said Bennett, director of software development at E Entertainment Television Inc. in Los Angeles. That challenge is to "live up to all those folks who have given their lives that we might innovate and offer technological solutions to help society."

A theme common to the winners was a desire to improve the human condition, whether through the use of supercomputers that analyze global warming or the development of systems to combat terrorism.

Sumitomo Mitsui Banking Corp. in New York faced a challenge in complying with the 2001 USA Patriot Act, an antiterrorism law. It needed to develop an online system for finding people on various government terrorist lists.

Peter McCormick, the bank's CIO, said the project provided more than just professional satisfaction. It also provided a heightened sense of purpose. The bank is a half-mile from Ground Zero. "The aspect of 9/11 has really added another dimension to what you can do, even as a banker, even as a technologist, in combating the war against terrorism," he said.

Another winner, American Express Corporate Travel Solutions in Phoenix, developed a Web-based system that allows travelers and agents at different sites to work together in real time. The system also lets travel managers know where their travelers are, according to Michael Laughlin, the company's vice president and chief technology officer.

"In case of emergencies like Sept. 11, we can help them get back to where they need to be," he said.

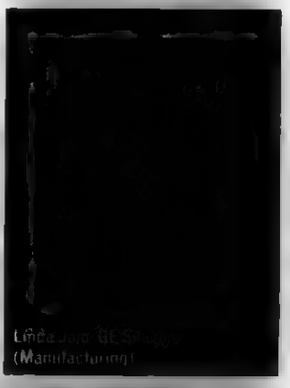
Patrick McGovern, chairman of Boston-based International Data Group Corp., *Computerworld*'s parent company, said this year's Honors program resulted in 313 new IT case studies being presented to more than 140 museums, libraries and universities worldwide. "The case studies in this year's collection are representative of the very best in excellence, innovation and positive impact on society," he said. ▶

SEARCHING FOR HEROES

Special coverage: Learn more about the Honors program at our Web site.

QuickLink a3290
www.computerworld.com

Ken Weber, Network for Good (Government and Nonprofit)


Linda [illegible] (Manufacturing)

Da-Lin Zhang, Institute [illegible] Atmospheric Physics (Science)

Vehbi Gogebakan, Cyber [illegible] (Government and Nonprofit)

Wolfgang Bauer, Michigan State University (Education)

International Data Group Chairman Patrick McGovern [illegible]

Julia P. Gregory, [illegible] (Medicine) holds an award.

Maryfran Johnson, editor in chief of *Computerworld*, speaks at gala

Brocade Boosts Security in SAN Software

BY LUCAS MEARIAN

Storage switch maker Brocade Communications Systems Inc. last week released the fourth generation of its software for managing storage-area networks (SAN), adding new change management and security features as well as a dashboard-style user interface.

San Jose-based Brocade said the Fabric Manager 4.0 upgrade lets storage administrators logically cluster groups of switches or communications ports on their SANs. The administrators can then perform management and reporting tasks across the devices via a single operation.

The release also provides network topology maps and "SAN-at-a-glance" views designed to help IT managers visualize SAN configurations and track changes, according to Brocade. In addition, when combined with the Secure Fabric Operating System software announced in late March, Fabric Manager supports the implementation of network-based security policies, said Steve Daheb, the company's director of product marketing.

For example, the software offers authentication capabilities and can be used to encrypt control information or management data that's sent among different devices on a SAN. Daheb said the previous version of Fabric Manager supported some SAN security policies in the form of zoning. But he noted that with the device-level controls built into the upgrade, "this is a full policy-based infrastructure."

A 'Lock' on Security

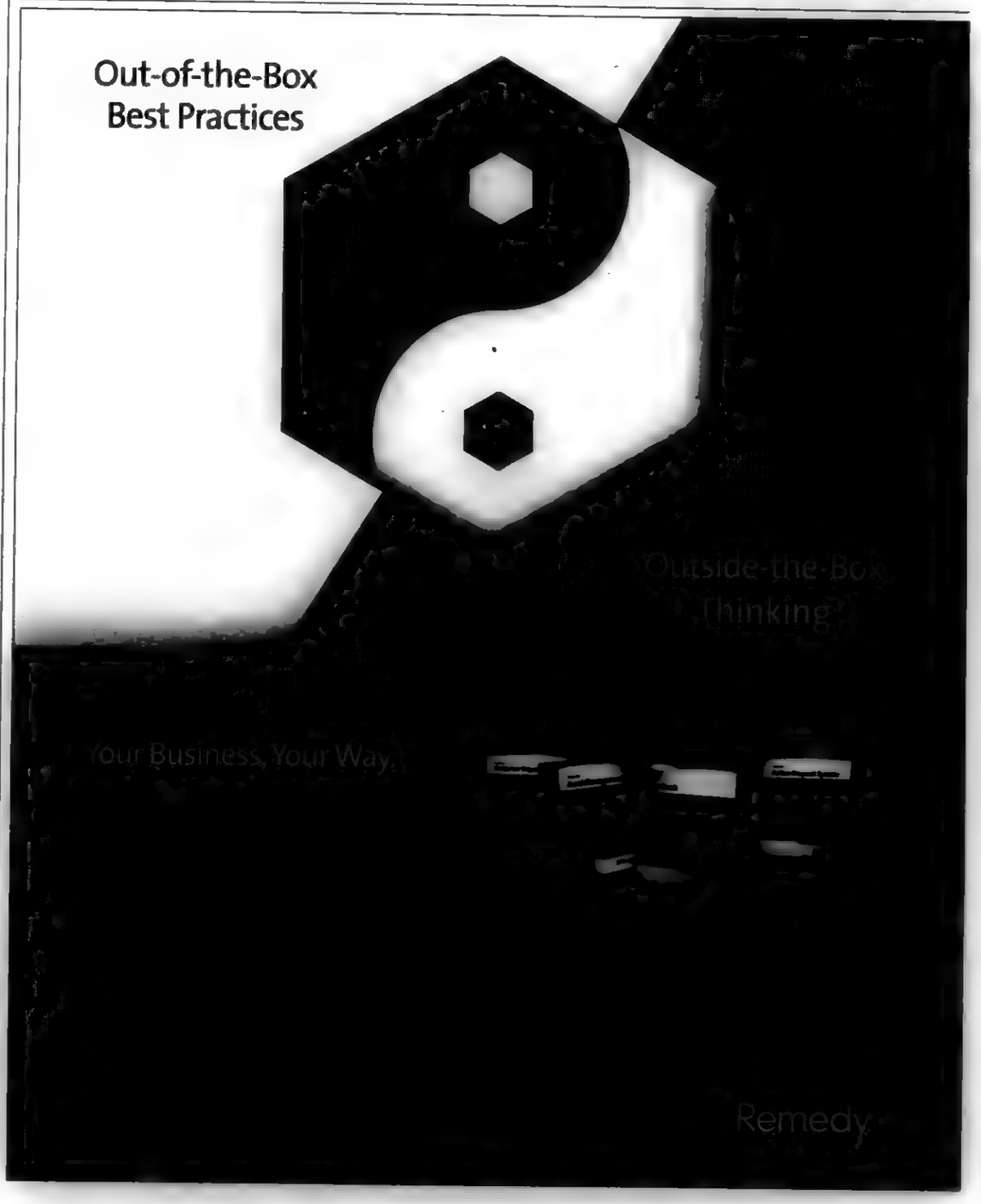
Michelle Butler, technical program manager for the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign, said she expects to deploy the new Fabric Manager release soon. Butler noted that she likes its ability to "lock a port down and get into a switch without having to protect our own switch or network with a firewall."

Butler manages three SANs — two with storage capacities of 60TB each, and one with 40TB. The SANs will likely total half a petabyte of data by the end of summer, she said.

With the upgrade, Brocade is "probably ahead of the game compared with most of the competition from the security aspect," noted Randy Kerns, an analyst at Evaluator Group Inc. in Englewood, Colo.

Fabric Manager 4.0, which will be sold through disk array vendors that resell Brocade's SilkWorm switches, can also be used to manage host bus adapters made by Costa Mesa, Calif.-based Emulex Corp., via the Fabric Device Management Interface standard.

▶



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PATRICIA KEEFE

IT Superheroes

LOOK — UP IN THE SKY! It's a bird. It's a plane. No, it's another piece of legislation! Boy, your heads must be spinning. So many new business rules, regulations, policies and laws — some proposed, some pending and some passed — all hovering just overhead. It's like the tornado from hell bearing down on the hapless IT landscape. Better get ready, because it's definitely headed your way.

If nothing else keeps IT in business for the next couple of years, I'm betting government intervention will. We've got HIPAA; state, federal and international privacy laws; Internet tax moratoriums; antispam uprisings; crackdowns on corporate greed; smackdowns on Wall Street; and homeland security demands pressuring industries ranging from airlines to credit card issuers. The timing couldn't be better: As we outsource application development and system builds, the emphasis in IT will shift over to understanding business processes like never before.

Many of these new policies pouring out of Congress and the states are going to land, one way or another, at IT's feet. All this legislative heavy breathing means that your business counterparts are going to have to add compliance to their core to-do lists, and they can't achieve it without IT. You can bet that this time there won't be any accusations of playing Chicken Little like we heard in the aftermath of Y2k. And you can be certain that noncompliance is going to be made so unpalatable to upper management that, for once, IT ought to be able to get the funding it needs to effect appropriate system and infrastructure changes.

So, how to get a handle on all this?

Well, first, you need to figure out the legislative fallout for your company. Which newly passed or pending rules will apply to your business? Your industry? Your international operations?

Next, familiarize yourself and then your staff with the requirements and deadlines laid out in these new policies. Is there an industry coalition looking into the issue or working up possible guidelines? If so, join it. If not, consider launching one.

Ditto for inside the company. If your company has a steering committee tasked with ensuring compliance with the new regulations, make sure IT is on it. There isn't one? Mandate it.

Now get together with the business team and do a thorough audit of the affected processes within your company and the systems they depend on. What are the weak links? Where do you need to add or delete or make redundant? And how can technology plug holes or ease the process?

Next, figure out the technology equation. Is this a patch job, or are we talking new systems? Is this a custom build, or are there off-the-shelf products catering to this issue? Has anyone else used these products? Get references.

Then you need to map out a project plan, deadlines, budgeting and staffing needs. And you'll have to bird-dog this project all the way down the line. It's not just *your* deadlines at stake — the legislation will have imposed some as well.

Corporate America caught a lucky break with the Sarbanes-Oxley deadline extension, but that was probably an aberration. It's going to take a team of superheroes to rescue some of these business processes and wrestle these regulations to the ground. Does IT have the right stuff? Your business will be riding on it.

PIMM FOX

The New Cluster Model

HIGH-AVAILABILITY clustering is too compelling to ignore. Typical clustering models for Unix have one server doing the work, with another standing by idle in case of failure. This active/passive approach can double hardware costs and add time and expense to deployment and management. That's a fair amount of capital to sink into unused computing resources. But the confluence of three factors may change the way clustering is approached.

First, Intel's Xeon processors offer a one-two punch of lower price and competitive performance when compared with RISC chips running Unix.

Second, the emergence of Linux for Intel servers, coupled with low-latency interconnects to bind servers together using Gigabit Ethernet or Infiniband technology, means better server communication.

Finally, storage decoupled from servers and the acceptance of storage-area networks and Fibre Channel technology make it possible to aggregate servers that then can act as one large machine.

Companies such as PolyServe Inc. in Beaverton, Ore., and Sistina Software Inc. in Minneapolis offer software to tackle different aspects of clustering. Sistina's products enable the sharing of stored data, while PolyServe software makes it possible to manage Intel-based server clusters.

Compare prices. A Unix clustering product for Solaris begins at around $6,000 (and up to $50,000 per server). For two Sun Fire 6800 machines with active/passive clustering, the cost is about $30,000 per server. This is designed for high availability and doesn't have any shared data clustering or multiple server combinations. PolyServe says its software costs $3,000 per CPU, which on a cluster of four two-processor machines (eight CPUs) would run $24,000.

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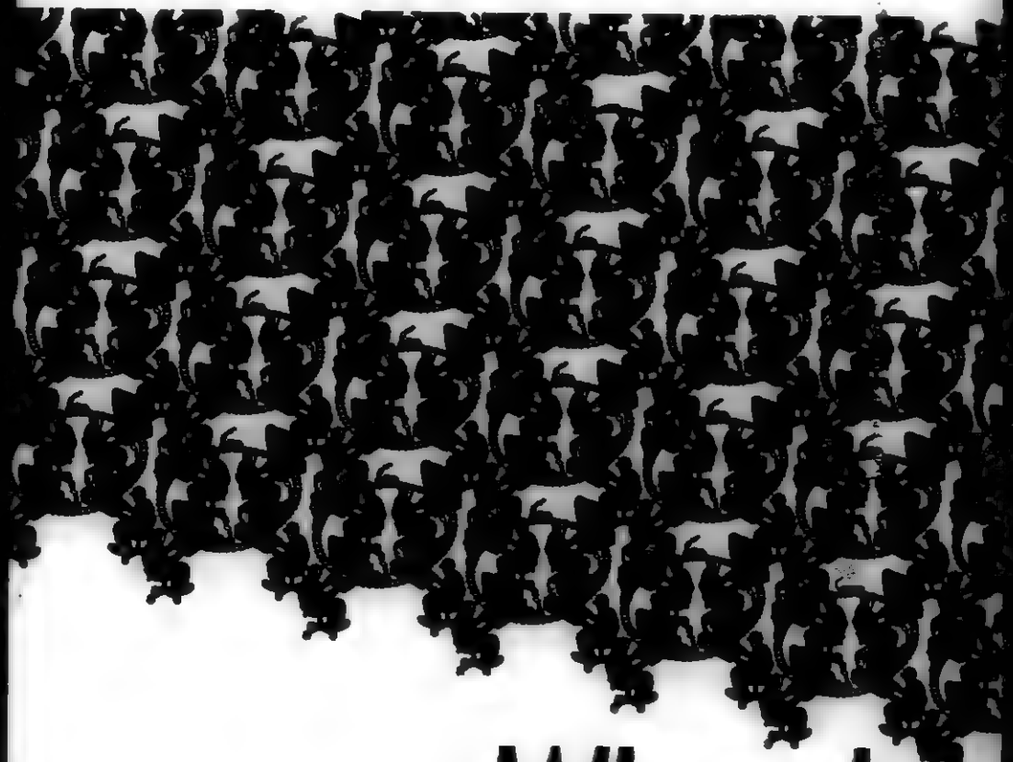
Rather than dump a ton of money into a big box for a mission-critical data center, buying a bunch of Intel servers and coupling them to a SAN could be just as effective as a Unix setup, at much lower cost.

Another trend is new clustering and shared data storage software that goes beyond the availability layer to the file system level so all servers can see and share data. The software arbitrates who reads and writes data to disk at what time, and concurrent processing of data means more for your hardware dollar.

Also, consider the flexibility that clustering brings. When infrastructure has to grow, you can connect the new server to the SAN and add clustering software to that node. Applications don't need to change, and the IT learning curve for moving from Unix to Linux shouldn't be too arduous.

Perhaps some of the savings could go to IT staff bonuses.

Your Enterprise Monday 10:32 A.M



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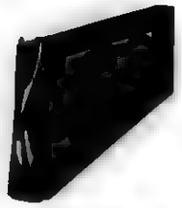

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SPECIAL REPORT

06.09.03

Layoff Survivors
When Allmerica CIO Greg Tranter (far right) got the news that he had to cut his IT budget, he immediately told his staff. "Our employees expect that we will tell them what we know when we know it," he says. **Page 26**

Sweet Success
The IT staffers at No. 1-ranked Hershey Foods Corp. are like kids in a candy shop, working at a company considered an American icon and getting their hands sticky on some 120 IT projects under way. **Page 28**

feels good about their jobs," says Caraustar's Donald F. Newsom (center) with Alison Broadway and Sheila Voyles. ANN STATES

100 Best Places to Work in IT

Even when times are hard and money is tight, these employers do their best to keep their IT workers focused and challenged and to give them a reason to be proud.

By Steve Ulfelder

IF YOU WORK in IT these days, you don't need anyone to tell you that times are tough. You might have watched as colleagues packed their cubicles and headed to the unemployment office. You probably haven't gotten a promotion or a decent raise in a while. And morale in your department has likely shrunk right along with the IT budget.

Although it may look bleak where you are, not all of your IT brethren are singing the blues. Some employers are bucking the negative trends. They're finding ways to give their IT workers the pay, training and technology projects they crave.

At Caraustar Industries Inc., which ranked No. 13 on this year's Best Places to Work in IT list, staffers are reveling in the family-friendly flextime. Instead of going to offshore outsourcers, cool technology projects at No. 17 Ford Motor Co. are staying in the hands of the Dearborn, Mich.-based IT staff.

Computerworld's search to find these top companies began six months ago with a call for nominations. Surveyed companies earned points for great training options, benefits and pay, but this year, it was the employees

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT 2003

who got the final word. More than half of a company's score came from a survey of its IT employees and what those employees said is important to them in their jobs. The 100 Best Places are listed on the following pages (for a detailed look at our methodology, see page 36).

These companies start with the standard fare that IT employees used to take for granted — competitive pay, health insurance and sufficient vacation time. According to our survey of more than 11,500 employees at these winning companies, those basics are very much appreciated in today's economy (see chart at right). But what separates the good employers from the great ones?

Interviews with IT workers of all stripes — from help desk technicians to CIOs — indicate that in a down economy, the 100 Best Places earn the honor by using modern technologies that offer challenges, ensuring that employees get the training they need to meet those challenges, bending to accommodate family and personal needs, and tying all of them together with pride in the work of not only IT, but also the business as a whole.

Flare for Flexibility

"This company is just so family-flexible," says Kaci Turner of her employer, Caraustar, a cardboard-packaging company with 2002 revenue of $950 million. "On the one hand, I want to say they're strict because they sure expect you to do your job. But when you show you can do it, they'll do anything to accommodate your family needs," says Turner, a systems operator and help desk technician at the Austell, Ga.-based company.

As our survey of IT workers at these Best Places indicates, flexible work hours and telecommuting programs are prized by staffs. Said one IT worker, "I'm given the flexibility with my work schedule that helps me stay balanced between home and work. I don't feel that I have to choose to be a mother or an employee. I'm empowered and able to accomplish both."

"IT people are working their butts off," says Tim Talbot, CIO at PHH Arval (No. 14), a fleet-leasing company based in Hunt Valley, Md. "You've got to support that any way you can." PHH Arval uses work-at-home products from Avaya Inc. and a virtual private network from Cisco Systems Inc. to let IT staffers telecommute full time or on an ad hoc basis.

Wal-Mart Stores Inc. CIO Linda Dillman agrees with Talbot. "IT people here know that sometimes the hours aren't 8 to 5," she says of the Bentonville, Ark., retail giant, which came in at No. 15. "In turn, we need to be flexible." Dillman says the bulk of Wal-Mart's telecommuting and flexible scheduling is done informally, allowing managers and workers to create sensible arrangements.

Most Desirable Benefits

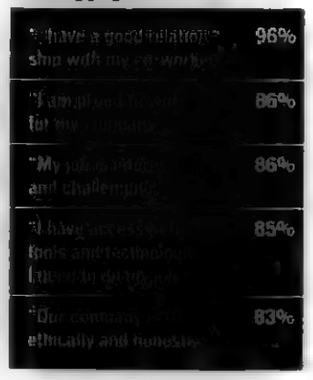
Our survey asked IT workers to rank the importance of various benefits on a scale of 1 to 10, with 1 being "not at all important" and 10 being "extremely important." Here are some notable findings from both ends of the spectrum:

Percentage who gave benefit a 10:

Pride & Ethics

IT workers were asked to state their level of agreement with a series of statements on a scale of 1 to 5, with 1 indicating "strongly disagree" and 5 being "strongly agree." IT workers in Top 100 companies get along with their colleagues and take pride in their employers' work and ethics – notable characteristics in a corporate America that has taken some public-relations beatings in the past few years.

Percentage who agreed or strongly agreed:



Loving Learning

Education and training are crucial to technologists, and that importance was reflected in the survey. "[My employer] provides significant opportunity for advancement and emphasizes everyone being a leader with a top-down commitment to leadership training," one survey respondent said.

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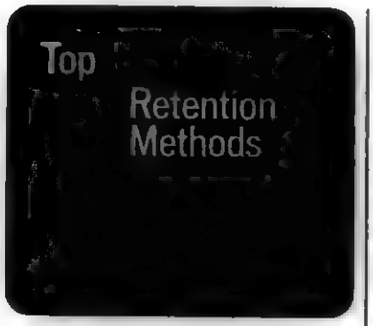

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SOURCE: 2003 BEST PLACES TO WORK COMPANY SURVEYS

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT 2003

who got the final word. More than half of a company's score came from a survey of its IT employees and what those employees said is important to them in their jobs. The 100 Best Places are listed on the following pages (for a detailed look at our methodology, see page 36).

These companies start with the standard fare that IT employees used to take for granted — competitive pay, health insurance and sufficient vacation time. According to our survey of more than 11,500 employees at these winning companies, those basics are very much appreciated in today's economy (see chart at right). But what separates the good employers from the great ones?

Interviews with IT workers of all stripes — from help desk technicians to CIOs — indicate that in a down economy, the 100 Best Places earn the honor by using modern technologies that offer challenges, ensuring that employees get the training they need to meet those challenges, bending to accommodate family and personal needs, and tying all of them together with pride in the work of not only IT, but also the business as a whole.

Flare for Flexibility

"This company is just so family-flexible," says Kaci Turner of her employer, Caraustar, a cardboard-packaging company with 2002 revenue of $950 million. "On the one hand, I want to say they're strict because they sure expect you to do your job. But when you show you can do it, they'll do anything to accommodate your family needs," says Turner, a systems operator and help desk technician at the Austell, Ga.-based company.

As our survey of IT workers at these Best Places indicates, flexible work hours and telecommuting programs are prized by staffs. Said one IT worker, "I'm given the flexibility with my work schedule that helps me stay balanced between home and work. I don't feel that I have to choose to be a mother or an employee. I'm empowered and able to accomplish both."

"IT people are working their butts off," says Tim Talbot, CIO at PHH Arval (No. 14), a fleet-leasing company based in Hunt Valley, Md. "You've got to support that any way you can." PHH Arval uses work-at-home products from Avaya Inc. and a virtual private network from Cisco Systems Inc. to let IT staffers telecommute full time or on an ad hoc basis.

Wal-Mart Stores Inc. CIO Linda Dillman agrees with Talbot. "IT people here know that sometimes the hours aren't 8 to 5," she says of the Bentonville, Ark., retail giant, which came in at No. 15. "In turn, we need to be flexible." Dillman says the bulk of Wal-Mart's telecommuting and flexible scheduling is done informally, allowing managers and workers to create sensible arrangements.

Most Desirable Benefits

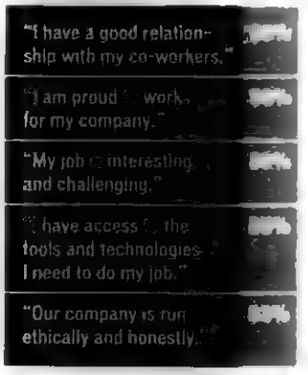
Our survey asked IT workers to rank the importance of various benefits on a scale of 1 to 10, with 1 being "not at all important" and 10 being "extremely important." Here are some notable findings from both ends of the spectrum:

Percentage who gave benefit a 10:

Pride & Ethics

IT workers were asked to state their level of agreement with a series of statements on a scale of 1 to 5, with 1 indicating "strongly disagree" and 5 being "strongly agree." IT workers in Top 100 companies get along with their colleagues and take pride in their employers' work and ethics – notable characteristics in a corporate America that has taken some public-relations beatings in the past few years.

Percentage who agreed or strongly agreed:



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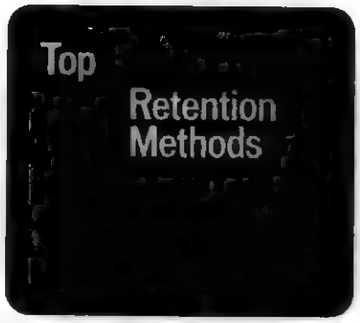

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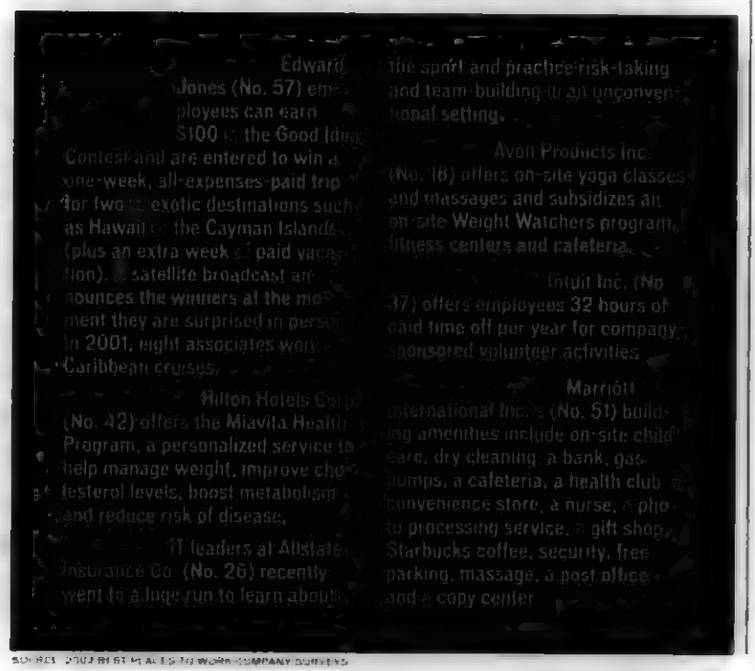

Edward Jones (No. 57) employees can earn $100 in the Good Idea Contest and are entered to win a one-week, all-expenses-paid trip for two to exotic destinations such as Hawaii or the Cayman Islands (plus an extra week of paid vacation). A satellite broadcast announces the winners at the moment they are surprised in person. In 2001, eight associates won Caribbean cruises.

Hilton Hotels Corp. (No. 42) offers the Miavita Health Program, a personalized service to help manage weight, improve cholesterol levels, boost metabolism and reduce risk of disease.

IT leaders at Allstate Insurance Co. (No. 26) recently went to a luge run to learn about the sport and practice risk-taking and team-building in an unconventional setting.

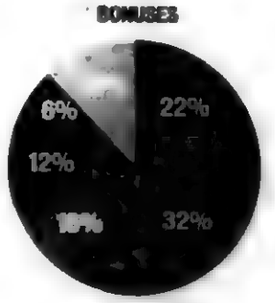
Avon Products Inc. (No. 18) offers on-site yoga classes and massages and subsidizes an on-site Weight Watchers program, fitness centers and cafeteria.

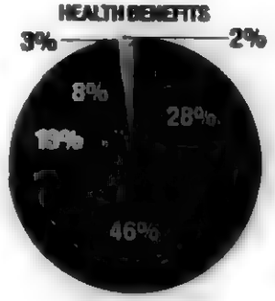
Intuit Inc. (No. 37) offers employees 32 hours of paid time off per year for company-sponsored volunteer activities.

Marriott International Inc.'s (No. 51) building amenities include on-site child care, dry cleaning, a bank, gas pumps, a cafeteria, a health club, a convenience store, a nurse, a photo processing service, a gift shop, Starbucks coffee, security, free parking, massage, a post office and a copy center.

SOURCE: 2003 BEST PLACES TO WORK COMPANY SURVEYS

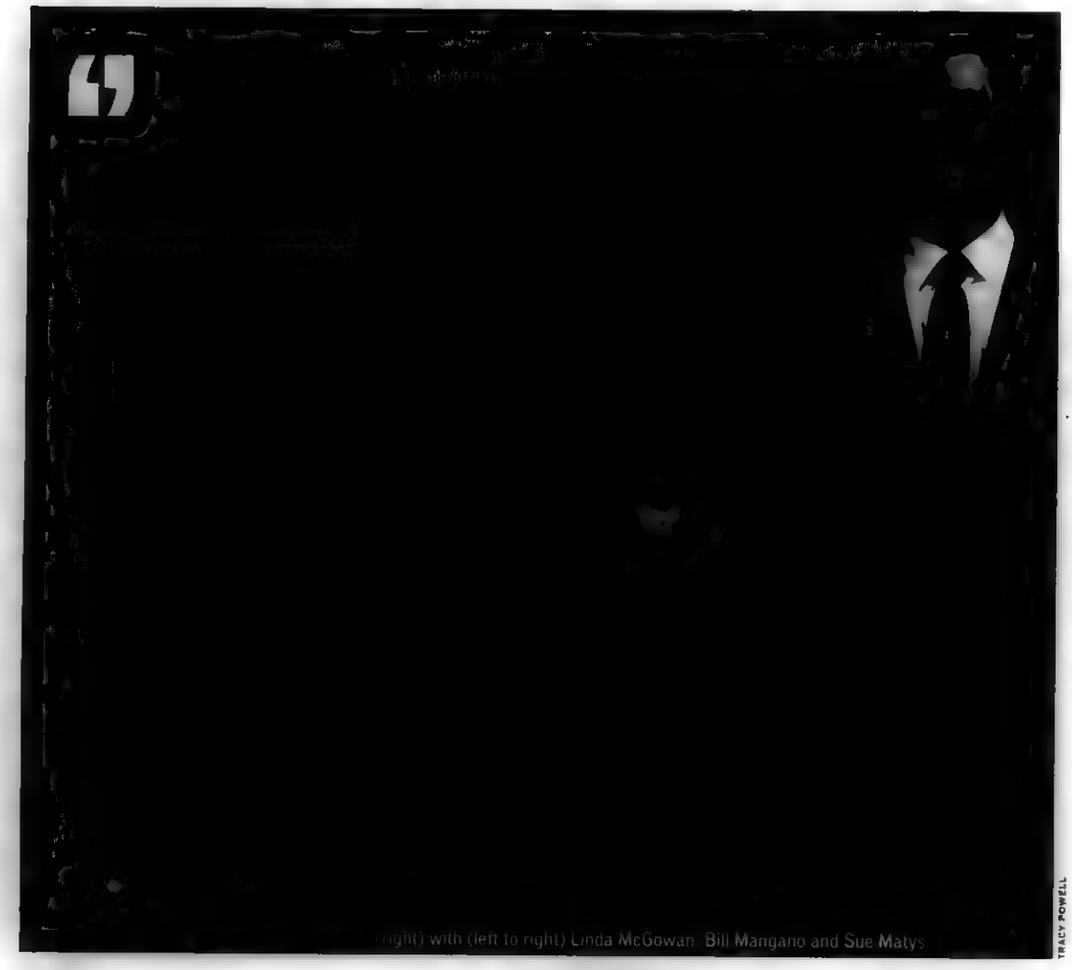
Are you satisfied with your . . . ?





■ Very satisfied
■ Satisfied
■ Neither satisfied nor dissatisfied
■ Dissatisfied
■ Very dissatisfied
Not applicable

SOURCE: 2003 BEST PLACES TO WORK EMPLOYEE SURVEYS, OVERALL BASE OF 11,384 EMPLOYEES FROM THE 100 COMPANIES



right) with (left to right) Linda McGowan, Bill Mangano and Sue Matys

TRACY POWELL

Layoff Survivors

Few IT departments came through the past year unscathed by layoffs, and our Best Places were no exception. How did these top companies ease the pain of downsizing? Communication tops the list. By Kathleen Melymuka

EARLY IN DECEMBER 2002, Allmerica Financial Corp. CIO Greg Tranter stood before his assembled IT team of about 500 and announced the news all CIOs dread: Despite intensive cost-cutting and the layoffs of 42 colleagues the year before, 65 more IT people would be laid off that day.

As he ended the meeting, his people applauded.

Why would employees applaud such devastating news? To support a leader they thought had done all he could to play straight with them and mitigate the coming pain. "They were grateful that everything had been attempted to minimize the layoffs," says software assurance manager Art Nawrocki. "They felt there had been honest and open communication."

Our annual Best Places to Work issue typically celebrates the good news about life in IT: great projects, training, salaries and advancement. But last year, 28 of our Best Places experienced IT layoffs, and since adversity can bring out the best in great companies, we decided to look at how they helped their people through bad times.

Lay a Foundation

Managing well in hard times has everything to do with how you handle things before you have to deliver the bad news, says Dick Fishburn, vice president and CIO at Corning Inc. (No. 85), which laid off 550 of 1,200 worldwide IT employees last year. "You don't start preparing for something like this when you're faced with taking the action," he says. "It starts with open communications when times are going well about the status of the company and how that will affect the IT organization."

At the Corning, N.Y.-based company, a sharp downturn in telecommunications-related businesses foreshadowed trouble for IT. "As we began to see very sharp revenue impacts in the company, we began to communicate with people in the IT organization," Fishburn says. "You tell everybody everything you know as soon as you know it so that when you say something, people don't second-guess you."

"We were well attuned to the downturn, and we expected an impact," says Molly Rumbarger, Corning's manager of corporate/enterprise applications. "Dick and his staff have always been really open. If he knows, he's very upfront and honest."

When Tranter got the news that he had to cut $20 million from the IT bud-

get at Allmerica (No. 78), he immediately told his entire organization. "Our employees expect that we will tell them what we know when we know it," he says. "We said we would attempt to find strategies to lessen the impact but there were no guarantees."

Bill Mangano, director of client technology services at Worcester, Mass.-based Allmerica, says IT employees appreciated Tranter's candor. "It made them nervous, sure, because they could do the numbers and they figured we might have to do layoffs, but they were glad to hear it upfront rather than behind the scenes," he says.

Mitigate the Damage

The Allmerica management team slashed spending in every category from capital expenditures to travel. They left positions unfilled and brought contracted work back in-house. Employees were kept in the loop through an "Ask the CIO" Web site as well as numerous all-IT meetings. "It was like a fund-raising campaign," Tranter says, "but instead of 'How much have you raised?' it was 'How much have we saved so far?' "

IT people wanted to help, so management offered part-time work and encouraged them to take unpaid furloughs. About 75% did. Allmerica outsourced 114 positions and transferred an additional 25 people to the outsourcer to be placed in other jobs. Allmerica also transferred more than 20 IT people to the business side.

At Corning, while divisions like fiber optics were laying off IT workers, others, like environmental sciences, were still hiring. So Fishburn's staff searched the company for openings. If a person couldn't relocate, he was sometimes able to virtually join a team located elsewhere. (One person on Fishburn's staff lives in Wales.)

MetLife Inc. (No. 100) in New York, which had to lay off 168 of its 4,066 IT workers last year, came up with the novel idea of trial jobs for relocated workers. IT people who could be placed in the business were offered a six-month trial in a new location. "If they liked it, we'd move them," says Donna Mazzola, vice president of human resources.

When Allmerica ran out of options with $6.5 million in cuts still to go, Tranter met with the business people to reorder priorities. "We didn't want to slice 10% off our workforce and still have 100% of the work," he says. "We worked extensively with them so work would go away as people went away. I won't say there was no added work, but we tried to minimize it."

Corning's Fishburn agrees. "There are times when you have to lay people off without the work going away, but our philosophy is to get rid of the work," he says.

How to Ease the Pain

BE HONEST. Tell the truth, as soon as you know it.

COMMUNICATE. Keep everyone informed throughout the process.

INCLUDE. Let people help; solicit their ideas.

MITIGATE. Do everything possible to lessen the number of layoffs.

SHARE THE PAIN. Lay off at all levels.

PRIORITIZE. Make some of the work go away.

NOTIFY. Tell everyone exactly when and how the layoffs will be communicated.

HELP. Do whatever you can to assist those laid off in finding new jobs.

FINISH. Tell everyone once the layoffs have happened.

GRIEVE. Don't go back to business as usual. Give people time to vent.

MOVE ON. After a time, refocus on the work to be done and challenges ahead.

Face the Music

The task of choosing those to be laid off at Corning started with senior managers at the sites where employees were being laid off. They drew up preliminary lists, and other managers reviewed them, adding and deleting names based on performance nuances. Finally, an independent corporate diversity panel assured that no group would be disproportionately affected. The multiple reviews eliminated any chance that layoffs were related to personality issues, Fishburn says.

The evening before the layoff announcements at Allmerica, Tranter called the management team together to hear who would be laid off and prepare for questions people might ask. "Greg set the tone," says Nawrocki. "He had to lay off some of his leadership. The pain was shared."

The next day, Tranter called the departmentwide meeting, announced the bad news, explained what would happen throughout the day and took questions. Afterward, every person met with his direct manager. Those who were retained were told whether their role, responsibilities or manager would change. Those who were laid off met with a human resources person about the severance plan and placement services. Outplacement and other employee services were available on site.

Corning took a creative approach to outplacement services. In good times, there had been on-site recruiters for the growing telecom-related businesses. When the layoffs came, the recruiters morphed into outplacement advisers.

At Allmerica, a group of people who had been laid off thanked Tranter for the way he had handled things. "They were prepared," Mangano says. "They understood the situation and felt they had been treated with respect."

Linda McGowan, strategic measurement consultant at Allmerica, says she saw one laid-off employee advising colleagues on how to complete his work. "He said, 'If you need help, give me a call. Don't worry about it,' " McGowan recalls.

Many employees at Corning seemed more concerned for their supervisors than for themselves, says Karen Madison, IT human resources manager. "I heard them say, 'I know this is hard on you. Are you going to be OK?' "

When the layoffs were done at Allmerica, Tranter told everyone via e-mail. "In some layoffs, you wonder when it will ever end," McGowan says. "We had a clear understanding of what was happening, why, how and when it was over."

Allow the Dust to Settle

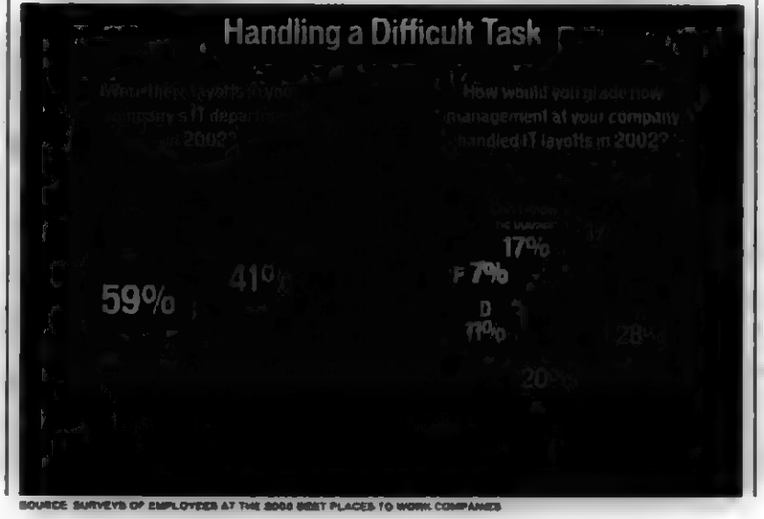
In the days immediately following, Tranter made sure there were no formal meetings so all managers could be available in their offices. "We also did quite a bit of management by walking around," he says. "We encouraged management to bring groups together and talk things through and let people open up and vent if they needed to."

About a week later, he called everyone together again. He told them it had been difficult but it was over and it was time to talk about the future. "Greg said there are no guarantees anywhere, but we had a lot of work to do and we had to move on," Nawrocki recalls. "There is no security. You have to be resigned to that, but you don't dwell on it."

"We have some really neat strategic stuff that has been able to energize employees," Tranter says. "Business is still investing in some really good technology, and employees see that there is a future here."

Fishburn cautions that getting back on track after layoffs is tricky, because if you try to focus on the future before the worst is over, you can destroy your credibility. "There's a certain 'clutch and accelerator' aspect of communication," he says, and you don't want to start revving up until you're sure the layoffs are done. "You get only one chance to refocus on the future," he says, "so that's a timing issue you need to think about and work your way through."

Layoffs are always painful, but people survive when they're approached with honesty and respect. "People here were prepared," says Sue Matys, HR relationship manager for IT at Allmerica, "and that made the difference."



SOURCE: SURVEYS OF EMPLOYEES AT THE 2003 BEST PLACES TO WORK COMPANIES

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The task of choosing those to be laid off at Corning started with senior managers at the sites where employees were being laid off. They drew up preliminary lists, and other managers reviewed them, adding and deleting names based on performance nuances. Finally, an independent corporate diversity panel assured that no group would be disproportionately affected. The multiple reviews eliminated any chance that layoffs were related to personality issues, Fishburn says.

The evening before the layoff announcements at Allmerica, Tranter called the management team together to hear who would be laid off and prepare for questions people might ask. "Greg set the tone," says Nawrocki. "He had to lay off some of his leadership. The pain was shared."

The next day, Tranter called the departmentwide meeting, announced the bad news, explained what would happen throughout the day and took questions. Afterward, every person met with his direct manager. Those who were retained were told whether their role, responsibilities or manager would change. Those who were laid off met with a human resources person about the severance plan and placement services. Outplacement and other employee services were available on site.

Corning took a creative approach to outplacement services. In good times, there had been on-site recruiters for the growing telecom-related businesses. When the layoffs came, the recruiters morphed into outplacement advisers.

At Allmerica, a group of people who had been laid off thanked Tranter for the way he had handled things. "They were prepared," Mangano says. "They understood the situation and felt they had been treated with respect."

Linda McGowan, strategic measurement consultant at Allmerica, says she saw one laid-off employee advising colleagues on how to complete his work. "He said, 'If you need help, give me a call. Don't worry about it.' " McGowan recalls.

Many employees at Corning seemed more concerned for their supervisors than for themselves, says Karen Madison, IT human resources manager. "I heard them say, 'I know this is hard on you. Are you going to be OK?' "

When the layoffs were done at Allmerica, Tranter told everyone via e-mail. "In some layoffs, you wonder when it will ever end," McGowan says. "We had a clear understanding of what was happening, why, how and when it was over."

Allow the Dust to Settle

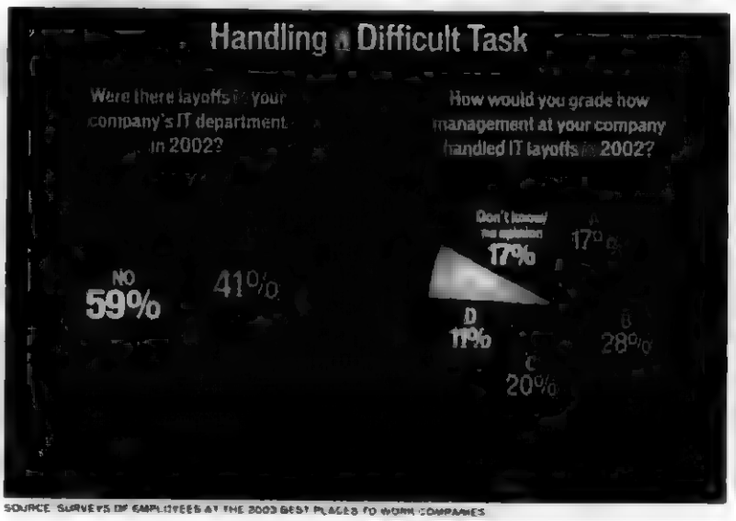
In the days immediately following, Tranter made sure there were no formal meetings so all managers could be available in their offices. "We also did quite a bit of management by walking around," he says. "We encouraged management to bring groups together and talk things through and let people open up and vent if they needed to."

About a week later, he called everyone together again. He told them it had been difficult but it was over and it was time to talk about the future. "Greg said there are no guarantees anywhere, but we had a lot of work to do and we had to move on," Nawrocki recalls. "There is no security. You have to be resigned to that, but you don't dwell on it."

"We have some really neat strategic stuff that has been able to energize employees," Tranter says. "Business is still investing in some really good technology, and employees see that there is a future here."

Fishburn cautions that getting back on track after layoffs is tricky, because if you try to focus on the future before the worst is over, you can destroy your credibility. "There's a certain 'clutch and accelerator' aspect of communication," he says, and you don't want to start revving up until you're sure the layoffs are done. "You get only one chance to refocus on the future," he says, "so that's a timing issue you need to think about and work your way through."

Layoffs are always painful, but people survive when they're approached with honesty and respect. "People here were prepared," says Sue Matys, HR relationship manager for IT at Allmerica, "and that made the difference."



SOURCE: SURVEYS OF EMPLOYEES AT THE 2003 BEST PLACES TO WORK COMPANIES

Melymuka is a freelance writer in Duxbury, Mass. Contact her at kmelymuka@yahoo.com.

COMPUTERWORLD

100

BEST PLACES

TO WORK IN IT 2003

GIORGIO PALMISANO

Cream of the Crop

These top-ranked companies give their IT employees access to cutting-edge technology projects and above-average benefits. Read how their unique approaches to management make employees happy to come to work.

Sweet Success

IT staffers are like kids in a candy shop, working at a company considered an American icon and getting their hands sticky on some 120 new IT projects. By Gary H. Anthes

HALLOWEEN IS A BIG DEAL at candy maker Hershey Foods Corp., and employees take their annual party and costume contest pretty seriously. So Connie Porzucek, manager of Hershey's information-systems project office, wanted to come up with a costume that was really scary. "So I got a grim reaper costume and put a sign on it calling myself 'A Scope Creep,' " she says.

By all accounts, it's a lot of fun to work at the $1.2 billion chocolate company, based in Hershey, Pa. "I tell people I work at Hershey, and it brings a smile to their faces," Porzucek says. "It makes you feel good to work for a company that you can be proud of."

WHAT'S NEW: There are currently 120 IT projects under way at Hershey. A recently completed extranet allows customers, such as retail store chains, to check order status online.

Another recent project, sponsored by the CEO, has replaced paper and pencils with handheld devices that salespeople can use to record in-store inventories and then dial in and upload them to a corporate database.

Hershey has also built a storage-area network that consolidated disk storage at a number of remote sites and brought servers into the central data center on a high-availability cluster. "It's state-of-the art technology, and we were able to give users additional disk space," says Beth Klahre, director of operations and infrastructure services.

That pace of technology innovation keeps things interesting for Hershey's IT staff. "From a techie standpoint, you never get stale," says Ed Gerhart, a group leader for client support.

WHAT'S WORKING: While all employees can take pride in making something everyone knows and loves — Hershey's Kisses, Almond Joys, 5th Avenue bars and more — there are specific reasons why people in the IT shop like working there enough to keep the annual turnover rate below 2%. They say the company is large enough to provide its staff with ample resources to pursue leading-edge technologies, but it somehow has also managed to maintain the friendly, informal atmosphere that prevailed under founder Milton Hershey in the early 20th century.

"We are very much like a small company with the resources of a big company," says George Spanos, director of applications.

Hershey has a relatively homogeneous and up-to-date client/server infrastructure whose key components are Sun Solaris servers and Oracle databases running business applications from SAP AG, Siebel Systems Inc. and Manugistics Inc. That modern architecture works to the advantage of the IT staff, says Spanos.

"We run 95% of our business through one set of systems," Spanos says. "That allows us to focus on extending value off of those rather than always having to go fix all those problems with 20 different platforms and a bunch of legacy systems. We have gotten a lot of the standardization and cleanup out of the way."

WHAT'S CHALLENGING: "The biggest challenge is budget constraints," says Valerie Fellenbaum, manager of client technologies infrastructure. "We are in a very conservative mode right now with the economy the way it is."

WHAT'S UNIQUE: "[Hershey has] done a really good job of incorporating into their culture a vision: 'We're a candy company,' " says Linda Pittenger, president of People^3, a Gartner Inc. company in Bridgewater, N.J. "In our research, one of the top three factors why people are coming and staying at companies today is the vision and the reputation of the company."

"Hershey is an American icon," says Fellenbaum. "You tell people you work for Hershey and you get this, 'Oh, really!' It's associated with quality and pride, the legacy of Milton Hershey."

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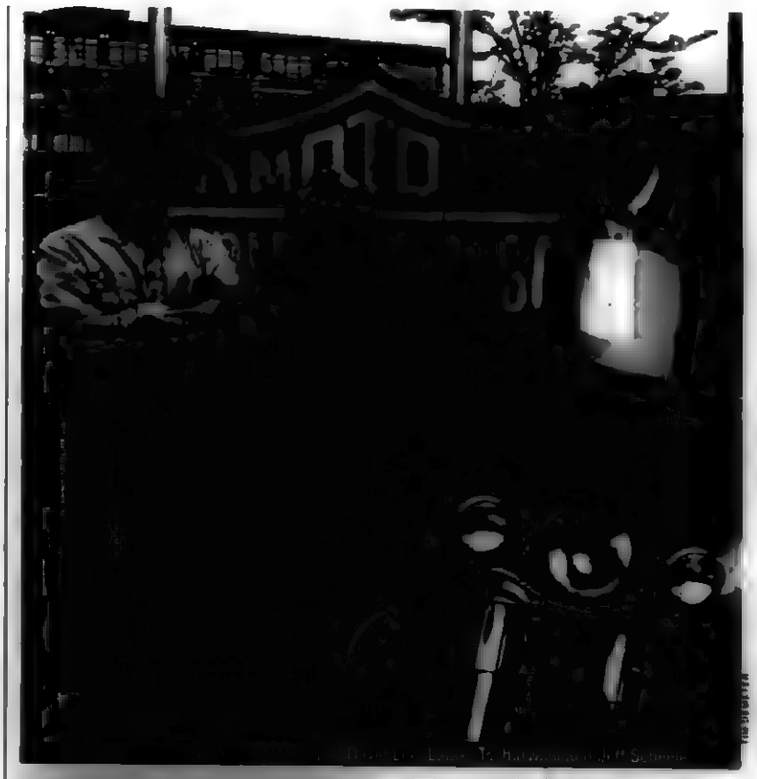

The Cool Factor

IT staffers are as hooked on Harleys as the company's customers: Leather and jeans are the unofficial dress code, and almost everyone rides a motorcycle to work. And the technology projects are as cool as the bikes. By Linda Rosencrance

IN 1903, in a Milwaukee factory that was no more than a wooden shack with the name *Harley-Davidson Motor Co.* scrawled on the door, 21-year-old William S. Harley and 20-year-old Arthur Davidson built their first motorcycle for the public, a racing model with a 3 1/8-in. bore and a 3 1/2-in. stroke.

That year, the fledgling company produced a total of three motorcycles.

Although the company's beginnings were modest, 100 years later Harley-Davidson Inc. is about as cool as it comes. The company has a loyal following of bike enthusiasts, and in 2002, it produced 263,653 motorcycles at its nine facilities. This year, it expects to build 289,000.

Harley-Davidson's IT team members are loyal, too, when talking about their department and what they say is the best company in the U.S.

WHAT'S NEW: In the past year, the IT department has been working on several new projects, including one that allows potential buyers to customize their dream bikes. "Many of our new projects have leveraged the Web to meet our business requirements," says David Lee, a senior project manager.

Lee says one such project involved using Web-based technologies such as Java to build an application that allows customers to view used motorcycles that are available for sale at dealerships through the corporate Web site.

"The application will say, 'OK, these are your options, and this is how soon you can get it,' " Lee says. "In the past, they'd have to call the dealers, and

Continued on page 32

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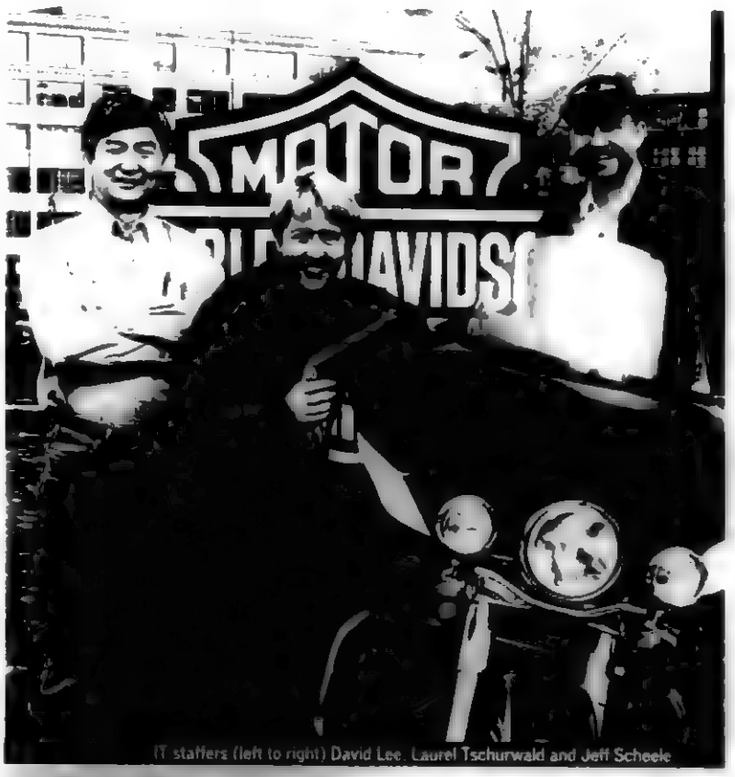

IT staffers (left to right) David Lee, Laurel Tschurwald and Jeff Scheele

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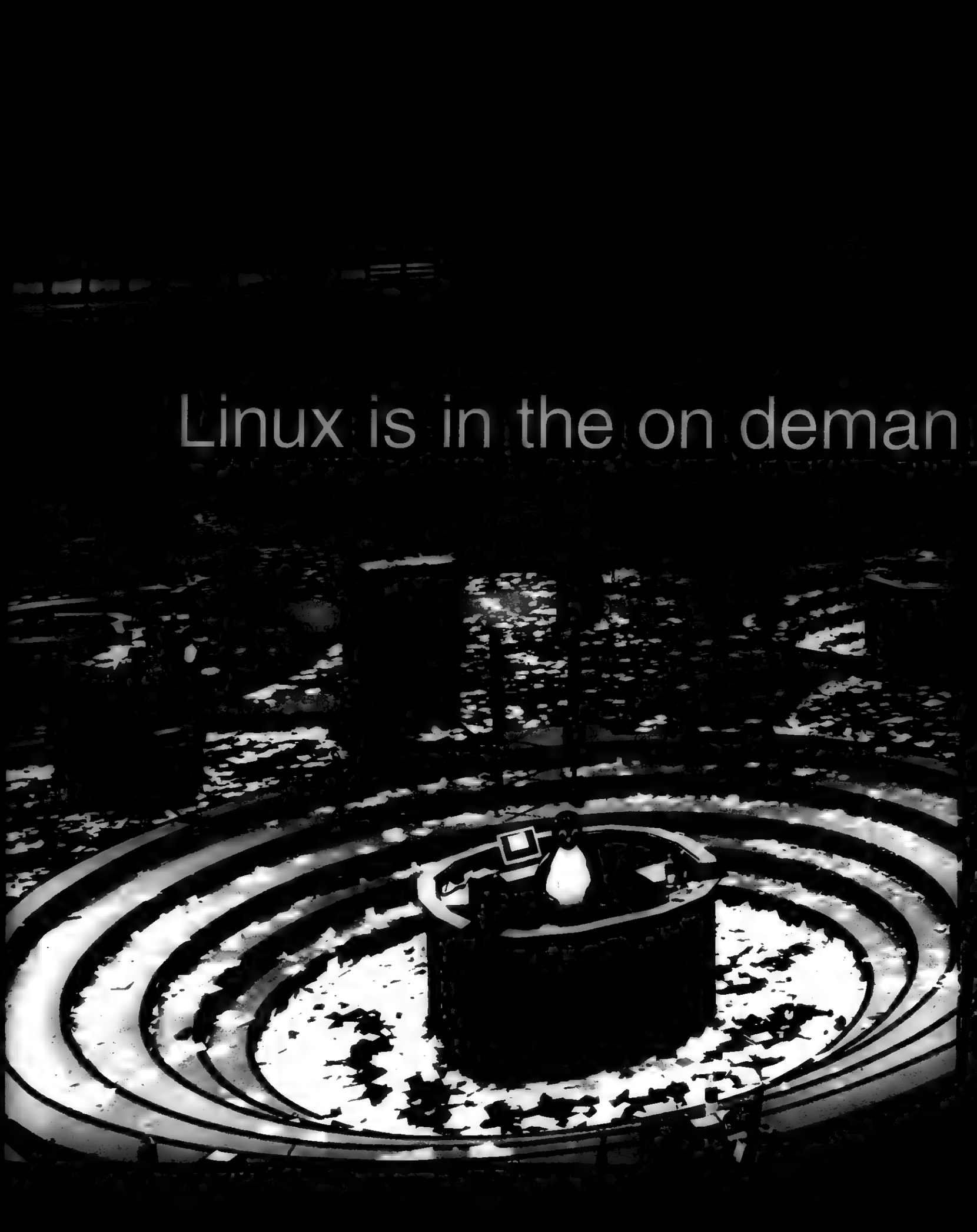
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100 BEST PLACES TO WORK IN IT 2002 — 100 BEST COMPANIES FOR WORKING MOTHERS 2002 — INFORMATIONWEEK 500 2002

Continued from page 29

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Laurel Tschurwald, information services director for applications, says more than 80 projects were in application development last year — and each one was strictly aligned with the company's business goals.

Jeff Scheele, senior systems manager, agrees. "The emphasis has shifted to application integration and data analysis," he says. "Our operational and transactional systems are pretty solid. So now the attention has shifted to sharing that information with the business and looking at it for business-decision purposes and analyzing it, so we are doing a lot of projects with data warehousing technology."

STAFFING PICTURE: Unlike most other companies, Harley-Davidson hasn't suffered from the downturn in the economy. In fact, the motorcycle manufacturer has experienced significant growth over the past several years, Lee says.

"Last year, the IS department — which has about 257 employees — had 39 new hires and 20 promotions," he says. "And in the first quarter of 2003, we had six new hires and six promotions."

And when Harley-Davidson has openings in the IT department, managers work with the human resources department to make sure they get a diverse candidate pool, says Jim Nejedlo, senior systems manager.

WHAT'S WORKING: The company keeps workers challenged by asking them "to provide the technology solutions for the business challenges or problems," says Gary Branger, network support lead. "That keeps you on your toes."

Branger says the company also expects the IT staff to schedule training in new technologies. "The company expects you to take the training you need to support the existing environment and the [projects] that are coming up," he says.

WHAT'S CHALLENGING: Nejedlo says keeping up with the business is a challenge for the department.

"We've been [experiencing] double-digit growth for the last 17 years, and the future looks similar," he says. "So with a business that's growing, it's a challenge for the IS organization to keep up with it. Not only are we a growing organization, but the technology continues to mature and change and grow, and it's a double whammy for us to keep up with a growing company and with all the technology."

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Academic Appeal

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You'll have to forgive Lew Temares if he appears to be a little overexcited. It's normal for the vice president of information management at the University of Miami to be animated and high-octane.

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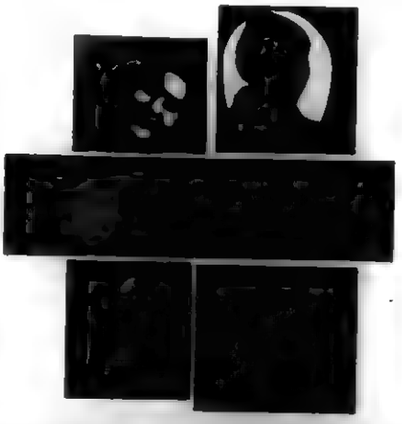

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100 BEST PLACES TO WORK IN IT

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aged to regularly attend industry conferences, they can work flex hours, and they're part of a culture that fosters upward mobility.

WHAT'S NEW: IT staffers get plenty of access to cutting-edge technology. For instance, the university continues to expand its wireless network cloud by adding remote connectivity to its library and classrooms, says Temares. The wireless network currently covers 90% of the campus, and there are plans to extend the network to the university's medical school, he says.

In addition, the university is in the early stages of exploring a telehealth partnership with Spanish telecommunications company Telefonica de Espana SA to provide distance-learning and physician consulting services to doctors and clinics in Latin America.

Meanwhile, the university's IT department is keeping busy with Web projects, including extending online research capabilities to the university's medical school students, he says.

STAFFING PICTURE: Temares is big on promoting people from within. Although he's currently looking outside to bring in a mix of seven Java developers and project managers to augment his 35-person application development staff, that's primarily because the university's 225-person IT department is stretched thin on those skills.

"I have some staff who run IT projects, but as we get more and more projects to do, it's hard to find people with project management experience," he says. "We haven't gone outside for higher-level people; we've always gone inside. But sometimes, if demand is strong and you need additional skills, you have to look outside."

Temares' people-focused approach can be traced back to the early 1990s, when university officials were looking to trim costs "and I declared that I would not get rid of any people," he says. "If they're good enough to be with me when times are good, then we can ride it out together when times are tough."

WHAT'S WORKING: The "people first" culture brought Tim Ramsay back to the university's IT department two years ago when he became assistant vice president in charge of the school's telecommunications, data center and security efforts.

Ramsay joined the university 13 years ago in an administrative position within the IT organization. But after he earned his MBA in 1992, he was given a chance to become director of business services at the university, which included overseeing a staff of 250.

During that time, Ramsay drew on his technological acumen, most notably during an effort aimed at automating paper-based processes at the university, ranging from key-card reconciliations to journal entries. That project "brought me a lot of attention and brought me into closer contact with our programming staff," he says.

WHAT'S CHALLENGING: "When you work with vendors in the IT community, your staff has a window on what they're worth," says Ramsay. "Day in, day out, when your best people are interfacing with the Ciscos, Nortels, IBMs and CAs of the world, you're challenged to continue to find ways to keep your staff feeling good about what they're contributing and what they're doing at the university."

WHAT'S UNIQUE: "I like the opportunity to have a hand in the strategy here," says Ramsay, who now manages a staff of 95. He also likes the diverse culture, where IT staffers hail from places such as China and Sri Lanka. "I'm from St. Joseph, Mo., which is about as Midwest as you can get if you throw a dart at a map of the U.S.," he says.

Overall, says Ramsay, the University of Miami's IT department is a great place to work. "You see people getting 35-year, 45-year, even 49-year awards for their length of service here," he says. "It's not hard to fall in love with the university."

ROUNDING OUT THE TOP FIVE

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COMPUTERWORLD The Best Places to Work in IT Worldwide 2002

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IT managers look steps to reduce the time that staffers spend commuting, says service activation manager Kevin DeMichele

Balancing Act

Achieving harmony in work and personal time isn't a feat that IT workers can accomplish alone. These Best Places make it a team effort of managers and staff.

By Jean Consilvio

THE IT PROFESSION earned a reputation long ago for intensive projects and on-call hours. Now, in a trying economy, demands on IT workers are increasing — not only filling up their busy workdays, but also spilling over into nonwork hours.

What sets the Best Places to Work in IT apart from many other companies is that they're giving managers the power to help IT employees find individualized alternatives for managing work and personal time.

In fact, in a *Computerworld* survey of this year's Best Places to Work employees, 71% of the 11,504 respondents said they are satisfied or very satisfied with the work/life balance options their companies offer. Flexible schedules were particularly popular with IT workers, who can easily log more than eight hours on some days and therefore want to be allowed to trim back their hours on other days. Here are some other ways Best Places are helping IT workers get more out of life.

Proactive Management

Managing talent in a way that's also productive for the company means paying attention to detail and anticipating needs. At No. 59-ranked Southern California Edison (SCE), IT managers are encouraged to look at how they can help improve employees' work lives. Implementing such a plan is even included in managers' performance reviews.

"We sat down with all our employees and asked them what causes them to spend personal time for work activities, and driving [to and from work] was huge," says Kevin DeMichele, a service activation manager in Irvine, Calif., who runs a centralized help desk 50 miles south of the main office in Rosemead. Many of his 20 employees were traveling 75 miles in 30 mph traffic each day. "We looked at how can we still provide a centralized feel to our clients but put our employees closer to home," he says.

One way to do that was to allow help desk employees to work in different offices so they could be closer to home but have one phone number that reached all of them, regardless of location. Of the five administrators who take such calls, three are in Irvine and two are now in Rosemead. SCE also provides alternative work sites that are closer to employees' homes. IT staffers can work from these locations on days they need to get home quickly.

DeMichele also set up a Central Activation Group made up of two people who handle more than 400 remote software installations every month. "We had these folks driving around to several locations, some far away, to load software on computers," he says. "We've been able to put them in offices near their homes, and they do installations remotely right from their desks."

Individual Attention

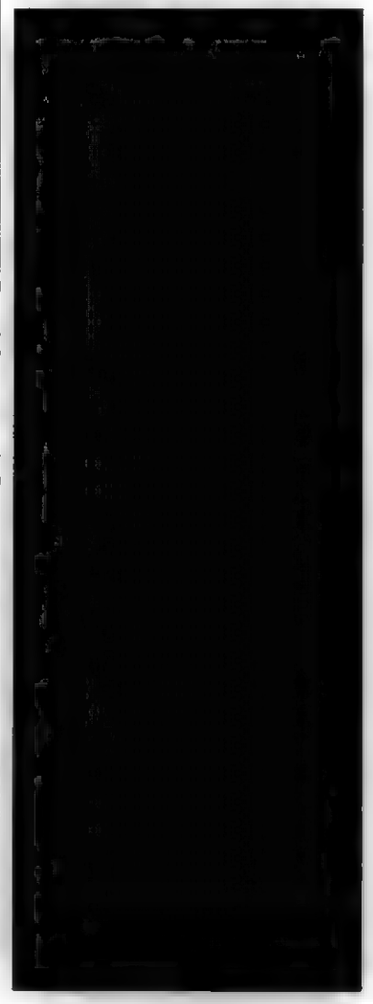
At West Group (ranked No. 80), a division of The Thomson Corp., IT workers formally apply for flexible work hours. Such an application might specify the number of work hours spent at home or in the office or the hours of a compressed workweek, which might consist of two weeks of nine-hour days with every other Friday off.

Ed Packer, manager of project services, says he also works individually with his staff to ease their schedules. Some staff are allowed to log their 40 hours earlier or later in the week, or leave work for appointments and family matters and make up that time at a later date. "People are definitely happy with that. I think they'd like to even have more of it if they could, but we have to keep in mind the business need and the coverage of the systems in our group — and what the employee's performance is like," he says.

The Eagan, Minn.-based company also allows some full-time workers to reduce their hours to part time. Karen Dippel, lead software engineer, worked 14 years as a manager at West and then switched to part time in February 2001 to spend more time with her three young children. She now works 32 hours a week spread over five days. "I was looking for a different work/life option because of the children, and they [managers] were supportive of that," she says.

Employees can transition to part-time work at SCE, too. "It's a two-way recognition — we value you, we want you to work here," says Mariette Keshishian, manager of IT training and communications.

"Implementing work/life balance has to consider the nature of the IT employee," she says. "They're awfully smart, high IQ, very committed, and they get enjoyment out of doing good work and seeing the results being used by the business."



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—Curtis Robb, Delta Air Lines CIO, Delta Technology CEO

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT 2003

How They're Chosen

FOR THE 10TH YEAR, *Computerworld* conducted a survey to identify the 100 Best Places to Work for IT professionals. In December 2002, *Computerworld* accepted nominations from U.S.-based companies. Participants were asked to provide the name and contact information of the appropriate individuals at their companies who were familiar with or had access to employment statistics and financial data, as well as benefits policies and programs for their IT departments and companies.

In January 2003, the contacts at the nominated companies received a 100-question survey asking about their organizations' average salary and bonus increases, percentage of IT staff promoted, IT staff turnover rates, training and development, and percentage of women and minorities in IT staff and management positions. In addition, information was collected on how each organization rewards outstanding performance, its retention programs and its benefits, ranging from child and elder care to flextime and reimbursement for college tuition and technology certifications.

Upon completion of the company survey, participants were e-mailed instructions on selecting a random sample of their U.S.-based full- and part-time IT staffs. All participating companies were required to obtain feedback from their employees. The responses to the employee survey went directly to a third-party research vendor.

Topics covered included satisfaction with training and development programs, base salary, bonuses, health benefits, stock/ESOP plans and work/life balance. In addition, employees were asked to rate morale in their IT departments, the importance of various benefits, and their level of agreement with a variety of statements, covering topics from career growth to management's fair and equal treatment of employees.

Nearly 12,000 IT employees responded to the employee survey from the final 100 companies selected. The nomination survey, company survey and employee survey were all conducted via the Internet. The company and employee survey portion of the research was cut off in February 2003. To qualify to complete the company survey, participating companies, both public and private, had to have 2002 revenue of $250 million or greater and employ a minimum of 100 employees.

In scoring the responses from the company and employee surveys, company results were weighted based on employees' importance ratings from the employee component. Approximately one-half of the total scoring system is based on employee responses, with the remaining half based on the survey of the companies' benefits and other programs.

This year's survey process was managed by the IDG Research team of Kathy Dineen, Michele Peoples and Jen McKean.

– Mari Keefe and Ellen Fanning

	IT EMPLOYEE PROMOTIONS	TRAINING DAYS OFFERED PER IT EMPLOYEE	
10,470	10%	5	The maker of such candy bars as Almond Joy and Mounds exports Hershey's-branded confectionery and grocery products to more than 90 countries. Hershey, located 10 minutes from the state capital and two hours from Baltimore and Philadelphia, is home to kid-friendly HersheyPark. The IT group has a turnover rate of less than 2%.
6,046	9%	15	In 1903, 21-year-old William S. Harley and 20-year-old Arthur Davidson built and offered to the public the first Harley-Davidson motorcycle. In 2002, the company recorded international shipments of more than 200,000 motorcycles. IT workers have an opportunity to train and work in cross-functional teams, in addition to enjoying the mystique of working for an American icon.
9,113	28%	7	The university's main campus is located on 260 acres in Coral Gables, a suburb just south of Miami. It annually enrolls nearly 15,000 undergraduate and graduate students from every state and more than 140 nations. Located in a culturally diverse region, its IT group represents a broad cross-section of the world. The attrition rate consistently remains under 5%.
2,525	8%	10	Founded in 1992, this storage vendor's NetApp products include specialized hardware, software and services, providing storage management for open network environments. At 9% of revenue, investment in IT translates into innovation and a challenging work environment for the IT staff. Key customers include Citicorp Securities, Lockheed, Merrill Lynch, Oracle, Texas Instruments and Yahoo.
2,193	9%	6	This eye-care benefits provider was ranked 19th on *Fortune*'s 2003 list of the "Best 100 Companies to Work For." Informal lunch meetings between the division vice president and IT employees are held twice a month. Employees participate on teams that recommend process and business changes.
44,000	13%	19	The company operates 26 casinos in 13 states under the Harrah's, Harveys, Rio and Showboat brand names. In a recent survey, IT employees' top three reasons why they like working at Harrah's were skill and career growth opportunities, Harrah's commitment to world-class IT performance, and employee rewards based on their contributions to the company's strategic goals.
6,378	13%	16	This nonprofit health system includes eight hospitals, a home health and hospice agency, 13 physician practices and thousands of affiliated physicians in Kansas City and the surrounding region. IT employees at Saint Luke's are offered a minimum of two weeks of training, and internal promotions are standard practice.
4,300	10%	19	Founded in 1945, this family-owned food company posts annual sales exceeding $1.7 billion on more than 2,300 products. It specializes in bakery and dessert products and field technical support services. The company is located minutes from Niagara Falls. Its IT department has three career paths – business, technology and management – designed to attract, retain, develop and reward IT talent.
16,500	0	3	This credit card company, a business unit of Morgan Stanley, offers the Discover Classic, Discover Gold and Discover Platinum cards. Training programs for IT workers include a mentoring program, two weeks of new-employee training and individual career development plans. Lunch-hour "tech talks" give IT workers news of the latest developments at the company.

	TOTAL EMPLOYEES	IT EMPLOYEE PROMOTIONS	TRAINING DAYS OFFERED PER IT EMPLOYEE	
10	194	14%	1	This enterprisewide software system provider offers financial management, case management and Web-based software. More than 50% of current staffers are internal referrals, creating a tight-knit, loyal workforce. Recent clients include the Justice Department, the Smithsonian Institution and the Patent and Trademark Office. Both technical and project management training are offered to the IT staff.
11	3,225	5%	5	It was founded in 1969 when three Norwegian shipping companies merged. When *Song of Norway*, Royal Caribbean's first ship, entered service, it became the first passenger ship built specifically for warm-weather cruising rather than point-to-point transport. IT employees are offered work-at-home programs, flex- and comp-time programs, and mentoring initiatives. A Rituals Committee seeks unique ways to recognize employees. Cruise benefits are available to all employees.
12	2,771	14%	5	This global payments company's award-winning "Priceless" advertising campaign is now seen in 96 countries and in 45 languages. It manages MasterCard credit cards, MasterCard debit cards, Maestro online debit cards, Cirrus ATM cash access and related programs, authorizing 32 million financial transactions daily. MasterCard reimburses its IT workers up to $7,500 per calendar year for preapproved graduate and undergraduate courses, course-related fees and books.
13	6,500	19%	7	Founded in 1938, Canusater recycles paper products into paperboard and then converts it into tubes, cores, composite containers, cartons and custom packaging. The company budgets about $6,000 per IT employee for training. Employees can use that money for continuing education or conferences.
14	977	8%	11	The No. 2 vehicle-fleet management company worldwide, PHH Arval manages about 1 million vehicles and offers vehicle purchasing, management, financing and maintenance services; it also handles tax, title, registration and insurance requirements. The company focuses on promoting from within. IT workers are offered continuous learning, internal and external training and a tuition reimbursement program.
15	1 million plus	30%	26	The world's No. 1 retailer has nearly 4,700 stores, including discount stores, combination discount/grocery stores and members-only warehouse stores. It's now the No. 1 retailer in Canada and Mexico as well. Founder Sam Walton's heirs own about 39% of Wal-Mart. IT workers can choose among 540 training classes, available as online training and formal classroom programs.
16	3,435	3%	6	The enterprise and supply chain software maker's products manage an array of functions such as human resources, accounting, logistics, supply chain management and manufacturing. Co-founder Edward McVaney and his family own about 20% of the company, which is being acquired by PeopleSoft. IT employees are offered stock options, lunch with the vice president, movie tickets, "dining dollars" and tickets to sports events, in addition to cash benefits.
17	141,726	8%	5	Henry Ford's mass-production assembly lines in the early 1900s laid the groundwork for Ford's position today as the largest pickup truck maker in the world and the No. 2 producer of cars and trucks. Its vehicle brands include Aston Martin, Jaguar and Volvo. Ford offers a competency-driven framework that enables IT employees to increase technical depth through traditional and nontraditional modes of learning and development.
18	7,463	15%	8	The largest direct seller of cosmetics and beauty-related items in the world, with annual revenue of nearly $6 billion, Avon reaches consumers in 143 countries on six continents. It has approximately 3.9 million independent representatives and is the largest corporate contributor to causes for women. IT employees are offered off- and on-site technical training, and management and soft skills training.
19	4,780	8%	5	Created by Congress in 1938 to bolster the housing industry following the Great Depression, Fannie Mae is now a public company operating under federal charter. It's one of the world's largest financial services firms and the U.S.'s No. 1 source for home mortgage financing. More than 20% of IT employees take part in the job-sharing option, and more than 8% received promotions in the last fiscal year.
20	320,000	4%	11	Founded in 1907 as a messenger company, UPS has become the world's largest package-delivery company, transporting more than 13 million packages and documents each business day throughout the U.S. and to more than 200 countries and territories. Employees attend at least one externally provided technical and management development course or conference, for a total expenditure of more than $4 million annually.
21	15,000	10%	10	In the pizza delivery business, Domino's Pizza ranks No. 2, with more than 7,200 locations in 50 countries. Founded in 1960, Domino's stores are principally delivery locations. For 2003, the company has increased its IT education budget by more than 50%.
22	2,323	19%	8	The flagship company of Minnesota Mutual, this insurer offers individual and group life and disability insurance and annuities. The company, founded in 1880, has never laid off IT workers. Its IT training staff of 15 employees is devoted to offering technical education to the IT staff.
23	7,800	6%	4	A Fortune 500 company with $10 billion in assets, American Family specializes in property and casualty insurance and offers life, health and homeowners coverage, as well as investment and retirement planning products. It's among the largest U.S. mutual companies that concentrate on auto insurance. Senior management has made technology one of the three corporate focus points used to prioritize projects.
24	9,317	19%	5	Founded in 1969, this financial services company offers IT workers access to large-scale applications and flexible work schedules. It provides banking and trust services to the affluent and to financial institutions and corporations from more than 80 offices, primarily in Illinois and Florida. It manages $36 billion in banking assets.
25	2,679	15%	6	The company offers more than 80,000 computer products through catalogs, television, its Web site and two retail showrooms in Illinois. In addition to computers, the company also sells printers, software, accessories, add-on boards and networking products. IT workers keep current with technology trends through the company's many vendor partnerships.

COMPUTERWORLD 100 BEST PLACES TO WORK IN IT

How They're Chosen

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– Mari Keefe and Ellen Fanning

		TOTAL EMPLOYEES		IT EMPLOYEE PROMOTIONS		TRAINING DAYS OFFERED PER IT EMPLOYEE	
1	**Hershey Foods Corp.** Hershey, Pa. www.hersheys.com	10,470	202	10%	1%	5	The maker of such candy bars as Almond Joy and Mounds exports Hershey's-branded confectionery and grocery products to more than 90 countries. Hershey, located 10 minutes from the state capital and two hours from Baltimore and Philadelphia, is home to kid-friendly HersheyPark. The IT group has a turnover rate of less than 2%.
2	**Harley-Davidson Inc.** Milwaukee www.harley-davidson.com	8,046	282	8%	4%	15	In 1903, 21-year-old William S. Harley and 20-year-old Arthur Davidson built and offered to the public the first Harley-Davidson motorcycle. In 2002, the company recorded international shipments of more than 200,000 motorcycles. IT workers have an opportunity to train and work in cross-functional teams, in addition to enjoying the mystique of working for an American icon.
3	**University of Miami** Coral Gables, Fla. www.miami.edu	9,113	248	28%	4%	7	The university's main campus is located on 260 acres in Coral Gables, a suburb just south of Miami. It annually enrolls nearly 15,000 undergraduate and graduate students from every state and more than 140 nations. Located in a culturally diverse region, its IT group represents a broad cross-section of the world. The attrition rate consistently remains under 5%.
4	**Network Appliance Inc.** Sunnyvale, Calif. www.netapp.com	2,525	106	8%	4%	10	Founded in 1992, this storage vendor's NetApp products include specialized hardware, software and services, providing storage management for open network environments. At 8% of revenue, investment in IT translates into innovation and a challenging work environment for the IT staff. Key customers include Citicorp Securities, Lockheed, Merrill Lynch, Oracle, Texas Instruments and Yahoo.
5	**VSP (Vision Service Plan)** Rancho Cordova, Calif. www.vsp.com	2,193	288	9%	3%	6	This eye-care benefits provider was ranked 16th on *Fortune*'s 2003 list of the "Best 100 Companies to Work For." Informal lunch meetings between the division vice president and IT employees are held twice a month. Employees participate on teams that recommend process and business changes.
6	**Harrah's Entertainment Inc.** Memphis www.harrahs.com	44,000	258	13%	6%	10	The company operates 26 casinos in 13 states under the Harrah's, Harveys, Rio and Showboat brand names. In a recent survey, IT employees' top three reasons why they like working at Harrah's were skill and career growth opportunities, Harrah's commitment to world-class IT performance, and employee rewards based on their contributions to the company's strategic goals.
7	**Saint Luke's Health System** Kansas City, Mo. www.saint-lukes.org	6,378	110	13%	5%	16	This nonprofit health system includes eight hospitals, a home health and hospice agency, 13 physician practices and thousands of affiliated physicians in Kansas City and the surrounding region. IT employees at Saint Luke's are offered a minimum of two weeks of training, and internal promotions are standard practice.
8	**Rich Products Corp.** Buffalo, N.Y. www.rich.com	4,300	106	10%	3%	10	Founded in 1945, this family-owned food company posts annual sales exceeding $1.7 billion on more than 2,300 products. It specializes in bakery and dessert products and field technical support services. The company is located minutes from Niagara Falls. Its IT department has three career paths – business, technology and management – designed to attract, retain, develop and reward IT talent.
9	**Discover Financial Services** Riverwoods, Ill. www.discovercard.com	16,500	1,970	0	3%	3	This credit card company, a business unit of Morgan Stanley, offers the Discover Classic, Discover Gold and Discover Platinum cards. Training programs for IT workers include a mentoring program, two weeks of new-employee training and individual career development plans. Lunch-hour "tech talks" give IT workers news of the latest developments at the company.

		TOTAL EMPLOYEES	[illegible]	IT EMPLOYEE PROMOTIONS	[illegible]	TRAINING DAYS OFFERED PER IT EMPLOYEE	[illegible]
10	**Software Performance Systems Inc.** Arlington, Va. www.gosps.com	194	138	14%	8%	1	This enterprisewide software system provider offers financial management, case management and Web-based software. More than 50% of current staffers are internal referrals, creating a tight-knit, loyal workforce. Recent clients include the Justice Department, the Smithsonian Institution and the Patent and Trademark Office. Both technical and project management training are offered to the IT staff.
11	**Royal Caribbean Cruises Ltd.** Miami www.royalcaribbean.com	3,225	248	5%	0	5	It was founded in 1969 when three Norwegian shipping companies merged. When *Song of Norway*, Royal Caribbean's first ship, entered service, it became the first passenger ship built specifically for warm-weather cruising rather than point-to-point transport. IT employees are offered work-at-home programs, flex- and comp-time programs, and mentoring initiatives. A Rituals Committee seeks unique ways to recognize employees. Cruise benefits are available to all employees.
12	**MasterCard International Inc.** Purchase, N.Y. www.mastercardintl.com	2,771	1,627	14%	6%	5	This global payments company's award-winning "Priceless" advertising campaign is now seen in 96 countries and in 45 languages. It manages MasterCard credit cards, MasterCard debit cards, Maestro online debit cards, Cirrus ATM cash access and related programs, authorizing 32 million financial transactions daily. MasterCard reimburses its IT workers up to $7,500 per calendar year for preapproved graduate and undergraduate courses, course-related fees and books.
13	**Caraustar Industries Inc.** Austell, Ga. www.caraustar.com	6,500	48	19%	2%	7	Founded in 1938, Caraustar recycles paper products into paperboard and then converts it into tubes, cores, composite containers, cartons and custom packaging. The company budgets about $6,000 per IT employee for training. Employees can use that money for continuing education or conferences.
14	**PHH Arval** Hunt Valley, Md. www.phh.com	977	133	8%	2%	11	The No. 2 vehicle-fleet management company worldwide, PHH Arval manages about 1 million vehicles and offers vehicle purchasing, management, financing and maintenance services. It also handles tax, title, registration and insurance requirements. The company focuses on promoting from within. IT workers are offered continuous learning, internal and external training and a tuition reimbursement program.
15	**Wal-Mart Stores Inc.** Bentonville, Ark. www.walmartstores.com	1 million plus	2,123	30%	6%	26	The world's No. 1 retailer has nearly 4,700 stores, including discount stores, combination discount/grocery stores and members-only warehouse stores. It's now the No. 1 retailer in Canada and Mexico as well. Founder Sam Walton's heirs own about 38% of Wal-Mart. IT workers can choose among 540 training classes, available as online training and formal classroom programs.
16	**J.D. Edwards & Co.** Denver www.jdedwards.com	3,435	382	3%	10%	6	The enterprise and supply chain software maker's products manage an array of functions such as human resources, accounting, logistics, supply chain management and manufacturing. Co-founder Edward McVaney and his family own about 20% of the company, which is being acquired by PeopleSoft. IT employees are offered stock options, lunch with the vice president, movie tickets, "dining dollars" and tickets to sports events, in addition to cash benefits.
17	**Ford Motor Co.** Dearborn, Mich. www.ford.com	141,726	2,344	6%	1%	5	Henry Ford's mass-production assembly lines in the early 1900s laid the groundwork for Ford's position today as the largest pickup truck maker in the world and the No. 2 producer of cars and trucks. Its vehicle brands include Aston Martin, Jaguar and Volvo. Ford offers a competency-driven framework that enables IT employees to increase technical depth through traditional and nontraditional modes of learning and development.
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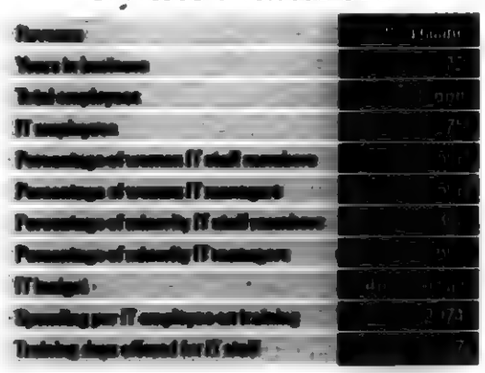
19	**Fannie Mae** Washington www.fanniemae.com	4,760	868	8%	3%	5	Created by Congress in 1938 to bolster the housing industry following the Great Depression, Fannie Mae is now a public company operating under federal charter. It's one of the world's largest financial services firms and the U.S.'s No. 1 source for home mortgage financing. More than 20% of IT employees take part in the job-sharing option, and more than 8% received promotions in the last fiscal year.
20	**United Parcel Service Inc.** Mahwah, N.J. www.ups.com	320,000	3,475	4%	2%	11	Founded in 1907 as a messenger company, UPS has become the world's largest package-delivery company, transporting more than 13 million packages and documents each business day throughout the U.S. and to more than 200 countries and territories. Employees attend at least one externally provided technical and management development course or conference, for a total expenditure of more than $1 million annually.
21	**Domino's Pizza LLC** Ann Arbor, Mich. www.dominos.com	15,000	93	10%	2%	10	In the pizza delivery business, Domino's Pizza ranks No. 2, with more than 7,200 locations in 50 countries. Founded in 1960, Domino's stores are principally delivery locations. For 2003, the company has increased its IT education budget by more than 50%.
22	**Minnesota Life Insurance Co.** St. Paul, Minn. www.minnesotamutual.com	2,323	412	19%	4%	8	The flagship company of Minnesota Mutual, this insurer offers individual and group life and disability insurance and annuities. The company, founded in 1880, has never laid off IT workers. Its IT training staff of 15 employees is devoted to offering technical education to the IT staff.
23	**American Family Mutual Insurance Co.** Madison, Wis. www.amfam.com	7,600	1,834	6%	3%	4	A Fortune 500 company with $10 billion in assets, American Family specializes in property and casualty insurance and offers life, health and homeowners coverage, as well as investment and retirement planning products. It's among the largest U.S. mutual companies that concentrate on auto insurance. Senior management has made technology one of the three corporate focus points used to prioritize projects.
24	**Northern Trust Corp.** Chicago www.ntrs.com	9,317	1,002	18%	5%	5	Founded in 1889, this financial services company offers IT workers access to large-scale applications and flexible work schedules. It provides banking and trust services to the affluent and to financial institutions and corporations from more than 80 offices, primarily in Illinois and Florida. It manages $36 billion in banking assets.
25	**CDW Computer Centers Inc.** Vernon Hills, Ill. www.cdw.com	2,579	137	15%	8%	6	The company offers more than 80,000 computer products through catalogs, telesales, its Web site and two retail showrooms in Illinois. In addition to computers, the company also sells printers, software, accessories, add-on boards and networking products. IT workers keep current with technology trends through the company's many vendor partnerships.

SPECIAL REPORT

The Typical Best Place, By the Numbers



AVERAGE WORKWEEK: **43** hours

PROFIT MARGIN: **88%** of Best Places were profitable in 2002

LAYOFFS: **28%** of Best Places had layoffs in 2002

The Benefits Highs...

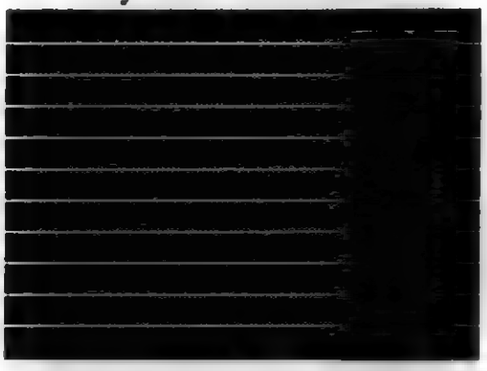
PERCENTAGE OF COMPANIES THAT OFFER...	
Flexible hours	99%
Pretax spending programs for uncovered medical expenses	94%
Reimbursement for technology certification	93%
Telecommuting options for employees	91%
On-site fitness center or fitness membership reimbursement	84%

...And Room-To-Grows

PERCENTAGE OF COMPANIES THAT OFFER...	
Domestic partner/spousal equivalent benefits	56%
Job sharing	55%
Same-sex partner benefits	53%
Elder care and/or services	49%
On-site child care	28%
Company-subsidized child care	27%

	COMPANY	TOTAL EMPLOYEES	IT EMPLOYEES	IT EMPLOYEE PROMOTIONS	[illegible]	TRAINING DAYS OFFERED PER IT EMPLOYEE	WHAT'S SPECIAL?
26	**Allstate Insurance Co.** Northbrook, Ill. www.allstate.com	36,857	3,440	8%	5%	15	This insurer was founded in 1931 as part of Sears, Roebuck and Co. and became publicly traded in 1993. In 1995, it became independent after Sears divested its remaining shares to Sears stockholders. As a Fortune 100 company, Allstate offers career advancement paths for IT workers and encourages them to take advantage of opportunities to work in many business areas to learn new skills.
27	**Household International Inc.** Prospect Heights, Ill. www.household.com	27,997	1,938	22%	6%	11	With nearly $123 billion in managed assets, this consumer lender has been serving middle-market customers since 1878. In March 2003, it was acquired by megabank HSBC Holdings PLC. It's the No. 2 consumer finance firm in the U.S. IT workers are offered challenging assignments and multiple opportunities for career growth. Most managers in the technical group began their careers as programmers.
28	**J.B. Hunt Transport Services Inc.** Lowell, Ark. www.jbhunt.com	16,265	298	17%	7%	11	One of the largest truckload carriers in the U.S., J.B. Hunt has a fleet of about 10,700 tractors, 26,100 trailers and 19,700 containers and provides dry-van truckload service throughout the U.S., Canada and Mexico. IT workers can earn merit-based pay increases off the normal review cycle and are recognized with individual and team rewards and through public recognition at company events.
29	**Sonoco Products Co.** Hartsville, S.C. www.sonoco.com	12,000	123	20%	4%	8	One of the world's largest makers of industrial and consumer packaging products, its top customers include Kellogg, Procter & Gamble and PepsiCo. It employs approximately 18,000 people at more than 300 manufacturing and sales locations in 32 countries. Recruiting and new-employee orientation programs focus on long-term retention. Spot bonuses are awarded for above-average performance.
30	**Hewitt Associates LLC** Lincolnshire, Ill. www.hewitt.com	11,177	1,486	15%	6%	4	Founded by Ted Hewitt in 1940, this global outsourcing and consulting firm completed its IPO in 2002. Its client roster includes more than half of the Fortune 500 and more than a third of the Global 500 companies. IT workers choose training through a database catalog of classroom-based, computer-based and distance learning options. In the last fiscal year, more than 1,200 classes were offered to IT workers internally.
31	**Cerner Corp.** Kansas City, Mo. www.cerner.com	4,843	2,964	26%	10%	15	This provider of clinical, financial and administrative information management applications offers tools for managing electronic medical records, patient care and health information access. Its technology links emergency rooms, pharmacies and other health care departments. IT workers have the opportunity to work with leading-edge technologies and tools.
32	**Freddie Mac** McLean, Va. www.freddiemac.com	4,285	1,216	18%	4%	9	Sister company to Fannie Mae, this shareholder-owned, government-sponsored enterprise was established by Congress in 1970 and purchases, securitizes and invests in home mortgages. It offers programs to provide IT workers with a balanced lifestyle, including an online concierge service that arranges for floral deliveries, dog-walkers, lawn care, and party and vacation planning.
33	**FedEx Services (FedEx Corp.)** Collierville, Tenn. www.fedex.com	214,000	4,618	4%	3%	15	FedEx Services includes sales, marketing and technology support for FedEx units and provides a single point of contact for customers. IT workers have round-the-clock access to more than 1,000 courses through an online training program and tutorial. More than 18,000 online courses are expected to be completed by its IT workers this year.
34	**Lands' End Inc.** Dodgeville, Wis. www.landsend.com	8,000	283	7%	1%	10	Started in a basement in 1963 along the river in Chicago's old tannery district, this retailer now markets its products through its folksy flagship catalog. It also runs about 30 outlet and retail stores in the U.S., U.K. and Japan, and its products can be found in about 370 Sears stores. Retailing giant Sears owns Lands' End, which is now located in rural Wisconsin. IT staffers are kept up to date on the latest tools and technologies and are offered leadership and personal growth education.
35	**American Fidelity Group** Oklahoma City www.af-group.com	1,500	154	2%	1%	15	Since 1960, this company has provided insurance products and services to the educational community and to trade association members throughout the country. Technical training is budgeted annually and dispersed based on project needs and company goals and objectives. Certain IT certifications are paid 100% by the company and are conducted on-site at its training facility.
36	**Roadway Express Inc.** Akron, Ohio www.roadway.com	27,907	138	10%	1%	5	Founded in 1930, this trucking company specializes in two-day and longer hauls, transporting goods such as apparel, food and furniture in the U.S., Canada and Mexico. The carrier operates some 10,000 tractors and 33,300 trailers through a network of about 340 U.S. terminals. IT workers can take technical or managerial classes, as well as soft skills training. Several of the internal training classes are designed, developed and taught by IT staff members.

The Typical Best Place, By the Numbers



AVERAGE WORKWEEK: 43 hours

PROFIT MARGIN: 88% of Best Places were profitable in 2002

LAYOFFS: 28% of Best Places had layoffs in 2002

The Benefits Highs...

PERCENTAGE OF COMPANIES THAT OFFER...	
Flexible hours	99%
Pretax spending programs for uncovered medical expenses	94%
Reimbursement for technology certification	93%
Telecommuting options for employees	91%
On-site fitness center or fitness membership reimbursement	84%

...And Room-To-Grows

PERCENTAGE OF COMPANIES THAT OFFER...	
Domestic partner/spousal equivalent benefits	58%
Job sharing	56%
Same-sex partner benefits	53%
Elder care and/or services	49%
On-site child care	28%
Company-subsidized child care	27%

		TOTAL EMPLOYEES	IT EMPLOYEE PROMOTIONS	TRAINING DAYS OFFERED PER IT EMPLOYEE	
26	[illegible]	30,857	8%	15	This insurer was founded in 1931 as part of Sears, Roebuck and Co. and became publicly traded in 1993. In 1995, it became independent after Sears divested its remaining shares to Sears stockholders. As a Fortune 100 company, Allstate offers career advancement paths for IT workers and encourages them to take advantage of opportunities to work in many business areas to learn new skills.
27	[illegible]	27,987	22%	11	With nearly $123 billion in managed assets, this consumer lender has been serving middle-market customers since 1878. In March 2003, it was acquired by megabank HSBC Holdings PLC. It's the No. 2 consumer finance firm in the U.S. IT workers are offered challenging assignments and multiple opportunities for career growth. Most managers in the technical group began their careers as programmers.
28	[illegible]	16,285	17%	11	One of the largest truckload carriers in the U.S., J.B. Hunt has a fleet of about 10,700 tractors, 26,100 trailers and 19,700 containers and provides dry-van truckload service throughout the U.S., Canada and Mexico. IT workers can earn merit-based pay increases off the normal review cycle and are recognized with individual and team rewards and through public recognition at company events.
29	[illegible]	12,000	20%	8	One of the world's largest makers of industrial and consumer packaging products, its top customers include Kellogg, Procter & Gamble and PepsiCo. It employs approximately 18,000 people at more than 300 manufacturing and sales locations in 32 countries. Recruiting and new-employee orientation programs focus on long-term retention. Spot bonuses are awarded for above-average performance.
30	[illegible]	11,177	15%	4	Founded by Ted Hewitt in 1940, this global outsourcing and consulting firm completed its IPO in 2002. Its client roster includes more than half of the Fortune 500 and more than a third of the Global 500 companies. IT workers choose training through a database catalog of classroom-based, computer-based and distance learning options. In the last fiscal year, more than 1,200 classes were offered to IT workers internally.
31	[illegible]	4,843	29%	15	This provider of clinical, financial and administrative information management applications offers tools for managing electronic medical records, patient care and health information access. Its technology links emergency rooms, pharmacies and other health care departments. IT workers have the opportunity to work with leading-edge technologies and tools.
32	[illegible]	4,285	19%	9	Sister company to Fannie Mae, this shareholder-owned, government-sponsored enterprise was established by Congress in 1970 and purchases, securitizes and invests in home mortgages. It offers programs to provide IT workers with a balanced lifestyle, including an online concierge service that arranges for floral deliveries, dog-walkers, lawn care, and party and vacation planning.
33	[illegible]	214,000	4%	15	FedEx Services includes sales, marketing and technology support for FedEx units and provides a single point of contact for customers. IT workers have round-the-clock access to more than 1,000 courses through an online training program and tutorial. More than 16,000 online courses are expected to be completed by its IT workers this year.
34	[illegible]	8,000	7%	10	Started in a basement in 1963 along the river in Chicago's old tannery district, this retailer now markets its products through its folksy flagship catalog. It also runs about 30 outlet and retail stores in the U.S., U.K. and Japan, and its products can be found in about 370 Sears stores. Retailing giant Sears owns Lands' End, which is now located in rural Wisconsin. IT staffers are kept up to date on the latest tools and technologies and are offered leadership and personal growth education.
35	[illegible]	1,500	2%	15	Since 1960, this company has provided insurance products and services to the educational community and to trade association members throughout the country. Technical training is budgeted annually and dispersed based on project needs and company goals and objectives. Certain IT certifications are paid 100% by the company and are conducted on-site at its training facility.
36	[illegible]	27,907	10%	5	Founded in 1930, this trucking company specializes in two-day and longer hauls, transporting goods such as apparel, food and furniture in the U.S., Canada and Mexico. The carrier operates some 10,000 tractors and 33,300 trailers through a network of about 340 U.S. terminals. IT workers can take technical or managerial classes, as well as soft skills training. Several of the internal training classes are designed, developed and taught by IT staff members.

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- 1 Gigabit Port for High Speed Connectivity to a Server
- 1-Yr Next Business Day Advanced Exchange Service^

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- Multi-Layer Traffic Classification at Layers 2, 3, and 4
- Advanced Management via Browser or Industry-Standard CLI
- 3-Yr Next Business Day Advanced Exchange Service^

$999 as low as **$27**/mo., (46 pmts.*†) E-VALUE Code: 17814-$10888

Recommended upgrade:
- 3-Yr 24x7 4-Hr Advanced Exchange Service,^ add $199

NEW PowerConnect™ 5212* Switch

High-Performance, All-Gigabit Managed Switch
- 12 Copper Gigabit Ports Plus 4 SFP Fiber Uplinks
- Layer-3 Aware Class of Service Prioritization
- Advanced Management via Browser or Industry-Standard CLI
- 3-Yr Next Business Day Advanced Exchange Service^

$1199 as low as **$33**/mo., (46 pmts.*†) E-VALUE Code: 17814-$10811

Recommended upgrade:
- 3-Yr 24x7 4-Hr Advanced Exchange Service,^ add $130

PowerConnect™ 5224* Switch

High-Performance All-Gigabit Managed Switch
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- Layer-3 Aware Class of Service Prioritization
- Advanced Management via Browser or Industry-Standard CLI
- 3-Yr Next Business Day Advanced Exchange Service^

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Recommended upgrade:
- 3-Yr 24x7 4-Hr Advanced Exchange Service,^ add $299

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Dell PowerConnect 3248 Outperforms the Cisco Catalyst 2950 by 47% and 3COM SuperStack 3 Switch 4400 by 38% in Layer 2 Throughput Tests."
Tolly Group Report #202149
– September 2002

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†Monthly payment based on 48-month 60 Days Same-As-Cash-QuickLoan with 46 payments at 9.99% interest rate. Your interest rate and monthly payment may be same or higher, depending on your creditworthiness. If you do not pay the balance within 60 days of the QuickLoan Commencement Date (which is five days after product ships), interest will accrue during those first 60 days and a documentation fee may apply. OFFER VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY LENDER. Minimum transaction size of $500 required. Maximum aggregate financed amount for the paperless acceptance QuickLoan not to exceed $25,000. If your order exceeds $25K, a Dell Financial Services rep will contact you to process your documentation. Taxes, fees and shipping charges are extra and may vary. Not valid on past orders or financing. QuickLoan arranged by CIT Bank to Small Business customers with approved credit. ^Technician replacement part or unit (depending on service contract) will be dispatched if necessary following phone-based troubleshooting in advance of receipt of returned defective unit. Service may be provided by third-party provider. Subject to parts availability, geographical restrictions and terms of service contract. Service timing dependent upon time of day call placed to Dell. Defective unit must be returned. Replacements may be refurbished. U.S. only. Tolly Group Report #202149 was commissioned by Dell. Dell, the stylized E logo, E-VALUE, and PowerConnect are trademarks of Dell Computer Corporation. ©2003 Dell Computer Corporation. All rights reserved.

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SPECIAL REPORT

	TOTAL EMPLOYEES	IT EMPLOYEE PROMOTIONS	TRAINING DAYS OFFERED PER IT EMPLOYEE	
37	6,832	8%	2	Located in bucolic Mountain View, this software company offers the programs Quicken, QuickBooks and TurboTax for consumers, accountants and small businesses. Other software offerings include industry-specific accounting and management applications for construction, the public sector, real estate, retail and wholesale distribution organizations. A team is designated solely to providing and coordinating IT training throughout the organization.
38	3,554	10%	4	A Fortune 500 company, AFLAC is one of the largest sellers of supplemental insurance in the U.S. and an industry leader in Japan's cancer insurance market. It insures more than 40 million people worldwide, and at year-end 2002, its total assets were more than $45 billion. The company picks up the tab for registration and exam fees associated with technical certifications. A cash award is also given to IT workers for successful achievement of technical certifications.
39	12,080	8%	10	Founded in 1914, the $2 billion consultancy provides government agencies and Fortune 500 companies with international management and technology expertise. The firm operates in two segments: technology business and commercial business. Its partnership with technology training companies and colleges provides IT workers access to classroom-style training designed to maintain and grow their technology skills.
40	481	16%	7	This telecommunications company was formed in 1989 with the acquisition of Central State Telephone Co., the first of 10 small, rural Wisconsin telephone companies to join the provider that first year. The company now serves 5.1 million customers in 35 states and more than 5 million cellular customers in 25 states. A unique recognition program allows managers to reward IT employees with gift certificates on the spot.
41	20,145	5%	5	Founded in 1935 by A.J. "Al" Schneider with the proceeds from the sale of his family car, the truckload and intermodal services company's signature bright-orange fleet consists of 14,000 trucks and more than 40,000 trailers. IT workers are offered third-party vendor training via the Internet on a variety of technical applications, unlimited access to technical books online, and classroom and seminar technical training classes at local colleges and IBM affiliates.
42	70,905	7%	5	The company owns, manages and franchises hotels, with several of the world's most recognized brand names, including Hilton, Hampton Inn, Doubletree, Embassy Suites Hotels, Homewood Suites by Hilton, and Conrad Hotels. IT workers are currently exploring wireless technology to be used to assist guests and managers at check-in/checkout and messaging, and to assist managers in property management. The CIO has been with the company for more than 22 years.
43	13,185	11%	5	A subsidiary of the cigarette, beer and food giant Altria Group, the No. 1 U.S. cigarette maker accounts for about half of the U.S.'s total cigarette shipments. Its Marlboro brand alone accounts for more than a third of the country's cigarette sales. IT training in 2002 focused on three key areas: technology, leadership and project management. Technology opportunities have included SAP, Web development and relational database training.
44	8,700	15%	5	Founded in 1985, this semiconductor company specializes in high-performance analog, mixed and digital signal-processing integrated circuits. Its portfolio includes more than 10,000 products. The company maintains an in-house training and development program that offers personal growth and skills training tailored to management and individual contributor tracks.
45	125,000	6%	8	The world's No. 1 defense contractor was formed in March 1995 through the merger of Lockheed and Martin Marietta. IT workers are offered 100% tuition and book reimbursement, 1,500 e-learning courses available around the clock and live classes for career development. IT executive mentoring programs provide one-on-one development.
46	27,000	20%	8	The company that introduced America to Wheaties in 1924 is now the No. 2 cereal maker in the U.S., with brands such as Cheerios, Chex, Total and Kix. Its other food brands include Gold Medal, Betty Crocker, Bisquick, Hamburger Helper, Fruit Roll-Ups, Pop Secret, Colombo and Yoplait. IT workers are given tools, technology and training within a strong technical infrastructure and proven partnerships with leaders in the IT industry.
47	1,704	10%	9	As one of the largest makers of the set-top boxes used by cable subscribers to receive TV programming and interactive online services such as movies on demand, e-mail and Web connections, it holds 411 U.S. patents. IT emphasizes that all projects must have a business sponsor and be jointly managed with the business. The company offers an on-site MBA program.
48	24,000	12%	4	One of the world's largest accounting firms, Ernst & Young offers auditing and accounting services, legal services and services related to emerging growth companies, human resources issues, online security, risk management and transactions. It offers IT workers a dual career path, either in management or as an advanced specialist, with the opportunity for advancement through equal rankings.
49	11,000	16%	13	The bank holding company focuses on business and asset-based lending, global finance and institutional trusts; it also offers lines of credit and international trade finance, among other services. Comerica also provides consumer lending and deposits, mortgage loan servicing, small-business banking, private banking and credit cards. IT staff members are offered both on- and off-site training. Technical specialty sessions are offered in both venues, as well as via the Web.
50	33,891	17%	6	Founded in 1945, this financial holding company has assets of more than $100 billion. Its IT workers are offered job sharing and flexible work schedules, as well as recognition and bonus programs. Seventeen percent of IT employees have received promotions within the past year.
51	114,800	20%	3	The No. 1 lodging company in the world can trace its heritage back to a small root-beer stand opened in Washington in 1927 by J. Willard and Alice S. Marriott (A&W). It now has some 2,600 owned or franchised properties in 65 countries, including the hotel brands Marriott and Ritz-Carlton. The IT division offers a career development program that allows both individuals and managers to work cooperatively to navigate from one role to another to acquire knowledge and skills.
52	5,185	14%	20	Founded in 1833, McKesson Corp. is the second-largest pharmaceuticals distributor in the U.S. Its 30 distribution centers serve all 50 states. With annual revenue of more than $50 billion, it ranks as the 20th largest industrial company in the U.S. The McKesson Information Solutions IT unit pays for a wealth of certifications. IT workers built a Habitat for Humanity house in 2000.

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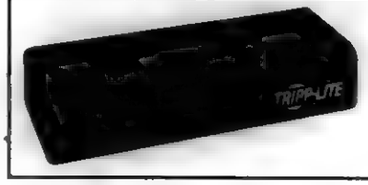
* When used with optional adapters, sold separately.



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SPECIAL REPORT

The Tops for...

DIVERSITY

1. McKesson Information Solutions
2. University of Miami
3. Freddie Mac
4. Assurant Group
5. USAA
6. Southern California Edison & Edison International
7. Discover Financial Services
8. Royal Caribbean Cruises Ltd.
9. Fannie Mae
10. Verizon Wireless

TRAINING

1. Wal-Mart Stores Inc.
2. Allstate Insurance Co.
3. J.B. Hunt Transport Services Inc.
4. University of Miami
5. Saint Luke's Health System
6. Cerner Corp.
7. American Fidelity Group
8. McKesson Information Solutions
9. Harley-Davidson Inc.
10. PHH Arval

CAREER DEVELOPMENT

1. Lockheed Martin Corp.
2. Household International Inc.
3. University of Miami
4. Sonoco Products Co.
5. Cerner Corp.
6. General Mills Inc.
7. Cigna Corp.
8. Harrah's Entertainment Inc.
9. Wal-Mart Stores Inc.
10. Domino's Pizza LLC

RETENTION

1. University of Miami
2. Hershey Foods Corp.
3. Network Appliance Inc.
4. Caraustar Industries Inc.
5. Saint Luke's Health System
6. American Fidelity Group
7. Harley-Davidson Inc.
8. Harrah's Entertainment Inc.
9. Domino's Pizza LLC
10. Roadway Express Inc.

BENEFITS

1. Avon Products Inc.
2. J.D. Edwards & Co.
3. Fannie Mae
4. USAA
5. Computer Associates International Inc.
6. Capital One Financial Corp.
7. Verizon Wireless
8. Harley-Davidson Inc.
9. University of Miami
10. Network Appliance Inc.

THE FOLLOWING FACTORS WERE USED TO DETERMINE THE TOP 10 LISTS. DIVERSITY - PERCENTAGE OF WOMEN AND MINORITIES IN STAFF AND MANAGERIAL POSITIONS. TRAINING - AVERAGE NUMBER OF TRAINING DAYS AND AVERAGE COST OF TRAINING PER IT WORKER PER YEAR. EDUCATION ASSISTANCE - TUITION REIMBURSEMENT FOR COLLEGE CLASSES AND TECHNICAL CERTIFICATIONS; MENTORING PROGRAMS. RETENTION - FREQUENCY OF EMPLOYEE SATISFACTION SURVEYS; TURNOVER RATE; PROMOTIONS AND CORPORATE COMMUNICATIONS INITIATIVES. BENEFITS - A RANGE OF BENEFITS, INCLUDING SABBATICALS; HEALTH AND VISION BENEFITS (PERCENTAGE PAID FOR BY COMPANY); AND LONG-TERM CARE.

		TOTAL EMPLOYEES	[illegible]	IT EMPLOYEE PROMOTIONS	[illegible]	TRAINING DAYS OFFERED PER IT EMPLOYEE	
53	[illegible] New York	3,500	[illegible]	10%	[illegible]	9	This insurer claims to have sold the nation's first mutual life insurance policy in 1843. It now sells traditional life insurance, annuities and financial services products through more than a dozen subsidiaries. IT workers are given a variety of forums to share their ideas: a quarterly IT communications and team-building event, an annual employee survey, open forums and IT newsletters.
54	[illegible] Deerfield, Ill. www.baxter.com	22,000	[illegible]	8%	1%	5	Baxter was the first manufacturer of commercially prepared intravenous solutions and is now a leading maker of IV supplies and solutions for the treatment of cancer, kidney disease, immune deficiencies and other diseases. IT workers develop technology-enabled health care products in a diverse global culture that has more than 227 locations.
55	[illegible] Atlanta [illegible].com	5,129	[illegible]	12%	3%	4	This specialty property and casualty insurer is a subsidiary of Belgian insurance giant Fortis. The company provides wide-ranging niche products such as credit card, laptop, mortgage hazard, mobile home, flood and student accident insurance. The company runs a K-6 grade school at no cost for all employees' children at its Miami location.
56	USAA San Antonio www.usaa.com	20,866	[illegible]	11%	8%	8	The mutual insurance company serves some 5 million customers, primarily military personnel and their families. Its products and services include property/casualty and life insurance, banking, discount brokerage and investment management. The Technical Fellow Program was designed for senior technical staff and offers compensation and responsibility equivalent to that of nontechnical senior management peers.
57	[illegible] St. Louis www.edwardjones.com	27,086	[illegible]	15%	8%	6	The "Wal-Mart of Wall Street" caters to individual investors, mostly retirees and small-business owners in rural communities and in the suburbs. It has thousands of satellite-linked offices in the U.S., Canada and the U.K. Employees have a large stake in the company; two levels of partnership, limited and general, are available. Today, 5,615 associates are limited partners, from mail-room staff to management. The company has had no layoffs since 1969.
58	[illegible] Islandia, N.Y. www.ca.com	8,651	[illegible]	11%	13%	8	One of the world's largest software companies, $3 billion CA offers more than 800 software products, including enterprise management, business intelligence, storage and network management applications. Its flagship Unicenter enterprise management software gives customers centralized control over software, hardware and network infrastructure. IT workers have a wide range of opportunities at CA through its many technology areas and its more than 1,200 products.
59	[illegible] Rosemead, Calif. www.sce.com	12,900	[illegible]	6%	2%	7	On an average day, Southern California Edison provides power for 11 million individuals, 427 communities and cities, 5,000 large businesses and 280,000 small businesses in central and Southern California. The company regularly benchmarks IT salaries against those of similar-size IT shops at comparable regional companies; adjustments are made as needed. Spot bonuses and awards provide managers with opportunities to recognize employee performance.
60	[illegible] Northfield, Ill. www.kraft.com	56,037	[illegible]	11%	9%	10	If you don't have a Kraft product in your house, count yourself among only 1% of Americans. The U.S.'s No. 1 food company, Kraft was spun off by Philip Morris in June 2001 in the second-largest IPO ever in the U.S. Its food and beverage brands include Kraft, Philadelphia, Toblerone, Maxwell House, Nabisco, Oscar Mayer and Post. The IT group focuses on cross-training and investment in learning, and career growth.
61	[illegible] Fremont, Calif. www.infosys.com	3,027	[illegible]	0	5%	6	India's second-largest software exporter, with U.S. headquarters in Fremont, Calif., it offers a range of customized software services, including development, maintenance and re-engineering, along with e-commerce consulting. IT training is offered through classroom and lab sessions, prototyping, e-learning, reuse of organization knowledge assets, and technical certifications.
62	[illegible] Miamisburg, Ohio www.lexisnexis.com	8,000	[illegible]	11%	6%	8	A unit of publishing giant Reed Elsevier Group, this online legal research system, launched in 1973, offers subscribers access to thousands of newspaper, magazine and journal articles through the Internet, CD-ROMs and books. The bulk of its content – culled from more than 18,000 databases – focuses on legal, business, government and tax information. IT workers enjoy job security, with no layoffs in the past three years.
63	[illegible] Kingsport, Tenn. www.eastman.com	12,301	[illegible]	23%	5%	15	Once part of film giant Eastman Kodak, Eastman Chemical is a major producer of chemicals, fibers and plastics. IT project management seminars are held on-site each year. IT workers are offered flexible work schedules and can advance up technical or managerial ladders.

Meet Rachel. Crisis Coordinator.

Communications Queen.

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drop coordinates. At Nortel Networks, we call this "the engaged business model." And we make it happen by allowing businesses to engage their employees with ways to work more productively as teams. Eliminating boundaries by anticipating user needs. Delivering critical, time-sensitive information on whatever device they can access. Encrypted for security, info gets to where it needs to go and nowhere else. End of story: Rachel and her team save time and money as they race to help people in need. All delivered by our enterprise vision. One network. A world of choice.

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SPECIAL REPORT

	COMPANY	TOTAL EMPLOYEES	IT EMPLOYEES	IT EMPLOYEE PROMOTIONS	IT EMPLOYEE TURNOVER	TRAINING DAYS OFFERED PER IT EMPLOYEE	WHAT'S SPECIAL?
64	**Sutter Health** Sacramento, Calif. www.sutterhealth.org	37,500	988	14%	6%	3	Organized in 1996 through the merger of Sutter Health and California Healthcare System, it's one of the nation's largest not-for-profit health care systems, serving residents in more than 100 Northern California communities. The IT department embraces the philosophy of promoting from within the organization, and more than 60% of all new hires have been referred by employees. Annual training costs average more than $6,500 per IT employee.
65	**Securities Industry Automation Corp.** Brooklyn www.siac.com	1,732	1,390	15%	5%	4	Securities Industry Automation Corp., or SIAC, was founded in 1972 as a subsidiary of the New York Stock Exchange and the American Stock Exchange. It runs the systems and communications networks that power the two exchanges and disseminate U.S. market data worldwide. IT workers are offered management, professional and technical training, as well as tuition reimbursement for college and graduate-level course work.
66	**International Truck & Engine Corp.** Warrenville, Ill. www.internationaldelivers.com	12,412	595	10%	2%	2	A subsidiary of Navistar, International Truck is a producer of midrange diesel engines, medium and heavy trucks and severe-service vehicles and a provider of parts and service. Through the joint efforts of the company's IT training department and corporate university, IT workers are offered training in Microsoft desktop products, .Net, Visual Basic, Active Server Pages and SQL, as well as nontechnical and language classes.
67	**Capital One Financial Corp.** Falls Church, Va. www.capitalone.com	18,000	2,812	9%	8%	10	Started as an independent company in 1995, Capital One has a global customer base of 46.4 million and managed loans totaling $59.2 billion. It is now one of the top six credit card issuers in the U.S., with nearly 50 million customer accounts. Tailored incentive programs reward IT workers for performance; eligible workers can receive long-term incentives or stock options.
68	**Cendant Corp.** Parsippany, N.J. www.cendant.com	85,000	2,831	5%	42%	3	This colossal company is the world's top hotel franchiser, with more than 6,500 locations. It includes the brands AmeriHost Inn, Days Inn and Super 8. Cendant also owns Avis Group Holdings, Fairfield Resorts, Galileo International, Cheap Tickets, Century 21, Coldwell Banker and Jackson Hewitt. It promotes an IT culture that allows for collaboration among the various business units and the sharing of best practices and potential technology solutions.
69	**3M Co.** Maplewood, Minn. www.3M.com	35,024	1,611	10%	3%	5	Its products include Scotchgard fabric protectors, Post-it notes, Scotch-Brite scouring products – even asthma inhalers. 3M has seven operating segments and is one of the 30 stocks that make up the Dow Jones Industrial Average. 3M's IT groups put a major emphasis on issues such as leadership, mobility, development and employee contribution.
70	**Verizon Wireless** Warren, N.J. www.verizonwireless.com	41,000	2,103	10%	6%	10	Formed in 2000 when Bell Atlantic bought GTE, Verizon is the No. 1 local phone company in the U.S. and the No. 2 telecommunications services provider. A joint venture of Verizon Communications and Vodafone, the company has the largest nationwide wireless voice and data network and 33.3 million customers. IT workers are offered a fully funded on-site masters of technology program from Stevens University.
71	**The Vanguard Group Inc.** Valley Forge, Pa. www.vanguard.com	10,176	2,828	9%	4%	5	The No. 2 fund manager in the U.S., Vanguard offers individual and institutional investors a line of mutual funds and brokerage services and has more than $590 billion in assets under management. Its Vanguard 500 Index Fund is one of the largest in the U.S. The company has had no layoffs in its 27-year history. IT workers attend classes at Vanguard University and at an on-site state-of-the-art training center.
72	**Northrop Grumman Information Technology** Herndon, Va. www.northropgrummanit.com	22,556	22,066	11%	8%	3	The company (formerly Logicon) sells high-tech systems and services to government and commercial customers. Current offerings include integrated command-and-control hardware and software for the U.S. Department of Defense and computer-based systems for battle-command and war-gaming simulations used in military training. IT workers are offered hundreds of instructor-led classes, master's degree programs, professional certification programs and technical seminars.
73	**J.C. Penney Co.** Dallas www.jcpenney.com	230,000	1,029	18%	4%	10	James Cash Penney opened his first Golden Rule Store in 1902 in the mining town of Kemmerer, Wyo. Today, the retailer has about 1,050 JCPenney department stores, most located in the U.S., and a chain of 2,700 Eckerd drugstores. IT workers who earn master's degrees receive a base salary increase of $3,000. A variety of flextime arrangements are available.
74	**Regions Financial Corp.** Montgomery, Ala. www.regionsbank.com	18,142	440	11%	5%	2	With some $48.5 billion in assets, the company is one of the leading financial services providers in the nation, serving customers throughout the South with commercial and retail banking services and other financial services. The company has had 31 years of consistent earnings and has never reduced the overall staffing of its IT unit.
75	**RadioShack Corp.** Fort Worth, Texas www.radioshack.com	38,499	539	10%	9%	5	The company claims that 94% of all Americans live or work within five minutes of a RadioShack store or dealer. One of the leading U.S. electronics retailers, RadioShack (formerly Tandy) has more than 5,100 company-owned and over 2,000 franchised RadioShack stores that sell audio and video equipment, wireless and conventional telephones, computers and other items such as parts and gadgets. The IT unit emphasizes technology and career training as well as work/life balance.
76	**Gtech Corp.** West Greenwich, R.I. www.gtech.com	2,637	491	12%	20%	10	Gtech is the world's No. 1 operator of lottery systems, supplying or operating lotteries for more than 80 customers in 44 countries. IT employees are rewarded in a multitiered approach that recognizes key contributions with financial and nonfinancial rewards.
77	**Tech Data Corp.** Clearwater, Fla. www.techdata.com	2,800	290	5%	10%	2	Founded in 1974, this $15.7 billion global provider of IT products, logistics management and other value-added services is ranked 117th in the Fortune 500. Its catalog of products includes computer components, networking equipment, peripherals and software. The company distributes products from about 1,000 manufacturers. IT training includes instructor-led and Web-based opportunities; IT employees have access to more than 1,000 books, CDs, and audio and video programs.
78	**Allmerica Financial Corp.** Worcester, Mass. www.allmerica.com	5,156	435	10%	3%	10	Allmerica is a provider of personal automobile, homeowners, workers' compensation, commercial automobile and commercial multiple-peril insurance coverage through its Citizens Insurance and Hanover Insurance subsidiaries. The IT unit has an assignment-based structure that allows employees to move easily from one assignment to another, based on business needs, employee skills, performance and career objectives.
79	**Principal Financial Group Inc.** Des Moines, Iowa www.principal.com	15,038	1,636	10%	6%	3	The umbrella organization for a variety of financial service providers, it offers pension products and services, mortgage financing, mutual funds, annuities and investment advice. The company demutualized and went public in 2001. The Principal serves more than 13 million customers worldwide from offices in Asia, Australia, Europe, Latin America and the U.S. High performers in IT can request specific assignments to develop skills and benefit their careers.

SPECIAL REPORT

		TOTAL EMPLOYEES	IT EMPLOYEE PROMOTIONS	TRAINING DAYS OFFERED PER IT EMPLOYEE	
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76	Gtech Corp. West Greenwich, R.I. www.gtech.com	2,837	12%	10	Gtech is the world's No. 1 operator of lottery systems, supplying or operating lotteries for more than 60 customers in 44 countries. IT employees are rewarded in a multitiered approach that recognizes key contributions with financial and nonfinancial rewards.
77	Ingram Micro Inc. Santa Ana, Calif. www.ingrammicro.com	2,800	5%	2	Founded in 1974, this $35.7 billion global provider of IT products, logistics management and other value-added services is ranked 117th in the Fortune 500. Its catalog of products includes computer components, networking equipment, peripherals and software. The company distributes products from about 1,000 manufacturers. IT training includes instructor-led and Web-based opportunities; IT employees have access to more than 1,000 books, CDs, and audio and video programs.
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79	Principal Financial Group Inc. Des Moines, Iowa www.principal.com	15,036	10%	3	The umbrella organization for a variety of financial service providers, it offers pension products and services, mortgage financing, mutual funds, annuities and investment advice. The company demutualized and went public in 2001. The Principal serves more than 13 million customers worldwide from offices in Asia, Australia, Europe, Latin America and the U.S. High performers in IT can request specific assignments to develop skills and benefit their careers.

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Los Angeles, CA

Thursday, June 26, 2003, 8:00am to Noon
Hyatt Regency

8:00am to 8:30am	**Registration and Networking Breakfast**
8:30am to 9:00am	**Welcome and Opening Keynote** **Outsourcing Watch 2003: The Best of Both Shores** Maryfran Johnson, Editor in Chief, Computerworld
9:00am to 9:30am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners (an IT consultancy)
9:30am to 10:00am	**Business Case Study** Rick Hamilton, CTO, DFS Group Ltd.
10:00am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Marty Chuck, CIO, Agilent Technologies ■ Rick Hamilton, CTO, DFS Group Ltd. ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Greg Schueman, Vice President and CTO, Mercury Insurance Group
11:30am to Noon	Open Forum

Maryfran Johnson

Bart Perkins

Rick Hamilton

Marty Chuck

Jerry McElhatton

Greg Schueman

For information, call Chris Leger at 888-299-0155 or to register online, visit www.itexecutivesummit.com/outsourcing

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IT Executive Summit
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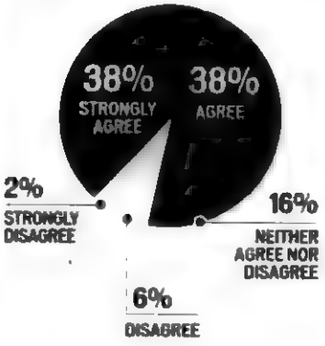
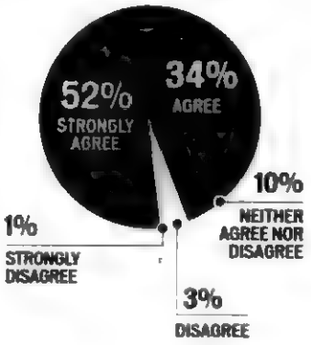
IT Employee Pulse

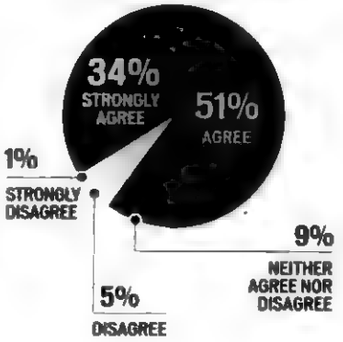
My company is a great place to work in IT.



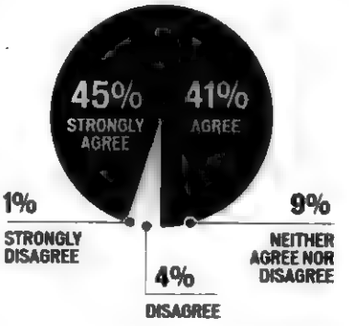
I am proud to work for my company.



I have access to the tools and technologies I need to do my job.



My job is interesting and challenging.



	COMPANY	TOTAL EMPLOYEES	IT EMPLOYEES	IT EMPLOYEE PROMOTIONS	IT EMPLOYEE TURNOVER	TRAINING DAYS OFFERED PER IT EMPLOYEE	WHAT'S SPECIAL?
80	**West Group** Eagan, Minn. www.westgroup.com	8,875	1,386	28%	4%	12	This subsidiary of Canadian publisher The Thomson Corp. publishes law books and online legal information. West Group also operates the Westlaw online legal research service, which contains more than 15,000 databases. An annual recognition program rewards individual employees with bonuses for special achievements that contribute to the success of the company.
81	**Xerox Corp.** Stamford, Conn. www.xerox.com	69,000	706	10%	2%	5	Best known for its color and black-and-white copiers, Xerox also makes printers, scanners and fax machines. The company sells document management software and copier supplies, offers services such as consulting and document outsourcing, and holds a stake in a joint venture with Fuji Photo Film. Its global IT operation offers opportunities to learn, work and gain experience in diverse technology domains.
82	**Peoples Energy Corp.** Chicago www.peoplesenergy.com	2,479	187	6%	2%	5	Peoples Energy is a 150-year-old distributor of natural gas through two utilities: Peoples Gas Light and Coke (850,000 customers in Chicago) and North Shore Gas (150,000 customers in Chicago's northern suburbs). Outstanding performance in IT is rewarded through special work assignments, such as high-priority, high-visibility projects.
83	**Harleysville Insurance** Harleysville, Pa. www.harleysvillegroup.com	2,506	452	9%	10%	4	A regional underwriting organization operating in 32 Eastern and Midwestern states, the company offers property and casualty insurance to businesses and individuals. IT workers are offered a generous tuition reimbursement program and leadership seminars focused on career development as well as personal goals and objectives. Merit pay, bonuses and incentive plans are tied to individual and company performance.
84	**AXA Financial Inc.** New York www.axa-financial.com	4,687	579	15%	5%	6	A subsidiary of French insurance giant AXA, the company oversees units such as AXA Advisors, AXA Network, AXA Distributors and Equitable Life Assurance, which offer financial planning, asset management, life insurance, mutual funds and annuity products. Individual objectives and performance are measured through semiannual reviews of the IT staff. A special IT Web site recognizes employees for service, career movement and accomplishments.
85	**Corning Inc.** Corning, N.Y. www.corning.com	23,000	210	7%	2%	4	Founded more than 150 years ago, this materials maker provided the glass for Edison's light bulb. It's now the world's top maker of fiber-optic cable, which it invented more than 30 years ago. Continuous learning is built into every employee's annual development plan, which might include technical courses, college courses, seminars, conferences, networking, benchmarking, certificate programs or management development courses.
86	**Caterpillar Inc.** Peoria, Ill. www.cat.com	36,463	3,273	14%	2%	2	A Fortune 100 company, Caterpillar is a leading supplier of agricultural equipment and the world's No. 1 maker of earth-moving machinery. It operates plants on six continents and sells its equipment globally via a network of some 220 dealers in about 2,700 locations. R&D spending of 3.5% to 4% of sales ensures that IT workers have access to continual product improvements and new technologies.
87	**CNA Insurance** Chicago www.cna.com	13,200	1,165	1%	6%	4	Founded in 1897, CNA is a global insurance organization serving businesses and individuals. More than $200 million has been committed to new software development this year, part of $1.5 billion that has been committed to technology over the next three years.
88	**Arrow Electronics Inc.** Melville, N.Y. www.arrow.com	6,330	450	12%	6%	2	With 2002 sales of $7.4 billion, Arrow is the world's largest distributor of electronic components and computer products. The company distributes products made by manufacturers such as 3Com, Computer Associates, Intel, Hitachi, Motorola and Texas Instruments. Full-time IT workers earn up to 10 weeks of paid time off after seven years of employment.
89	**Burlington Coat Factory Warehouse Corp.** Burlington, N.J. www.coat.com	26,000	205	3%	3%	5	One of the U.S.'s largest coat sellers, this national clothing retailer operates more than 330 stores. It also sells bath items, children's apparel and furniture, gifts, jewelry and linens. IT workers are offered flexible schedules. Training includes on-site reskilling classes in new technology areas, vendor-sponsored in-house training, seminars and trade shows, management training courses, technical certification courses and reference book purchase plans.

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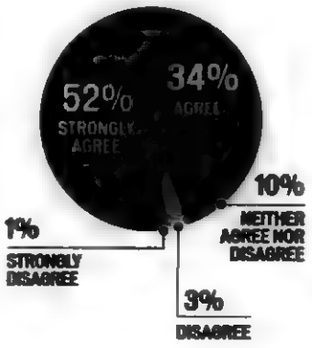

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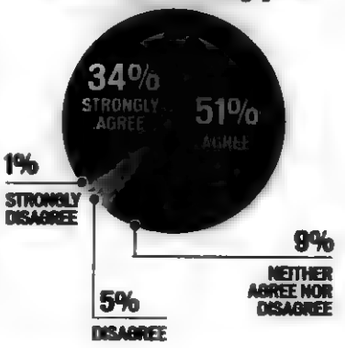

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BASE 11,504 IT EMPLOYEES

		TOTAL EMPLOYEES		IT EMPLOYEE PROMOTIONS		TRAINING DAYS OFFERED PER IT EMPLOYEE	
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84	AXA Financial Inc. New York [illegible]	4,667	579	15%	3%	6	A subsidiary of French insurance giant AXA, the company oversees units such as AXA Advisors, AXA Network, AXA Distributors and Equitable Life Assurance, which offer financial planning, asset management, life insurance, mutual funds and annuity products. Individual objectives and performance are measured through semiannual reviews of the IT staff. A special IT Web site recognizes employees for service, career movement and accomplishments.
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86	[illegible]	36,483	2,273	14%	3%	2	A Fortune 100 company, Caterpillar is a leading supplier of agricultural equipment and the world's No. 1 maker of earth-moving machinery. It operates plants on six continents and sells its equipment globally via a network of some 220 dealers in about 2,700 locations. R&D spending of 3.5% to 4% of sales ensures that IT workers have access to continual product improvements and new technologies.
87	[illegible]	13,200	[illegible]	1%	6%	4	Founded in 1897, CNA is a global insurance organization serving businesses and individuals. More than $200 million has been committed to new software development this year, part of $1.5 billion that has been committed to technology over the next three years.
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SPECIAL REPORT

		TOTAL EMPLOYEES	IT EMPLOYEES	IT EMPLOYEE PROMOTIONS	TURNOVER	TRAINING DAYS OFFERED PER IT EMPLOYEE	
90	Aetna Inc. Hartford, Conn. www.aetna.com	28,371	[illegible]	15%	[illegible]	6	This managed health care provider has restructured its operations by selling its financial services division and its international businesses to Dutch insurer ING Groep. It's now strictly a health and related benefits company and one of the nation's leading health care providers. IT workers are recognized with cash and noncash awards such as gift certificates, luncheons and department celebrations. Top performers can attend industry conferences and briefings.
91	Cigna Corp. Philadelphia www.cigna.com	44,600	[illegible]	23%	8%	9	One of the largest U.S. health insurers, it offers group life and disability insurance as well as retirement and investment services and management. IT workers can gain skills through the Cigna Technology Institute, which helps employees and managers better identify job-related training and development needs.
92	EarthLink Inc. Atlanta www.earthlink.net	5,106	771	23%	6%	3	One of the largest Internet service providers in the U.S., EarthLink (formerly EarthLink Network) has 4.9 million consumer and small-business customers. It is now rolling out premium broadband access. Using diverse technology in a fast-paced company, IT workers can experience the excitement of a start-up.
93	Eversource Boston www.eversource.com	3,225	118	2%	8	4	Massachusetts' largest investor-owned electric and gas utility distributes electricity to 1.1 million homes and businesses in the state; it also serves some 300,000 natural gas customers. IT employees can choose among in-house workshops that enhance core business skills. They can exceed the $2,000-per-employee training budget for specific job-related training.
94	BellSouth Corp. Atlanta www.bellsouth.com	77,000	1,258	3%	10%	5	A Fortune 100 communications services company serving more than 45 million customers in the U.S., this Baby Bell is the incumbent local exchange carrier for nine states, from Louisiana to Kentucky. With 25 million local phone lines in service, it's the country's No. 3 local phone company. IT professionals work with leading-edge technology from industry leaders, including Oracle, Sun, Vitria, Telcordia, Cisco and Nortel.
95	Honeywell International Inc. Morristown, N.J. www.honeywell.com	59,400	1,402	2%	4%	5	This company traces its roots back to 1885, when inventor Albert Butz patented the furnace regulator and alarm. Today the company's largest business segment, Honeywell Aerospace, makes products such as turboprop engines and flight safety and landing systems. The CIO reports directly to the CEO and actively shapes business strategy. The IT Leadership Council similarly partners with division presidents in planning and implementing business strategy.
96	ACNielsen Schaumburg, Ill. www.acnielsen.com	3,700	230	6%	2%	2	ACNielsen is the world's leading marketing information company, collecting retail sales and consumer behavior data in more than 80 countries. It's the flagship of Dutch business information firm VNU's marketing information segment. Instructor-led classes are offered on a regular basis to support business initiatives as determined by senior management.
97	Mitretek Corp. Falls Church, Va. www.mitretek.com	18,500	667	5%	7%	5	Founded 115 years ago, this IT consultancy provides services such as systems integration, network engineering, project management and technical support. The company is among the largest government IT contractors, serving local, state and federal agencies as well as foreign governments. IT workers have access to computer-based training programs, webcasts, in-house instructor-led training through Unisys University, on-site training by key vendors, seminars and conferences.
98	Nationwide Insurance & Financial Services Columbus, Ohio www.nationwide.com	28,465	1,222	7%	4%	7	Organized in 1926 by Ohio farmers, Nationwide is a leading U.S. property and casualty insurer and also offers surplus lines, professional liability, workers' compensation and managed health care coverage. IT managers and project leads are eligible for bonuses based on the timely completion of projects. Managers are also given a discretionary bonus fund from which to reward individuals for outstanding work. IT employees are given an annual training stipend of $1,000.
99	Hewlett-Packard Co. Palo Alto, Calif. www.hp.com	140,000	330	0	9	5	This computer maker now rivals IBM in size, after restructuring under the leadership of CEO Carly Fiorina. HP's offerings include PC and access devices, global services, and imaging and printing equipment. IT training opportunities include employee and management development, advanced technical degree programs, financial support for conferences and seminars, university and other programs, memberships in professional societies and trade organizations, and other job-related memberships.
100	MetLife Inc. New York www.metlife.com	37,170	4,238	19%	14%	7	MetLife is one of the largest insurers in the U.S., offering life insurance and property and casualty insurance as well as savings, retirement and other financial services for groups and individuals. Its IT Learning Center provides a single point of contact for technical and professional learning needs. IT workers have round-the-clock access to learning opportunities through the company's IT Learning Portal.

SOURCES: COMPANY SURVEYS, HOOVERS.COM AND CORPORATE WEB SITES
NOTE: COMPANY LOCATIONS INDICATE WHERE THE MAIN IT OFFICE IS BASED

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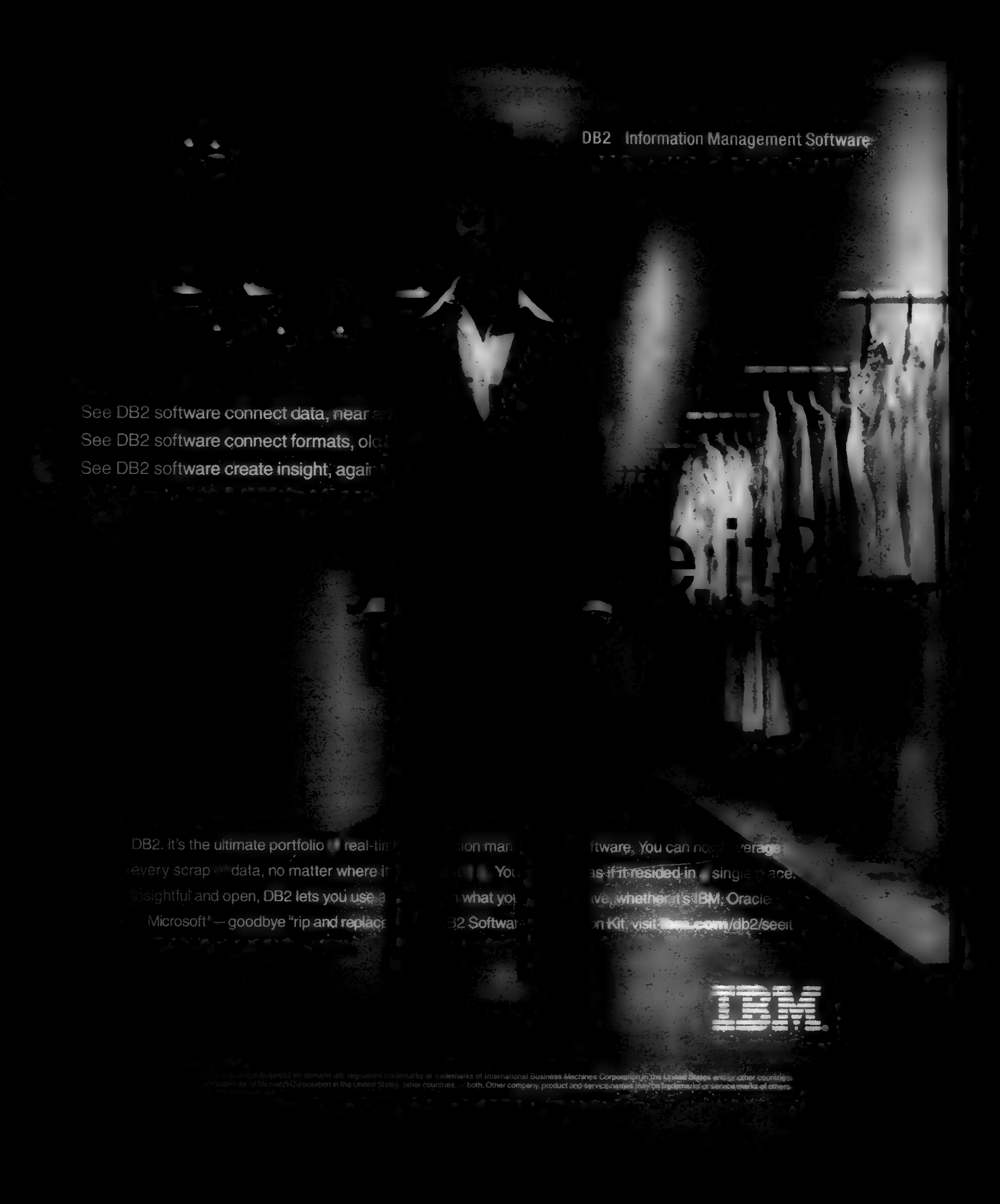

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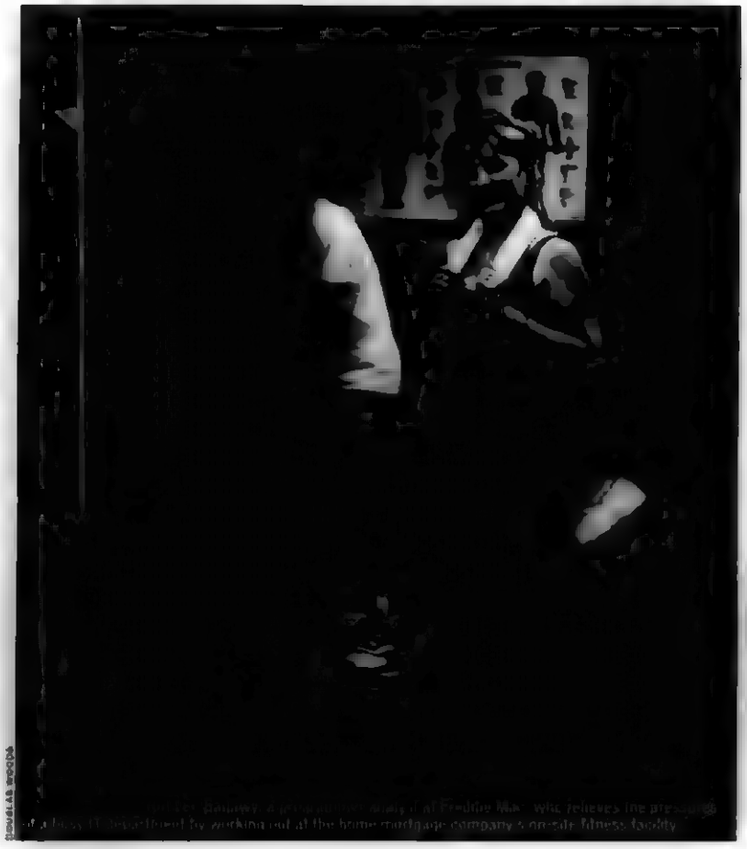

DOUGLAS BROOKS

Stress-Busters

Does your IT job make you feel like you're in a pressure cooker? These Best Places share the unique ways they help employees let off steam.
By Steve Alexander

IN THIS TOUGH economy, IT workers are taking on more projects and longer hours. With job-related stress on the rise, they're looking for ways to cope.

In *Computerworld*'s survey of 11,525 IT employees at this year's Best Places to Work, 25% said they find work "stressful," and another 9% said it's "very stressful." IT workers say they value honesty from employers, access to exercise equipment, outside activities and work-friendly teams to help them beat stress. Here are some tips from IT employees and managers about stress-reduction techniques that work.

Be as frank with your IT team as possible.

"In these economic times, IT developers are worried about their companies looking offshore for workers; it makes IT workers concerned about how secure their jobs are," says Keith McLaughlin, manager of the applications development center at Avon Products Inc. (No. 18) in Rye, N.Y.

"Companies need to let the IT staff know what management is thinking. Avon told us in October that they had looked at outsourcing but didn't feel it met their requirements. As a result, I don't think anybody feels right now that the company has any plans to outsource IT," he says.

"While there have been layoffs here in the past, we always were informed well ahead of time what was going on," says Jeff Ecott, a senior systems analyst in consumer marketing systems at Bethesda, Md.-based Marriott International Inc. (No. 51). "We have 'town hall' meetings where management talks to us and lets us ask questions. That puts us at ease."

Offer on-site exercise for employees to let off steam.

"Exercise is a huge stress release for a lot of people in IT," says Marylee Barlow, a senior technical writer in the IT education division at Freddie Mac (No. 32), a McLean, Va.-based company that provides funds to home mortgage lenders. "We have a free fitness center on-site," she says. "It takes you away for a little while, and you don't have to deal with traffic and parking."

"I don't know how many problems I've solved by going to the gym; something usually occurs to me when I've cleared my mind," says Ecott. "I try to work out there every day."

Build cohesive IT teams with outside activities.

"As teams, we've relieved stress by having a lot of functions off-site on our personal time," says Sylvester Criscone, senior manager of global voice and messaging at Avon. "On one outing, more than 20 of us shot each other with paintball guns. Another time, both of my teams got together for drinks and hors d'oeuvres — not on the company tab, but paid for out of my own pocket. When you put out that effort, employees feel they really are cared about."

"IT employees need some kind of place, away from the workplace, where they can feel free to be themselves and socialize with their peers," says Michael Gonzalez, applications systems manager at USAA (No. 56), a financial services company in San Antonio. "When you schedule something off-site, it pulls people away from things like e-mail and phone calls that are always hanging over their heads."

Christy Wilburn, a senior systems analyst at Hilton Hotels Corp. (No. 42) in Beverly Hills, Calif., fondly remembers that when IT completed a new demand-forecasting system for hotel rooms, members were rewarded with a dinner at a company hotel in downtown Los Angeles. "It was a huge recognition for us," Wilburn says.

Create a friendly work environment.

A casual workspace helps alleviate stress, says Page Bostic, client services manager at the Marriott International Systems Support Center, a help desk in Rockville, Md.

"Our desks are in short-walled cubes that make for good team dynamics because people can talk. People can decorate their cubes as they like," Bostic says. "We also have 'jeans Friday,' and sometimes we throw a light football around."

"My philosophy is that the work is only so important; it's the people who make it happen. So you've got to put people first," says Mashon Wessling, a lead technical systems specialist at Domino's Pizza LLC (No. 21) in Ann Arbor, Mich. "I make a point of getting to know other people on the team. I ask how their day is and how it's going, because then I can get a handle on how they react under pressure."

Let employees have their say.

USAA has a room with terminals that employees can use to offer the company president suggestions or complaints. Employees can sign their names or remain anonymous. "It's another way of letting people communicate and either make things better or let off steam," says Charlie Cockerell, a senior systems programmer at USAA.

Make sure stress doesn't get out of hand.

"We deal with a lot of stress because there's a lot of work, fewer people to do it, and we support some 24-by-7 production software even though we don't work 24 by 7," says Debby Aprill, an IT technical director at Domino's. "We all sit close together, and when I see something brewing, I deal with it right away because I don't want it to boil over. I immediately try to get people one-on-one in a conference room."

Alexander is a freelance writer in Edina, Minn. Contact him at Sorion99@yahoo.com.

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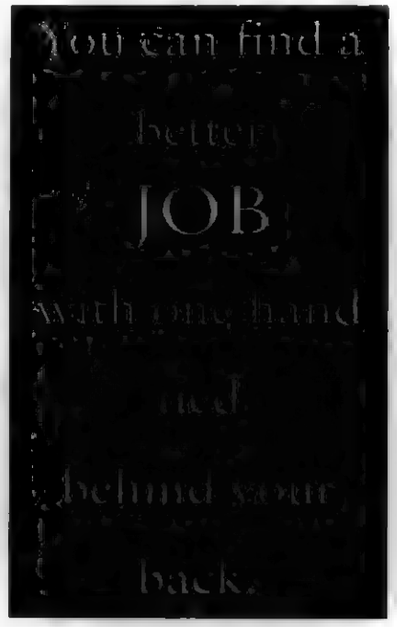

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Seeking qualified applicants for the following positions in Memphis/Collierville, TN. Senior Programmer Analyst. Formulates/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with 3rd/4th generation programming languages, RDBMS, and batch processing also required. "Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to: Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Programmer-Analyst needed to integrate Data from ERP solutions & dvlp Client/Server, Web based Applics using Data integration tools such as e*Gate/Data Gate for various ERP Solutions incl. PeopleSoft; tools from MS incl. .NET Technologies, VB, ASP, COM/DCOM, VSS; tools from Sun MicroSystems incl Java, Servlets, HTML/DHTML, XML, JavaScript, Analysis Server, OLAP of SQL Server, Teradata Warehouse. Apply to Attn: Hireme, Global Consultants, 25 Airport Rd, Morristown, NJ 07960

Software Engineer (with Bachelors degree and 5 years experience) - Williamsport, PA. Job entails and requires experience in design, development, implementation and support of ERP, Financial and e-commerce applications using Oracle, SQL Server, Sybase, VB.NET, OLAP, Unix and Windows. Relocation within USA possible. Attractive compensation package. Send resume to Supriya Palayekar, Palayekar Companies, Inc., 1959 East Third Street, Williamsport, PA 17701.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN. Senior Business Application Analyst. Formulate/define systems' scope and objectives based on user/customer needs and a good understanding of applicable business systems and industry requirements. Requirements: Bachelor's degree* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with business case development and project management tools (e.g. Primavera Project Planner, TeamPlay, MS Project or MS Access) also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to: Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Systems Analysts to analyze and design appls and drivers using VC++, C++, UML, Embedded database, Embedded Device Driver Development, etc. under VxWorks/ Windows OS; create user and design documentation for driver development, design and develop Windows NT/2000 kernel drivers for PCI based A/V cards. Prog/Analysts to analyze and develop appls using OAOD, VC++, C++, ASP, VB, Java, XML, XSL, Jscript, UML, HTML, etc. under Windows/UNIX OS; perform initial study of req and provide feedback; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require BS or foreign equiv in CS/Engg.(any branch) & 2 yrs of exp in IT. High Salary. Travel involved. F/T. Resume to HR, Fourth Technologies, Inc., 585 Tollgate Road, Suite 1, Elgin, IL 60123

Computers-Technology Services Professionals needed. Jefferson Wells International, a Milwaukee, WI based company is seeking qual. candidates possessing MS/BS or equiv. and/or rel. work exp. Part of the req. relevant exp. must include 2 yrs. working with technology security. Work with the following: Scanning tools, password crackers & system analyzing tools. Fwd. resume & ref. to recruit.usnyk@jeffersonwells.com. Please reference mlh03 in the subject line.

Computers - Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. for the following openings.

Database Administrators. Part of the req. relevant exp. must include 2 yrs. in database administration.

Computer Programmers. Part of the req. relevant exp. must include 1 yr. working with Siebel tools, ASP and Visual Basic.

Work with 3 of the following: ASP, COGNOS, Oracle Discoverer, Siebel tools, Sun Solaris, Oracle Database Management, Visual Basic & Javascript. Fwd. resume & ref. to SQL Corp., Attn: HR, 104 Bates Ave., Gaithersburg, MD 20877

Computer Programmer Analyst - To work on multi-tier programming. Required Skills: Java, Hostpublisher, websphere, XML, VC++, Oracle, Powerbuilder, VisualBasic, SAP. Qualifications: Bachelor's degree in computer science or USA equivalent and 2 years of experience in job as a computer programmer. Interested Applicants send resumes to: Soft Brothers, Inc., 8659 Polonius Court, Suite-A, Indianapolis, IN 46254.

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Programmer Analysts Needed. Seeking qual. Cand. possessing BS or equiv. and/or relevant work exp. Exp. must include 2 years working Product configuration management systems. Exp. w/ payroll applications a plus. Duties include: Analyze software requirements and the design, coding, testing and implementation of software projects. Mail res., sal. req & ref to: Jeld-Wen Inc., 3303 Lakeport Blvd., Klamath, OR 97601 ATTN: HR.

Prog/Analysts to analyze, develop/maintain B2B appls in client server envir using Java, Servlets, Java Beans, JHTML, JScript, VBScript, JDBC, Apache, ATG Dynamo, Oracle, etc under UNIX/Windows OS; design/develop Java applets, run batch process to generate reports, perform code development, quality control testing and performance tuning. Require: B.S. or foreign equiv. in CS/Engg.(any branch) & 2yrs of exp. in IT. F/T. Travel Involved. Comp. Salary. Respond to HR, Opal Soft. Inc., 3150 Almaden Expy, Ste 205, San Jose, CA 95118.

Computer Systems Administrator. Analyze/maintain/modify applications on IBM mainframe. Req. BS Math/Comp. Science/Rel. Field & 2 yrs exp in job/2 yrs exp as Sr. Analyst/Programmer. Spec. Req. Expertise in COBOL, DB2, CICS, CSF, Cordaptix & Utility Billing Systems. Send Resume: Louie G. Abad, EV3A, Inc., 412 Wellsley Court, Folsom, CA 95630(Jobsite).

Software Engineers to analyze, design, develop appls using Java, HTML, SQL Server, JScript, JDBC, WebSphere, MQ Series, DB2, Oracle under Windows and UNIX OS; perform system/functional req analysis; document detailed project specification and review the conceptual model with user groups; provide training and user support for the systems/ related appl software, perform debugging/modifications of existing software. Require: M.S. or foreign equiv in CS/Engg. (any branch) /Math/Electronics with 6 months exp in IT. High Salary. Travel involved. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123.

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SYSTMS/SW ENGR. Anlyz existing op systms & user reqs to resolve & troubleshoot SW probs reportd by custmrs. Trnslate custmr bus reqs into eng reqs by changng sys SW. Trnslate eng reqs into SW designs. Implemnt Unix op sys fastrs from SW designs using C/C++. Ensure sys is operating efficntly. Asst sys users (customrs or company-internal eng grps) w/ sys SW probs, including collcting info about failure, isolating prob & seting expectations on steps to corrct probs. Fix SW defects in Unix op sys SW. Design & develp new fastrs for ICS (Internode Comm Subsystm). Review integrity of code base & modify SW to functn in multi-lingual envrnmnts. Provide SW eng svcs for the company's Unix op sys SW. Req. Bach degr or equiv in EE, CE, CS, Electronics or rltd field + 2 yrs exp in job offrd or rltd field + spec reqs of Unix systms, C/C++ & sys SW. Sal. $70K/yr. Loc: Nashua, NH. 8am-5pm, 40hrs/wk. Send 2 copies of resume/letter of application to Job Order # 2003-214, P.O. Box 989, Concord, NH 03302-0989. Must have proof of legal authority to work in U.S.

Programmer Analyst at our Cedar Rapids, Iowa location. Convert customer requirements into program specifications; analyze the impact of proposed solutions on business applications, ensure satisfactory functioning through testing; analyze results and correct deficiencies according to customer requirements; and review work done by development team members. Must have Bachelor's in Computer Science, Engineering or related, one year experience, and must have knowledge of Object Oriented programming, system analysis, design and implementation, Java, Oracle, and Visual Basic. Send resume to APAC Customer Services, Inc., Attn: Cindy Corkery, 6 Parkway North Center, Deerfield, IL 60015. EOE/AA

APAC CUSTOMER SERVICES, INC. is not affiliated with APAC, Inc., the road paving and construction materials company.

Fibre Channel Software Engineer designs, implements, and supports FC-2 Transport Level API that interacts with proprietary SNP hardware. Duties include developing and supporting PC device driver for FC MAC portion of SNP hardware; designing, implementing, and support FC Reference Code which provides sample implementations of FC port roles and contributing to the design and implementation of other storage products which will implement the functions of SCSI initiators that run atop FC, Gigabit, or similar interconnects. Must have Master's degree in CS or related field plus 1 year experience as a software engineer working with PC link using FC analyzers and working with system software including OS kernel level software and device drivers. Must have 1) detailed understanding of FC Protocol and Standards Drafts; 2) exp w/ LPHY and Sanmark conformance suites and related hardware; 3) exp w/ SCSI implementation on FC; 4) exp w/ SCSI-2, SCSI-3; 5) exp. developing SCSI initiator or target implementations; and 6) understanding of interconnect technology including FCP, SEP & iSCSI. Must have unrestricted authorization to work in U.S. M-F 9-5, 40 hrs/wk. Salary: $83,000/year. An EOE. Send 2 copies of resume to Case No. 200201180, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

F/T Programmer Analyst. Responsible for developing and maintaining specifications, modifications and additions to programs. Implement the development of, and modifications to, programs for application in the textile industry using systems design. Recreate steps taken by users to locate and correct problems using systems analysis. Analyze, review and alter computer programs to increase operating efficiency and to adapt to new requirements using AS/400, RPG/400, ILE RPG, CL/400, SQL/400, and DB2/400. Monitor performance of programs after implementation. Must have a Bachelor's degree in Mathematics, Computer Science, related field or foreign degree equivalent. Must have 2 yrs. of exp. in job offered or position of similar duties. Salary: Competitive. Send resume to: C. Lester, Deseret TIS, Inc., 1040A Cambridge Sq., Alpharetta, GA 30004. No calls please.

Seeking qualified applicants for the following positions in Memphis, TN: Senior MIS Analyst. Provide project leadership in the analysis, design, development and management of databases and reporting tools to support customer service computer systems/applications. Requirements: Bachelor's degree or equivalent in computer science, math, business or related field plus 5 years of experience in business analysis, computer modeling, simulation and/or MIS system development. Experience with SAS; Access; and either Sybase or PowerBuilder also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Miss Feehan, Federal Express Corporation, 3798 Lamar Avenue, 3rd Floor, Memphis, TN 38118. EOE M/F/D/V.

Software Engineers to analyze, design business appls for SAP R/3 using ABAP, BAPI, Workflow, ALE, etc. under Windows and UNIX OS; analyze business processes to determine reqs and generate reports, prepare documentation, flow charts and programming specifications, create application prototypes for client approval and rapid application development; train users in business application usage. Require: MS or foreign equiv. in CS/Engg (any branch)/Math and 1 yr exp in IT. Highsalary F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 4886 South Old Peachtree Rd, Norcross, GA 30071

Programmer Analyst. Design & Implement Software systems using Java, C, C++ & VB Script DOS, MS Windows, NT & Unix operating systems, SQL Server, Oracle including GUI, HTML. Req: Bachelors in Computer Sci., Computer Eng. or Electrical Eng. 40 hr/wk. Job/Internview Site: Hillsborough, NJ. Send resume to Advanced Data in Information Technology, Inc., 24 Runyon St., Hillsborough, NJ 08844.

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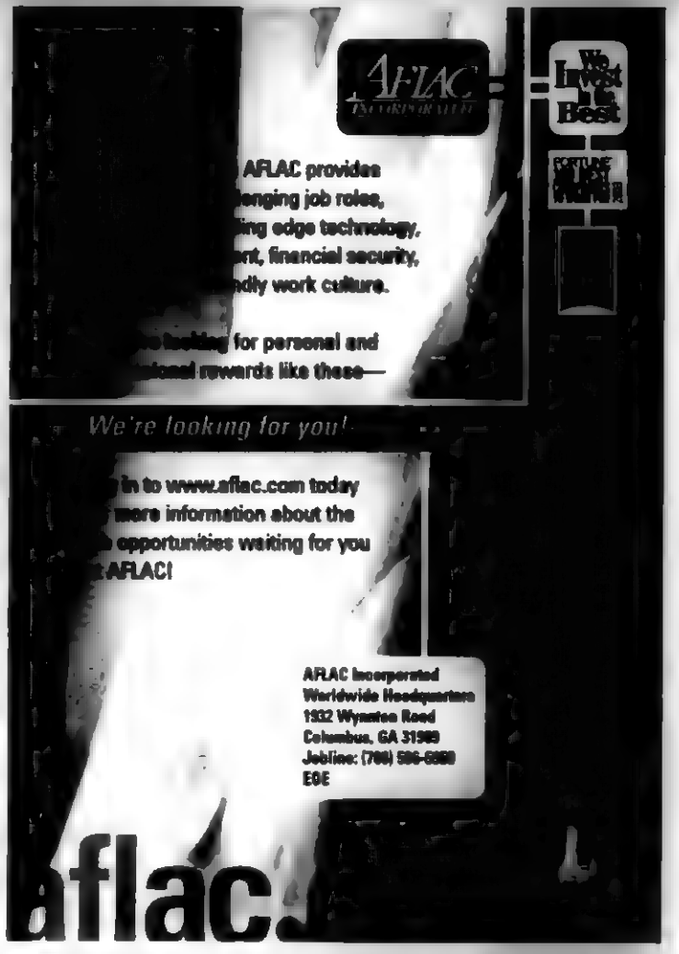

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Computer Information Specialist wanted by a travel management firm in Miami, FL. Must have a BS degree in computer engineering and 1 yr. of experience in the job offered. Mail resumes only to 4950 SW 72 Avenue, Miami, FL 33155. Attention: Shirley Berridge.

Calif. based IT co. has openings at its Torrance office and unanticipated client sites across the US for Programmer/Analysts, Software Engineers and Business Development Consultants. Send resume with salary history and requirements to RJT Compuquest, 23430 Hawthorne Blvd., #305, Torrance, CA 90505 Attn: Suzanne

Senior Software Engineer to design and develop application software using Crystal Reports, Oracle, Crystal SQL Designer, Visual Basic, PowerBuilder, MS SQL Server, SQL Server Web Assistant, IIS server, ASP, VB Script, Java Script, Visual Interdev, HTML and MS Access; Responsible for file migrations using MS SQL DTS; Create procedures and triggers in SQL Server using TSQL and in Oracle using PL/SQL; Tune SQLs using SQL Trace and TKPROF utilities; Run Bill Invoice Processing and Bill Image Formatting in Arbor BP; Design and configure product catalog using Arbor BP. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 5 yrs of progressively responsible exp. in the job offered or as a Systems Analyst or Programmer. Attn: Job VT.

Software Engineer to design, develop, test, implement and maintain web-based application software for the telecommunication industry using object oriented technology, C, C++, Java, JDBC, ODBC, Oracle, Apache XML Parser, XML Spy and XML Notepad under UNIX, Linux, SUN Solaris and Windows operating systems; Develop GUI using Java Swing, Awt, Java Beans, Java Applets, JSP, HTML, JDK, JavaScript and Java Servlets. Require: M.S. degree in Computer Science, or a closely related field with 2 yrs of exp in the job offered. Attn: Job HC.

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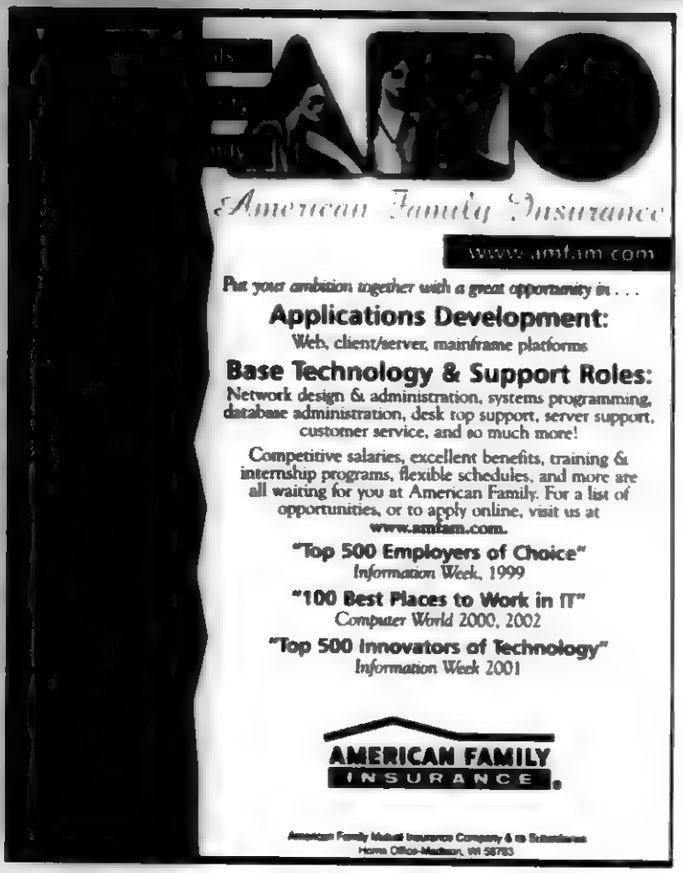

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Seek Level I & II Computer Programmers/Software Engineers w/ strong communication skills & any of following skills: VB/PB, SQL & any database, AS/400, RPG/400, COBOL/400, CL, Visual C++ or C++, NT Admin., JAVA/HTML/CGI, COBRA, PERL, Oracle/Sybase/Informix/SQL Developers & DBAs, Lotus notes, Domino and ERP packages. Level I: B.S. degree and 2-3 years exp. Level II: M.S. or B.S. and 5 yrs. exp. Assignments may be anywhere in the U.S. Multiple open positions in Florida, Minnesota, Illinois, Delaware, Kansas, Texas. Forward resumes to Manager@MilestoneConsulting.com, 8625 NW, 6 street, Suite 422, Miami, FL 33126.

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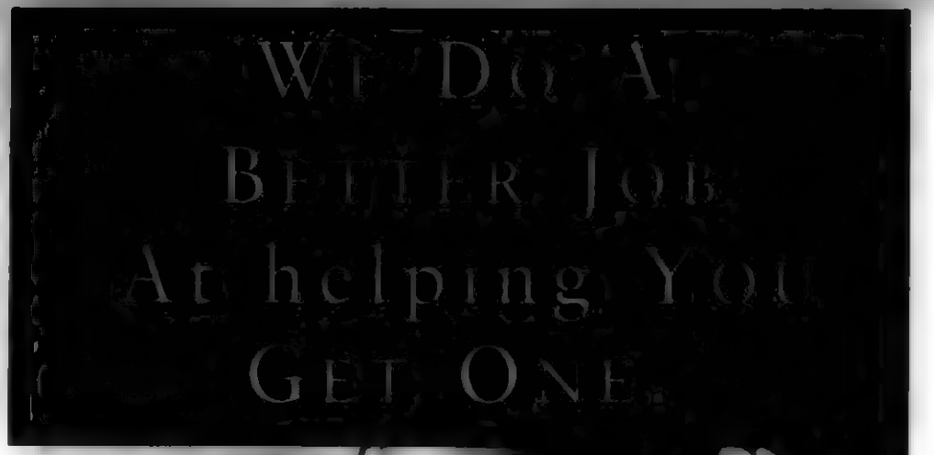
DATABASE ADMINISTRATOR to administer, design, develop, and configure Sybase databases using Data Modeling Tools including Erwin and Power Designer under UNIX and SUN Solaris operating systems; Administration duties include installation of Sybase databases and development tools, backup and recovery, and creation and monitoring of users tables; Tune databases for optimum performance and perform troubleshooting. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs. of exp. in the job offered. Competitive salary offered. Send resume to: Mark S. Tatum, Integrity Life Insurance, 515 West Market St., Louisville, KY 40202 Attn: Job AP.

Staff Marketing Application Engineer. Responsible for providing engineering expertise to customers of high-bandwidth silicon area network products. Provide system-level, post-design support to telecommunications customers regarding network technologies such as T1/E1, DS3/E3, SONET/SDH, ATM, frame relay and Ethernet. Review customer layouts prior to fabrication; assist customers with debugging systems and hardware boards; provide customer support to software engineers; provide pre-sales support by giving technical seminars and reviews; train sales personnel on telecommunications devices, system, networks, protocols, and industry trends. Requires: Master of Science in Electrical/Computer Engineering or equivalent. Must have knowledge of TVE! Framers, DS3/E3 SONET Framers and mappers, IP Classification and Forwarding, ATM and IP network architectures. 40hrs/wk (9:00 a.m. to 5:00 p.m.) $115,000.00/yr. Send two resumes/responses to: Case Number 200202127, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Systems Engineer responsible for design & development of web & Internet-based software applications, & solutions; coordinate software development projects; design systems software using C, Java, & RPG/400; provide technical advice on integration & systems architecture; perform software testing & analyze test results; audit test processes; & utilize test data to develop new & enhance existing software products. Min. req's: BS degree in Computer Science, Engineering, or related field, plus 2 yrs. exp. as software engineer responsible for using RPG/400 to develop software applications, modules, & solutions. Must possess knowledge of C & Java. Must have unrestricted authorization to work in U.S. M-F, 8:00 a.m. - 5:00 p.m., 40 hrs/wk. Salary $75,000 - $100,000/year. An EOE. Send 2 copies of resume to Case No. 200201295, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.



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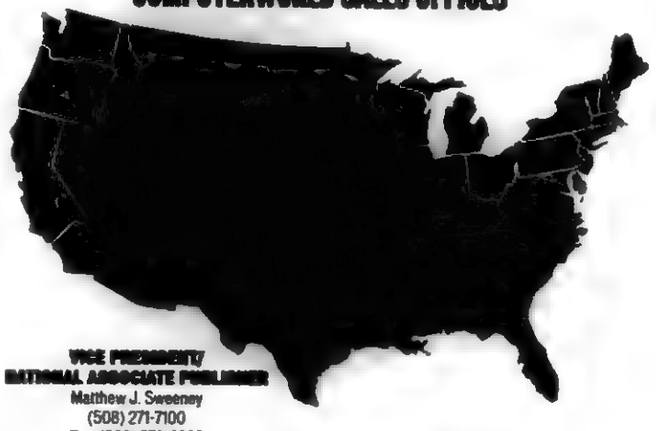

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PeopleSoft

Oracle, which currently is the second-largest applications vendor behind SAP AG. Users' concerns were exacerbated by statements from Oracle that it would not actively sell PeopleSoft's applications to new customers and that it would reassess whether to go forward with the deal between PeopleSoft and J.D. Edwards.

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Executives at PeopleSoft and J.D. Edwards pledged to maintain the existing product lines of each company. A spokeswoman for J.D. Edwards added that there would be no management changes there and said it would operate as a subsidiary of PeopleSoft.

"This came as a surprise, but it seems to make sense for the firms to consolidate, as [companies in] many other industries are having to do to stay financially viable," said Irving Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa.

Quaker Chemical is in the midst of a multiyear global implementation of J.D. Edwards' OneWorld XE applications and is using the software to run its European operations. Tyler said his biggest concern about the planned acquisition is "what the impacts will be in terms of our existing relationships with J.D. Edwards, especially from a technical [support] point of view."

Inlander said he has no major worries about the PeopleSoft/J.D. Edwards deal, "other than wondering if the sales force structure will change and we'll have a different account person." He also noted that some J.D. Edwards applications that overlap with Oracle, such as its human resources software, eventually "might fall by the wayside." Fleetwood, a maker of recreational vehicles and mobile homes, uses J.D. Edwards' ERP and supply chain software.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said buying J.D. Edwards would give PeopleSoft increased "credibility in manufacturing and a critical mass of customers" — two things it needs to compete more effectively against SAP and Oracle.

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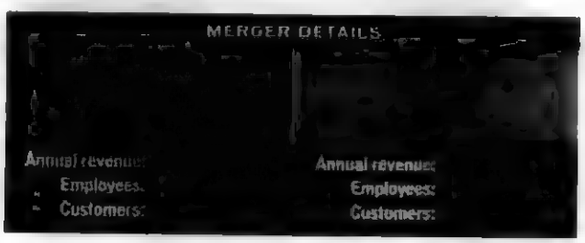
Baan

maker of dental equipment in Newberg, Ore. With both Baan and SSA having a strong presence among manufacturers, the merger could help Baan further penetrate that market, Bearden said. He added that he expects SSA to try to expand the use of Baan's applications instead of just putting them into maintenance mode and treating users like A-dec as cash cows.

Barneveld, Netherlands-based Baan was sold by parent company Invensys PLC to a pair of investment firms for $135 million in cash. London-based Invensys, which bought Baan in August 2000 for $709 million, put the ERP vendor on the block in April after singling it out as a weak performer [QuickLink 37860]. Baan lost $32 million on revenue of $265 million in the fiscal year that ended March 31, according to Invensys.



The buyers are Cerberus Capital Management LP in New York and General Atlantic Partners LLC in Greenwich, Conn. The two firms also jointly own Chicago-based SSA, and Baan said it will be merged with SSA over the next several months. If PeopleSoft Inc.'s acquisition of J.D. Edwards & Co. goes through and PeopleSoft remains independent, the addition of Baan could make SSA the fourth-largest ERP vendor behind SAP AG, PeopleSoft and Oracle Corp., according to AMR Research Inc. in Boston.

Business as Usual

Baan will operate as a standalone division with its own development, sales, marketing and support staffs, and it doesn't plan to phase out any products at this time, said Dave Wangler, Baan's senior vice president of global marketing. He said Baan will also proceed with the scheduled rollout of its next-generation ERP applications, code-named Gemini and due for release in the fall.

"There will be no disruption in customer service," Wangler said. "Customers will continue to see the same salespeople and be serviced by the same consultants and the same support teams." However, he added that some restructuring moves are likely to be made in an attempt to return Baan to profitability.

SSA filed for Chapter 11 bankruptcy protection in 2000 after several years of losses caused by quality problems and development delays on its own ERP software. Since then, it has re-emerged as a private company and bought Infinium Software Inc. and Computer Associates International Inc.'s interBiz applications unit.

But Warren Smith, IT director at the Victor Reinz division of auto-parts maker Dana Corp. in Toledo, Ohio, said it will be a major undertaking for SSA to incorporate Baan and get its products back on track with users. Victor Reinz uses ManMan, a manufacturing application that SSA acquired from CA.

SSA has been responsive to user demands, postponing the sunsetting of some popular products, said Smith, who is president of San Jose-based CAMUS International Inc., a user group that focuses primarily on the former interBiz applications. But he added that the merger with Baan could cause SSA to lose focus "on some of the lesser products" it owns. Nevertheless, SSA is devoted to manufacturing-related applications and isn't likely to treat Baan's software as a sideline endeavor, as Invensys did, Smith said.

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Andrew Ball, a London-based analyst at Frost & Sullivan Inc., said in a report that Oracle's bid "is a supreme piece of opportunism." But the price it's offering is likely too low, Ball said, adding, "The only lasting consequence may be the addition of an extra edge to the competition between Oracle and PeopleSoft."

That already seemed assured by PeopleSoft's agreement to acquire Denver-based J.D. Edwards in a stock-swap deal valued at about $1.85 billion, based on the closing price of PeopleSoft's stock on Friday. The plan to combine those two companies and make PeopleSoft the No. 2 business application vendor caused considerably less consternation among users than Oracle's hostile move did.

Executives at PeopleSoft and J.D. Edwards pledged to maintain the existing product lines of each company. A spokeswoman for J.D. Edwards added that there would be no management changes there and said it would operate as a subsidiary of PeopleSoft.

"This came as a surprise, but it seems to make sense for the firms to consolidate, as [companies in] many other industries are having to do to stay financially viable," said Irving Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa.

Quaker Chemical is in the midst of a multiyear global implementation of J.D. Edwards' OneWorld XE applications and is using the software to run its European operations. Tyler said his biggest concern about the planned acquisition is "what the impacts will be in terms of our existing relationships with J.D. Edwards, especially from a technical [support] point of view."

Inlander said he has no major worries about the PeopleSoft/J.D. Edwards deal, "other than wondering if the sales force structure will change and we'll have a different account person." He also noted that some J.D. Edwards applications that overlap with Oracle, such as its human resources software, eventually "might fall by the wayside." Fleetwood, a maker of recreational vehicles and mobile homes, uses J.D. Edwards' ERP and supply chain software.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said buying J.D. Edwards would give PeopleSoft increased "credibility in manufacturing and a critical mass of customers" — two things it needs to compete more effectively against SAP and Oracle. ◗

Continued from page 1

Baan

maker of dental equipment in Newberg, Ore. With both Baan and SSA having a strong presence among manufacturers, the merger could help Baan further penetrate that market, Bearden said. He added that he expects SSA to try to expand the use of Baan's applications instead of just putting them into maintenance mode and treating users like A-dec as cash cows.

Barneveld, Netherlands-based Baan was sold by parent company Invensys PLC to a pair of investment firms for $135 million in cash. London-based Invensys, which bought Baan in August 2000 for $709 million, put the ERP vendor on the block in April after singling it out as a weak performer [QuickLink 37860]. Baan lost $32 million on revenue of $265 million in the fiscal year that ended March 31, according to Invensys.

The buyers are Cerberus Capital Management LP in New York and General Atlantic Partners LLC in Greenwich, Conn. The two firms also jointly own Chicago-based SSA, and Baan said it will be merged with SSA over the next several months. If PeopleSoft Inc.'s acquisition of J.D. Edwards & Co. goes through and PeopleSoft remains independent, the addition of Baan could make SSA the fourth-largest ERP vendor behind SAP AG, PeopleSoft and Oracle Corp., according to AMR Research Inc. in Boston.

Business as Usual

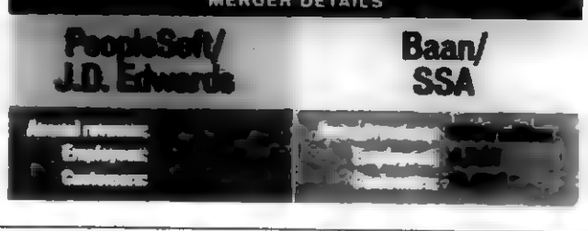
Baan will operate as a standalone division with its own development, sales, marketing and support staffs, and it doesn't plan to phase out any products at this time, said Dave Wangler, Baan's senior vice president of global marketing. He said Baan will also proceed with the scheduled rollout of its next-generation ERP applications, code-named Gemini and due for release in the fall.

"There will be no disruption in customer service," Wangler said. "Customers will continue to see the same salespeople and be serviced by the same consultants and the same support teams." However, he added that some restructuring moves are likely to be made in an attempt to return Baan to profitability.

SSA filed for Chapter 11 bankruptcy protection in 2000 after several years of losses caused by quality problems and development delays on its own ERP software. Since then, it has re-emerged as a private company and bought Infinium Software Inc. and Computer Associates International Inc.'s interBiz applications unit.

But Warren Smith, IT director at the Victor Reinz division of auto-parts maker Dana Corp. in Toledo, Ohio, said it will be a major undertaking for SSA to incorporate Baan and get its products back on track with users. Victor Reinz uses ManMan, a manufacturing application that SSA acquired from CA.

SSA has been responsive to user demands, postponing the sunsetting of some popular products, said Smith, who is president of San Jose-based CAMUS International Inc., a user group that focuses primarily on the former interBiz applications. But he added that the merger with Baan could cause SSA to lose focus "on some of the lesser products" it owns. Nevertheless, SSA is devoted to manufacturing-related applications and isn't likely to treat Baan's software as a sideline endeavor, as Invensys did, Smith said. ◗



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Make Sure It Works

WILL IT WORK? It's a simple enough question. Say you're looking at an IT problem, and you need to select a product or technology or process change to solve it. You've got a range of options, and you already know which one you like best. Now your most likely course is to optimize your description of the problem to fit the solution you prefer. If you're even halfway competent at your job, you should be able to characterize the problem in a way that makes your favorite the obvious choice.

But will it work? That's the question that matters. If it won't work, you're just wasting time and money.

Trouble is, it's also the hardest question to ask in most organizations. If the CEO likes a particular vendor or approach, asking whether that vendor's product or that approach will actually solve the problem at hand means challenging the boss. That's not generally a career-enhancing move.

Neither is challenging the CIO. Or the project manager. Or the senior network administrator. Or, for that matter, the IT people who have to do the grunt work. Suggest that what they prefer isn't going to work, and they're as likely to dig in their heels as they are to consider alternatives.

If you ask "Will it work?" the wrong way — well, it just won't work.

But that's still the question that matters. It keeps us focused on the real problems we're trying to solve. Those are ultimately business problems, and they're separate from the political and budgetary and technological issues we have to negotiate along the way.

Politics and budgets and whiz-bang technologies will always get pushed. But somebody's got to keep an eye on what's important.

So what's the right way to ask "Will it work?"

Ask it in private. And ask it of everyone. And keep asking it.

Ask "Will it work?" in private, because that's less threatening. In private, it's a question, not a challenge. It doesn't put anyone on the spot in front of bosses or peers or subordinates. It doesn't demand defense of a position. It doesn't even require a real answer — though in private, it may be more likely to get one. It just keeps the question on the table.

Ask "Will it work?" of everyone, because that's less threatening, too. The more people in your IT shop you ask, the less personal the question becomes — and the more likely you are to get 360-degree views of both the proposed solution and the problem itself.

But remember: You want to tap the honest expertise of as many people as you can. That means what they say in private has to stay private. Otherwise, you'll get an honest answer exactly once.

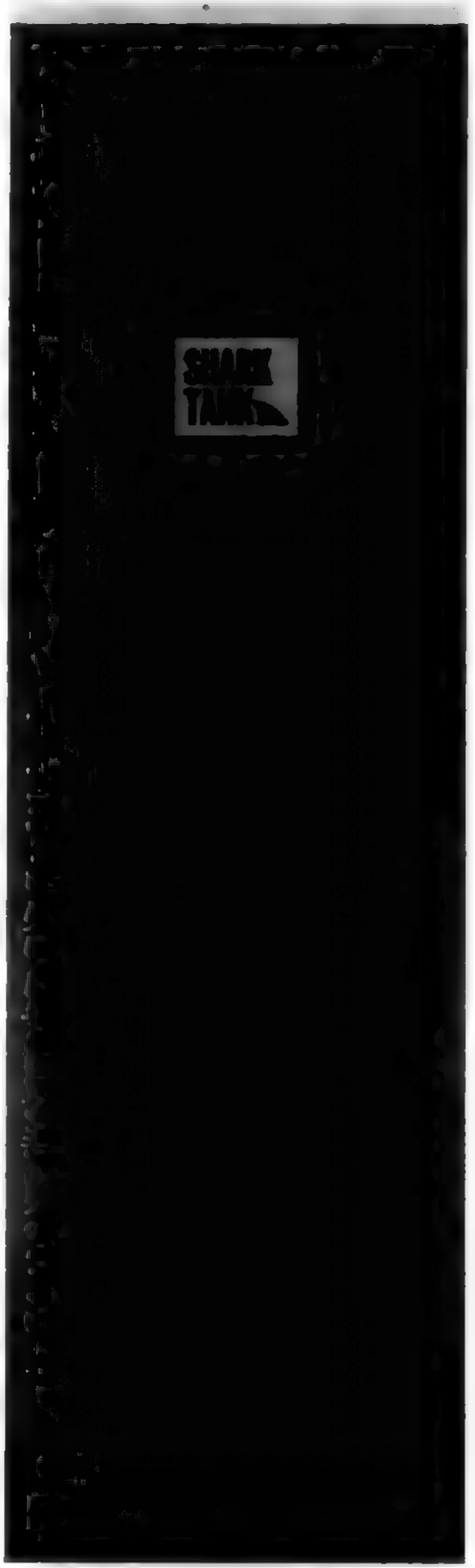
And you can't afford that. Because you want to keep asking "Will it work?" You want it to be a routine question. You want it to be one of the questions everyone in your shop thinks about regularly as a matter of course.

You want it to be a question they come back to again and again, because requirements change, and good projects go bad, and opinions turn sour. "Will it still work?" is just as important when you're hip-deep in a project as "Will it work?" was before it started. If a project needs to change direction or even get the ax, you need to figure that out as soon as possible.

And don't forget that you need to ask yourself — and keep asking yourself — the same things. Will it solve the business problem? Does it still look like a winner? Do you need to make adjustments to keep it workable? *Will it work?*

It's a simple question. And it will keep you focused. Not on deadlines, or political maneuvering, or technical elegance or the shininess of that latest and greatest product. But on what matters: getting something to users that will actually work to solve business problems.

Because if it won't work, nothing you do really matters at all. ◗



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Hostile Bid for PeopleSoft May Delay Apps Purchases

J.D. Edwards sues Oracle for obstructing merger

BY MARC L. SONGINI
DENVER

Whatever the outcome, Oracle Corp.'s hostile takeover bid for PeopleSoft Inc. is already creating confusion and doubt among users of both PeopleSoft and J.D. Edwards & Co. business applications.

Some users last week said they may delay software purchases until the buyout attempt is resolved. For example, John Hill, CIO at Praxair Inc. in Danbury, Conn., said the maker of industrial gases will wait to see which acquisition scenario plays out before making a decision on whether

Oracle Bid, page 49

Java Should Be Open-Source, Creator Says

Other Sun execs wary of incompatibility issues

BY CAROL SLIWA
SAN FRANCISCO

If pressed to vote yea or nay, the "father of Java" said last week that he would cast his ballot in favor of making his creation more open-source, even though he recognizes that some of his Sun Microsystems Inc. colleagues make strong counterarguments.

During an interview at the JavaOne conference here, James Gosling, the Sun vice president who unleashed the programming language eight years ago, said he thinks Java

Java, page 13

Vendors Clamp Down On License Compliance

Audits increase as software makers look to offset sagging sales by enforcing existing contracts

BY THOMAS HOFFMAN
LOS ANGELES

IT managers at a Gartner Inc. conference here last week said software vendors are increasingly threatening — and then conducting — audits to determine whether users are complying with their licensing agreements.

According to IT professionals and Gartner analysts, the use of software audits has swelled in recent months as vendors look for ways to generate additional revenue from existing users to make up for reduced spending on new licenses. Vendors such as Microsoft Corp. and Oracle Corp. have long done audits of some of their customers, but conference attendees said other software developers are pushing harder on audits.

Some users are trying to be proactive. For instance, the city of Chesapeake, Va., recently completed a nine-month internal audit of its Microsoft desktop software licenses and found itself "to be in pretty good shape," said Janet Hadley, an account administrator for the municipality.

But other users are still getting their license-tracking in order so they will be prepared for potential audits.

"We're currently looking for an asset management tool to help us track software licenses and invoices more effectively," said Ken Walton, a Tampa, Fla.-based project manager at Verizon Communications. The telecommunications company can no longer monitor its licensing agreements manually, Walton said, "because we just don't have enough people."

At Harley-Davidson Motor Co. in Milwaukee, software contracts are currently administered by project managers. "But that's not what we want to be doing," said Shannon Kaul, an asset manager at the motorcycle maker. So the Harley-Davidson Inc. sub-

Audits, page 14

Wal-Mart Backs RFID Technology

Will require suppliers to use 'smart' tags by 2005

BY JAIKUMAR VIJAYAN AND BOB EWWIN
CHICAGO

Wal-Mart Stores Inc. last week said it plans to require its top 100 suppliers to put radio-frequency identification tags on shipping crates and pallets by January 2005, a move that's likely to spur broader adoption of the technology because of Wal-Mart's market clout.

However, at the Retail Systems 2003/VICS Collaborative Commerce conference here, IT managers and technology vendors alike said that RFID devices still need to overcome major manufacturing, pricing

RFID, page 14

Fraud-Busters

KNOWLEDGE CENTER

Tired of losing millions of dollars to fraud, Internet retailers are teaming up to fight online credit card scams and take back the e-neighborhood. Page 35

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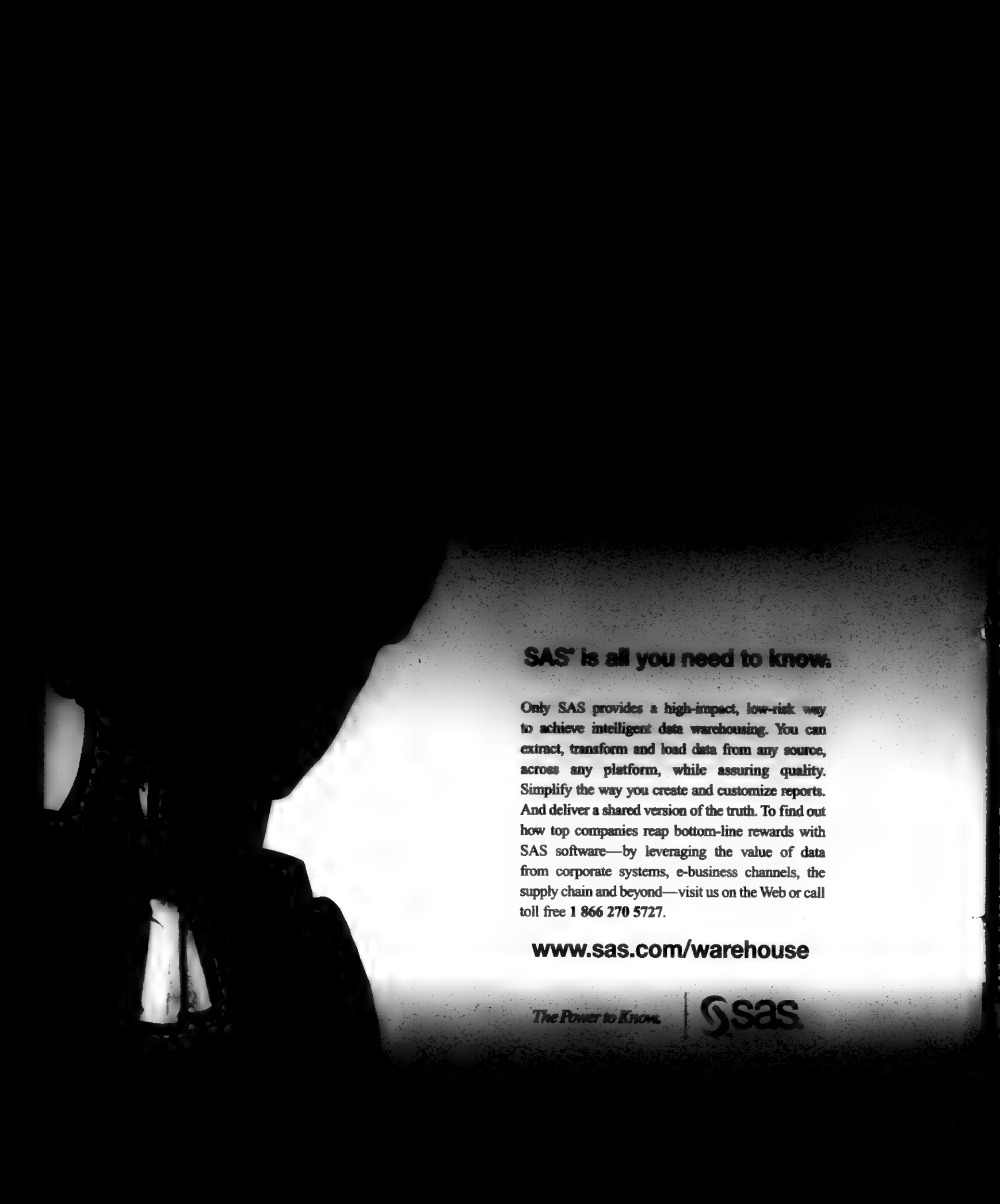
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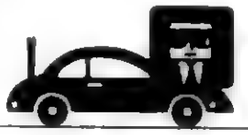
Reining in Personal Firewalls

In the Technology section: New tools let IT regain control over distributed personal firewall software and prevent potential attackers from commandeering remote users' machines. **Page 28**



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.Net vs. Java

DEVELOPMENT: The debate continues, with columnists Matt Puccini and Keith Franklin taking opposing sides. ● QuickLink t2360

Protect Your Data From Wi-Fi Attacks

MOBILE/WIRELESS: Don't miss these tips on how to make a Wi-Fi network more secure. ● QuickLink 39874

Best Practices for Mastering Secure Code

SECURITY: The cost of fixing faulty software soars after an application is deployed, says Steve Orrin, CTO at Sanctum Inc. Here's how and why you need to build security into Web apps from the start. ● QuickLink 39878

Your CRM Is Only As Good as Your Data

SOFTWARE: Bad data can bring down a CRM system faster than just about anything else. Ascential Software's Bill Hobbib offers some advice about how to avoid data problems. ● QuickLink 39863

You, Too, Can Contribute To Open-Source

OPERATING SYSTEMS: If your company isn't developing source code, you can still help the open-source movement — while boosting your technology ROI, writes columnist Timothy Witham. ● QuickLink 39782

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AT DEADLINE

GSA Reviewing MCI as Contractor

A spokeswoman for the U.S. General Services Administration (GSA) confirmed on June 13 that its inspector general has made an official referral to review the federal contractor status of WorldCom Inc., which is now operating as MCI. The referral goes to the GSA's suspending and debarring official, a common procedure, according to the spokeswoman. A Senate committee launched an investigation in May into why federal contracts were given to WorldCom after financial problems were made public.

Oracle Reports Strong Quarter

Oracle Corp. last week announced revenue of $2.83 billion for its fiscal fourth quarter, up from $2.77 billion for the same quarter a year ago. Oracle said it had $9.47 billion in revenue for its full fiscal year, 2% lower than the $9.67 billion posted last year. CEO Larry Ellison said the company "had a great applications quarter" compared with its competitors.

Former VP Pleads Guilty to Fraud

Terry W. Davis, former vice president of finance and controller for Santa Clara, Calif.-based Network Associates Inc., last week pleaded guilty to charges of securities fraud. They were the first charges to emerge from the government's investigation into the company's bookkeeping practices. Network Associates couldn't immediately comment.

Short Takes

Revenue from new CRM software licenses fell 24.7% in 2002, according to GARTNER INC. . . . TRANSMETA CORP. in Santa Clara has taken an unspecified equity stake in Hong Kong-based Linux developer CHINESE 2000 HOLDINGS LTD.

Sybase Gives China Free Software to Fight SARS

Company answers request for help with $300,000 worth of database software

BY TODD R. WEISS

WHEN THE Chinese Embassy in Washington sent out hundreds of e-mails early last month asking the world for ideas and information on how to control the spread of SARS, the IT community responded.

Sybase Inc. said last week that it will donate approximately $300,000 worth of database management software that will be used to monitor and track existing and new cases of the potentially fatal respiratory disease.

The e-mails were sent out by Dr. Larry Wu in his capacity as second secretary for science and technology at the Chinese Embassy. Hundreds of replies came back from technology companies, business associations, consultants and others, mostly in the U.S., Wu said.

One of the e-mail recipients was the nonprofit Computerworld Honors Program, which recognizes IT users around the world who take technology in new and innovative directions to benefit mankind.

Computerworld has a seat on the board of the Honors Program and is a co-founder of the group, which was established in 1988.

Dan Morrow, executive director of the program in Herndon, Va., said the e-mail was forwarded to Honors Program board members, including a Sybase representative.

Sybase CEO John Chen said a company manager suggested to his colleagues that they offer assistance to Chinese health authorities. "We all immediately, within minutes, said, 'Great idea,' " Chen said. "They asked for help, and we were just qualified in this case to help them."

THE ASSOCIATED PRESS

Sybase's software will help track the SARS virus in China.

The products Sybase is providing include Sybase IQ, Enterprise Application Server, Adaptive Server Enterprise, PowerBuilder and PowerDesigner. The software will be used to create critically needed databases to track and monitor SARS cases in hospitals and other health centers across the country.

Dublin, Calif.-based Sybase made the donation directly to the Chinese Center for Disease Control and Prevention. Although no hardware systems have been donated with the Sybase software, Wu indicated that China has sufficient systems in place to make immediate use of Sybase's donation.

Wu said his country hasn't been shy in the past about asking the world for assistance in times of natural disasters, such as floods or earthquakes. With SARS, though, it took a while for China to seek help, he said. "We have made some mistakes in the campaign to fight SARS," Wu said. "We [initially] thought it was not so serious a disease."

Analysts Say Evidence May Support SCO Case

Contested code gives credence to Unix claim, but courts will ultimately decide

BY TODD R. WEISS

As promised, The SCO Group Inc. last week revealed to several industry analysts some of the Linux source code that it claims was illegally copied from Unix.

But analysts have varying opinions about the significance of what they were shown and how it fits in with the $1 billion lawsuit that Lindon, Utah-based SCO filed against IBM in March. In that lawsuit, SCO alleges that IBM misappropriated SCO Unix trade secrets by putting some of the code into Linux [QuickLink 36901].

Laura DiDio, an analyst at The Yankee Group in Boston, said she saw "two or three" samples of the allegedly infringing Linux code that appeared to be a "copy and paste" match of the SCO Unix code.

DiDio and the other analysts were able to view the code only under a nondisclosure agreement, so she could not divulge details, she said.

> **"I think there is a basis that SCO has a credible case. This is not a nuisance case."**
>
> LAURA DiDIO, ANALYST, THE YANKEE GROUP

"The courts are going to ultimately have to prove this, but based on what I'm seeing . . . I think there is a basis that SCO has a credible case," DiDio said. "This is not a nuisance case."

George Weiss, an analyst at Gartner Inc. in Stamford, Conn., recently reviewed several supporting documents from SCO, and he said they potentially bolster the company's claims.

The documents allegedly show the contracts that gave SCO the rights to Unix. Weiss refused to sign the nondisclosure agreement, so he didn't view any of the contested code. But the documents he saw at least gave credence to SCO's claims, he said.

Not a Judge or Jury

Bill Claybrook, an analyst at Boston-based Aberdeen Group Inc., said the code he viewed shows that SCO could have a claim. But he noted that his assessment based on a brief look at some of the code is far different from a judge or jury eventually reaching a verdict in the IBM case. "I have no idea" if there's a problem with the code, Claybrook said.

"From what I've seen, I think people should be taking the SCO accusations seriously, but I don't know if they have any proof," he said. Although he was shown code that was the same in both Unix and Linux, Claybrook said there was no way to determine the origin of the code.

Dan Kusnetzky, an analyst at IDC in Framingham, Mass., said he turned down SCO's offer to look at the code because it wouldn't have provided any fair conclusions or answered any questions about the case.

Even if there are code matches between Linux and Unix, he said, there would be no way to know whether it was put there legally or who put it there. "How do they know it was IBM?" he said.

HP Users Welcome Expanded OpenView Product Line

Better network management is key to vendor's 'adaptive enterprise' initiative

BY MATT HAMBLEN

Hewlett-Packard Co. will take some of the vapor out of its "adaptive enterprise management" strategy with the introduction today of more than 30 new and enhanced OpenView management products and services.

The products are being announced at the HP Software Forum in Chicago, where users will gain exposure to concrete examples of HP's adaptive enterprise initiative.

That initiative is mirrored by strategies from competitors such as IBM, Sun Microsystems Inc. and Computer Associates International Inc., which variously describe such technologies as "autonomic" or "on-demand" computing. The aim is to enable businesses to reduce IT complexity and cost by creating an infrastructure that changes with business demands.

One of the enhanced tools being announced today, HP OpenView Network Node Manager 7.0 (NNM), caught the attention of several OpenView users planning to attend the conference. Enhancements to the widely used network management tool include support for Linux and the ability to manage more objects on a network, as well as support for native Duplicate IP. The latter is useful for collecting network data at one point on multiple IP networks, said Bill Emmett, solutions marketing manager at HP.

Duplicate IP support is interesting because it could help recently merged companies to monitor combined IP networks that aren't identical, said Jason Kennedy, a systems management analyst at Best Buy Canada Ltd. in Burnaby, British Columbia.

Best Buy Canada has a large OpenView project under way that started in late 2002 and should take another year to fully implement.

Once complete, the system would monitor networks and network devices in 130 stores and warehouses in Canada "through a single pane of glass with a service-oriented focus," Kennedy said.

" 'Adaptive enterprise management' might be called 'autonomic' or 'on-demand,' but that's just wordsmithing," he said. "It really comes down to how I save money for the business. That's why I exist."

Another OpenView user, Zurich Life Insurance Company of America in Schaumburg, Ill., is looking for an easier interface with the HP OpenView Service Navigator tool, said Timothy Hagn, vice president of Zurich's IT operations and engineering.

In fact, HP said, Service Navigator Value Pack 7.1, being announced today, is easier to use and includes a new connection between Service Navigator and Open View Service Desk to help correlate network problems with customer service calls received by the help desk.

In the long term, Hagn said, he wants OpenView's adaptive technology to monitor his network and describe ways that he can quickly cut down on electricity and ventilation costs for computing centers by tapping underused servers.

Kirby Vaughn, a board member of OpenView Forum International, a 7,000-member user group in Emmaus, Pa., said he wants to learn more this week about enhancements to NNM.

Users are interested in how NNM will integrate with technology from Cisco Systems Inc. and voice-over-IP products, Vaughn said. In recent years, he said, users have had to "pound on HP" to include monitoring functionality for virtual LANs, something users had to build themselves until HP finally responded.

"They rode on their laurels for a while, but in the last year or two, they've started doing more," Vaughn said.

With the exception of the Service Navigator Value Pack, which will be available in four months, all of the products being announced today will be available within three months, HP officials said.

DHS Sets Timeline for IT Integration

CIO says project due to be finished within two years

BY PATRICK THIBODEAU
WASHINGTON

Steve Cooper, who as CIO at the U.S. Department of Homeland Security (DHS) must untangle the mess of disparate networks and data standards of the 22 federal agencies that merged to form the DHS, said last week that a unified IT infrastructure will be completed within 18 to 24 months.

"We're moving toward one Department of Homeland Security," Cooper said at the E-Gov conference here. "We want to unify and simplify the environment as rapidly as we can."

Cooper said he plans to rely heavily on commercial applications to accomplish what is no simple task. Federal agencies have historically operated autonomously, and their IT systems weren't designed to interoperate with one another.

According to Lee Holcomb, chief technology officer at the DHS, a key hurdle to be overcome is the various agencies' differing business rules, which dictate how data is described, collected and accessed.

Holcomb's job is to devise a plan to make data held by each agency accessible by other agencies under the DHS umbrella. Data mart and data warehousing options are currently under consideration.

DHS is also examining best approaches for providing remote users with wireless access to department systems. The department also plans to increase the deployment of portable devices within the next six to nine months.

As agency integration efforts take shape, department IT officials expect to post more job advertisements in the months ahead.

Although position requirements haven't yet been fully identified, there are many technologists who have "a desire to become part of the Department of Homeland Security mission," said Pat Schambach, CIO for the Transportation Security Administration, which is now an agency of the DHS.

Getting a job at the agency requires a security clearance, but officials say that hasn't been an obstacle — getting an initial security clearance can be accomplished in as little as two weeks. Higher security clearance levels, however, can take months.

Meanwhile, emerging technologies appear to be playing a growing role at federal agencies. For instance, Cooper said, agencies are working with commercial vendors to find ways to utilize unstructured data, such as data that isn't located in a relational database and can't be easily manipulated and analyzed.

The CIO Council, a body made up of all the CIOs in the federal government, has in fact formed a committee to examine emerging technologies.

"We want the government to be at the forefront [of] leveraging technology," said U.S. Air Force CIO John Gilligan. "We want to be scanning the horizon and be an early adopter. We need to convey to industry what our technology needs are."

Craig Luigart, CTO at the U.S. Department of Education, disputed the stereotype that the government lags behind the private sector in the adoption of IT.

Many agencies were early adopters of new technologies, such as voice over IP and virtual private networks, and they are now seeing returns on those investments, he noted.

"I never liked being No. 2," Luigart said.

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BRIEFS

Microsoft Acquires Antivirus Assets

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SuSE Readies Linux for Desktops

SuSE Linux AG said it plans to release a desktop PC version of Linux for corporate users in the U.S. and Europe later this month. The SuSE Linux Desktop software starts at $598 for five end-user licenses and comes bundled with Sun Microsystems Inc.'s StarOffice 6.0 suite of desktop applications. But Nuremberg, Germany-based SuSE said it will also support Microsoft Office.

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MARK HALL • ON THE MARK

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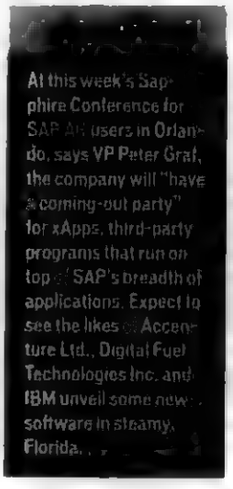

At this week's Sapphire Conference for SAP AG users in Orlando, says VP Peter Graf, the company will "have a coming-out party" for xApps, third-party programs that run on top of SAP's breadth of applications. Expect to see the likes of Accenture Ltd., Digital Fuel Technologies Inc. and IBM unveil some new software in steamy, Florida. . .

New Bugbear Virus Targets Financial Institutions

Firewalls, antivirus software are so far keeping worm out of banks' systems

BY TODD R. WEISS

The latest variant of the Bugbear computer virus is being investigated by the FBI because it was found to be targeting financial institutions.

Bill Murray, a spokesman for the FBI, said last week that the investigation began June 6 and will seek to track down the originators of the virus through electronic "fingerprints" often left behind within the code.

Bugbear is a mass-mailing worm that also spreads through networks, according to Cupertino, Calif.-based Symantec Corp.

The virus can infect executable files and is particularly dangerous because it can log the keystrokes a user enters on his computer, potentially allowing an attacker to get a victim's personal information and account numbers. It also contains backdoor capabilities and can shut down antivirus and firewall programs.

Banks were identified as key targets when it was discovered that the worm's code contains a list of the domain names of more than 1,000 banks from around the world, according to Symantec.

Suzanne Gorman, chairman of the Financial Services Information Sharing and Analysis Center, said the Reston, Va.-based financial industry security organization responded immediately to the first reports of Bugbear attacks on banks by warning members to make sure that their security systems are fully in place. No member banks have yet been infiltrated by the Bugbear virus because of firewalls, antivirus protection and other multilayer IT security systems, she said. "Right now, we're remaining on high alert," Gorman said.

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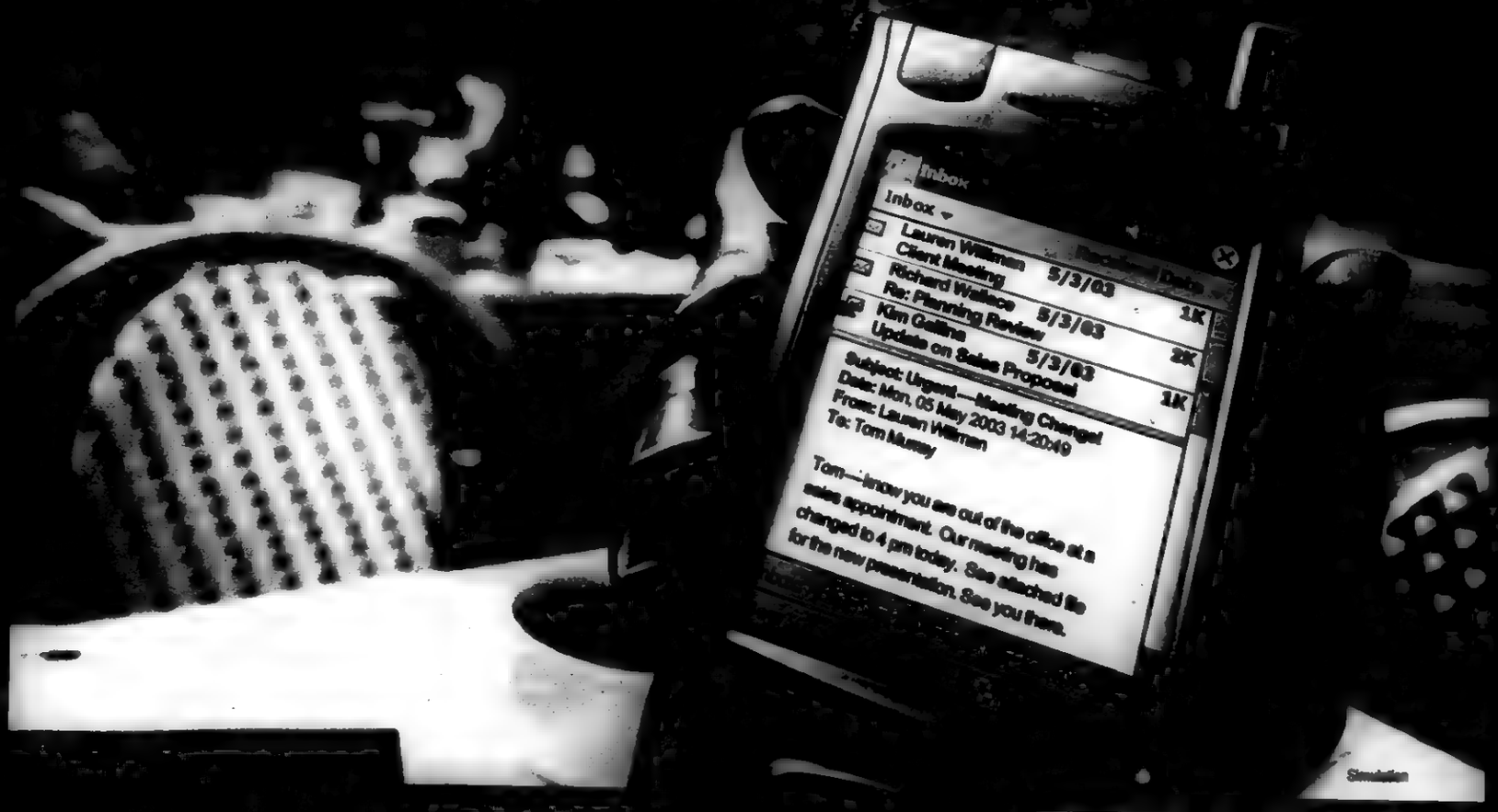

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FleetBoston Building IT Command Center

Project will unify bank's systems and centralize network management work

BY LUCAS MEARIAN
ALBANY, N.Y.

BY NOVEMBER, FleetBoston Financial Corp. plans to complete a nearly $10 million project to build an enterprise operations center that will bring all its systems and network management operations into one room and provide real-time links to a secondary data center 150 miles away.

Robert Wischnowsky, FleetBoston's chief technology officer, said the new command center will centralize network support operations that have remained fractured following acquisitions by the Boston-based company. He added that he expects to be able to cut FleetBoston's IT staff by an unspecified number and increase the amount of floor space available at its primary data center here by 3,500 square feet — two benefits that should produce a return on investment within a year.

FleetBoston has become one of the 10 largest banks in the U.S. by buying more than 150 firms during the past 20 years — a growth strategy that Wischnowsky said will continue. But in an interview at the data center this month, he said merging systems became a standardized process, but the networks supporting FleetBoston's flagship banking business and its credit card services and capital leasing subsidiaries are currently separated from one another.

A Matter of Trust

"We've had firewalls in between [networks] because no one trusted each other," Wischnowsky said. FleetBoston plans to bring the nonbanking operations onto its consolidated network and "drive the standardization of processes across the company," he said.

For example, the company in April went live with IBM's Tivoli Business Systems Manager software after an 18-month rollout. Ed Glenning, who manages FleetBoston's enterprise systems, said the tool is being used by systems administrators to centrally monitor and control application and database servers, batch processing jobs, and mainframe CICS systems.

FleetBoston's systems, corporate networks and the network that supports its 3,400 ATMs are managed with different software tools by workers in separate locations — the first two are in adjacent rooms at the Albany data center, and the ATM network is in another building in Albany.

But Glenning said that by November, he expects to consolidate all the systems and network management activities on Tivoli software and relocate the management operations to the new command center, which is being built within the Albany data center.

A Ridgefield Park, N.J., facility will be expanded as a backup data center and will share FleetBoston's data processing workload and act as a disaster recovery site. IT workers at both facilities will be able to operate every key system, from network servers and routers to management software, Glenning said.

LUCAS MEARIAN

says FleetBoston will consolidate its systems and network management on Tivoli software and relocate management operations

Avivah Litan, an analyst at Gartner Inc. in Stamford, Conn., said operations center consolidations are "monumental" tasks.

On the plus side, consolidation efforts cut down on potential points of failure and should produce efficiencies by introducing an enterprisewide monitoring and alert system, Litan said. "The goal is to walk into a control room and see one network," she added.

Sprint Exiting Web Hosting But Will Help Users Migrate

BY MATT HAMBLEN

Sprint Corp. last week announced that it will wind down its unprofitable Web hosting operations nationwide, making it the second major vendor to exit that business this month.

Sprint's move came just one week after London-based Cable & Wireless PLC said it would abandon the U.S. market for Web hosting services [QuickLink 38994]. Although they were disappointed by Sprint's planned shutdown, some of the company's customers said they're relatively well prepared for the closing.

"We may lose some sleep over losing Sprint, but we've lost a provider before and had zero downtime," said Chris Sloop, chief technology officer at AWS Convergence Technologies Inc. in Gaithersburg, Md. He noted that AWS dropped Exodus Communications Inc. as its Web hosting firm in 2001 after Exodus filed for bankruptcy protection, a process that resulted in its assets being bought by C&W.

Within hours of Sprint's announcement, several of its rivals e-mailed Sloop with offers of replacement hosting services. He added that AWS, whose WeatherBug online weather alert service has 23 million registered users, already was splitting its Web hosting between Sprint and Verio Inc. in Englewood, Colo.

Sprint said it will phase out Web hosting operations at eight facilities located in Atlanta, Boston, Dallas, Denver, Los Angeles, New York, Sacramento and Santa Clara, Calif.

Two additional hosting centers in the Kansas City, Mo., area and Reston, Va., will become corporate data centers that support other network services offered by Sprint.

Sprint said its Web hosting revenue totaled about $60 million in the 12-month period that ended March 31. The company said it will help hosting customers migrate to other vendors before exiting the business. Sprint plans to lay off about 500 workers as part of the shutdown, with most of the cuts expected by year's end.

Penton Media Inc. in Cleveland has a two-year hosting deal with Sprint that expires in December, said Scott Pennock, manager of Internet development at Penton.

Sprint hosts about 70% of the company's Web sites, and Pennock said he's a satisfied customer. But, he added, the planned pullout gives Penton "a wonderful opportunity to re-evaluate our strategy" of outsourcing so much of the online operations.

The back-to-back withdrawals by Sprint and C&W are remnants of the dot-com collapse as well as the continuing clampdown on IT spending driven by the gloomy economy, said Ted Chamberlin, an analyst at Gartner Inc. in Stamford, Conn. He said Web hosting still isn't a profitable business for many vendors, even though Gartner predicts that nearly $5 billion will be spent worldwide on hosting services this year.

Sprint also recently named a new CEO and may be ridding itself of an unprofitable unit in hopes of attracting potential buyers, Chamberlin added.

SOURCE: GARTNER INC., STAMFORD, CONN.

TRENDLABS

MUNICH TAIPEI TOKYO MANILA PARIS

The competition won't guarantee a virus fix in two hours. Then again, they don't have Ken Tanada, Ph.D.

TREND

PC

3Com to Lay Off 10% of Workforce

3Com Corp. plans to lay off 10% of its workers over the next six months, with the deepest U.S. cuts coming at its Santa Clara, Calif., location. The networking vendor had about 3,900 employees at the end of its third quarter in February. The layoff announcement came two weeks after 3Com warned that its fourth-quarter sales would be lower than expected.

Dell, EMC Extend Disk Array Deal

Dell Computer Corp. and EMC Corp. extended by two years a deal under which Dell resells Hopkinton, Mass.-based EMC's Clariion disk arrays and manufactures the low-end CX200 model. The two companies said the agreement, originally a five-year deal when it was signed in late 2001, will remain in effect through December 2008.

Investment Firm To Purchase Corel

Corel Corp., which develops the WordPerfect office software suite and desktop graphics applications, said it's being acquired by San Francisco-based investment firm Vector Capital Corp. for about $124 million (U.S.) in cash. Corel CEO Derek Burney said the Ottawa-based company is expected to remain largely unchanged, but he added that some layoffs are likely.

Short Takes

Dallas-based i2 TECHNOLOGIES INC. said that it has prepaid a $61 million promissory note and extricated itself from the lease of an office building that the struggling software vendor vacated in January. . . . San Francisco-based Linux server vendor PENGUIN COMPUTING INC. said it's buying SCYLD COMPUTING CORP., an Annapolis, Md.-based maker of clustering software.

CeBIT America Debuts, Defying Show Slump

Organizers halve attendance forecast; hope focus, format will provide appeal

BY STACY COWLEY
NEWS STORY

With marketing budgets drying up and trade-show attendance shrinking, this summer seems a quixotic time to launch a new IT conference. But this week, Germany's CeBIT übershow will make its U.S. debut, with an enterprise focus and a European format that organizers are counting on to set it apart from its troubled brethren.

The project has already suffered from the continuing economic slump. A year ago, show organizer Hannover Fairs USA Inc. forecast 40,000 attendees for its debut of CeBIT America. Now, the company hopes to attract 20,000. Exhibitor numbers are also lower than the 400 to 500 originally forecast, with 361 signed on.

But show executives said they're confident CeBIT America will prove its worth to visitors and vendors — confident enough to sign a five-year reservation contract with the Jacob K. Javits Convention Center in New York.

B2B Focus

CeBIT America will be a tightly focused business-to-business show. Instead of aisles of booths lining the show floors, organizers said they're arranging exhibitors into clusters of related technologies, with numerous lounge areas available on the floor to promote business discussions.

Storage, networking and wireless products will be prevalent at the show. Hewlett-Packard Co. is planning to preview upcoming handheld devices and notebooks and will join with several partners to demonstrate new storage devices (see story below). Sony Electronics Inc. will focus on storage as well, bringing new libraries and tape drives to the show.

Microsoft Corp. plans to push its Tablet PC software, while 3Com Corp. will show firewall products and network management technology. PalmSource Inc. plans to make several announcements about new mobility, security and systems management offerings.

Vote of Confidence

Persuading vendors to spread their trade-show dollars around and take a chance on the debut of CeBIT America has gone fairly smoothly, according to organizers. "Most of the significant players have said yes to us," said Mark Dineen, managing director of CeBIT America. "That's a huge vote of confidence."

One vendor said CeBIT's brand name was an important factor in its decision to exhibit. "They have a great track record, and we hope they'll be bringing that to the U.S.," said Albert Chu, vice president of business development at Sunnyvale, Calif.-based PalmSource.

The IT show market has been a harsh one lately. Event cancellations are common, and Comdex parent Key3Media Group Inc. has filed for bankruptcy protection. Comdex's former general manager, Bill Sell, defected and is heading brand and customer development for CeBIT America.

According to Sell, CeBIT America isn't expected to make a profit this year. Princeton, N.J.-based Hannover Fairs USA is prepared to give it several years to break even, he said. "It's a long-term investment," Dineen added.

"This is a completely different model, and people are responding to that," he said. "We just have to remember the focus of the event: quality, quality, quality; enterprise, enterprise, enterprise."

Cowley writes for the IDG News Service. Computerworld news editor Don Tennant contributed to this story.

HP Plans Disk Array That Supports Serial Interconnects

Hewlett-Packard plans to announce at CeBIT America that it will ship by mid-2004 a disk array that can mix serial attached SCSI drives and lower-cost serial Advanced Technology Attachment (ATA) devices.

HP said the upcoming array will have a single serial backplane that can support both kinds of drives, plus an interface that will let the different disks replicate data to one another for backup and recovery purposes. The mix-and-match capabilities could potentially lower storage costs by allowing IT administrators to provision capacity based on the type of data that's being stored.

Daniel Morreale, CIO at North Bronx Healthcare Network in New York, recently talked to HP about the array for potential use in storing medical images and documents from clinical studies. "I can definitely see the value of it," he said. "We'd like to get rid of our tape environment."

HP's disk array would let North Bronx Healthcare store images and electronic documents on serial ATA disks that cost roughly the same as tape devices and provide end users with online access to the data, Morreale said. But he added that the health care provider is currently installing an EMC Centera array, which uses parallel ATA disk drives to store data in a nonrewritable format.

Mark Almendinger, enterprise infrastructure manager at Huntington Bancshares Inc. in Columbus, Ohio, said the financial services firm could use the promised HP array to take advantage of inexpensive serial ATA drives for applications like its Notes e-mail systems. Data from heavy-duty transaction applications could be stored on higher-performance serial attached SCSI devices, added Almendinger.

HP is partnering on the mixed array with disk drive maker Seagate Technology LLC in Scotts Valley, Calif., and network adapter vendor Adaptec Inc. in Milpitas, Calif. Seagate and Maxtor Corp., also in Milpitas, have both said they plan to begin shipping serial attached SCSI drives to hardware vendors by year's end.

A 1.0 version of the serial attached SCSI specification was ratified by a technical committee last month and is in the midst of a 45-day public comment period. One of the key features built into the new storage interconnect technology is its compatibility with serial ATA drives [QuickLink 36708].

HP is the first vendor to formally announce plans to develop an array that mixes the two technologies. But Robert Grey, an analyst at IDC in Framingham, Mass., said the product promised by HP is only the first of what will be "a total industry flip over time" to such devices.

– Lucas Mearian

BRIEFS

3Com to Lay Off 10% of Workforce

3Com Corp. plans to lay off 10% of its workers over the next six months, with the deepest U.S. cuts coming at its Santa Clara, Calif., location. The networking vendor had about 3,900 employees at the end of its third quarter in February. The layoff announcement came two weeks after 3Com warned that its fourth-quarter sales would be lower than expected.

Dell, EMC Extend Disk Array Deal

Dell Computer Corp. and EMC Corp. extended by two years a deal under which Dell resells Hopkinton, Mass.-based EMC's Clariion disk arrays and manufactures the low-end CX200 model. The two companies said the agreement, originally a five-year deal when it was signed in late 2001, will remain in effect through December 2008.

Investment Firm To Purchase Corel

Corel Corp., which develops the WordPerfect office software suite and desktop graphics applications, said it's being acquired by San Francisco-based investment firm Vector Capital Corp. for about $124 million (U.S.) in cash. Corel CEO Derek Burney said the Ottawa-based company is expected to remain largely unchanged, but he added that some layoffs are likely.

Short Takes

Dallas-based I2 TECHNOLOGIES INC. said that it has prepaid a $61 million promissory note and extricated itself from the lease of an office building that the struggling software vendor vacated in January. . . . San Francisco-based Linux server vendor PENGUIN COMPUTING INC. said it's buying SCYLD COMPUTING CORP., an Annapolis, Md.-based maker of clustering software.

CeBIT America Debuts, Defying Show Slump

Organizers halve attendance forecast; hope focus, format will provide appeal

BY STACY COWLEY
NEW YORK

With marketing budgets drying up and trade-show attendance shrinking, this summer seems a quixotic time to launch a new IT conference. But this week, Germany's CeBIT übershow will make its U.S. debut, with an enterprise focus and a European format that organizers are counting on to set it apart from its troubled brethren.

The project has already suffered from the continuing economic slump. A year ago, show organizer Hannover Fairs USA Inc. forecast 40,000 attendees for its debut of CeBIT America. Now, the company hopes to attract 20,000. Exhibitor numbers are also lower than the 400 to 500 originally forecast, with 361 signed on.

But show executives said they're confident CeBIT America will prove its worth to visitors and vendors — confident enough to sign a five-year reservation contract with the Jacob K. Javits Convention Center in New York.

B2B Focus

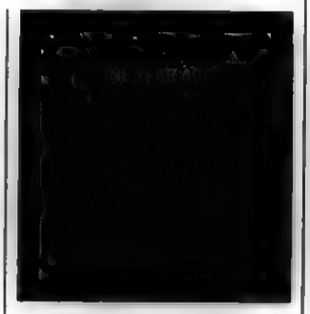
CeBIT America will be a tightly focused business-to-business show. Instead of aisles of booths lining the show floors, organizers said they're arranging exhibitors into clusters of related technologies, with numerous lounge areas available on the floor to promote business discussions.

Storage, networking and wireless products will be prevalent at the show. Hewlett-Packard Co. is planning to preview upcoming handheld devices and notebooks and will join with several partners to demonstrate new storage devices (see story below). Sony Electronics Inc. will focus on storage as well, bringing new libraries and tape drives to the show.

Microsoft Corp. plans to push its Tablet PC software, while 3Com Corp. will show firewall products and network management technology. PalmSource Inc. plans to make several announcements about new mobility, security and systems management offerings.

Vote of Confidence

Persuading vendors to spread their trade-show dollars around and take a chance on the debut of CeBIT America has gone fairly smoothly, according to organizers. "Most of the significant players have said yes to us," said Mark Dineen, managing director of CeBIT America. "That's a huge vote of confidence."



One vendor said CeBIT's brand name was an important factor in its decision to exhibit. "They have a great track record, and we hope they'll be bringing that to the U.S.," said Albert Chu, vice president of business development at Sunnyvale, Calif.-based PalmSource.

The IT show market has been a harsh one lately. Event cancellations are common, and Comdex parent Key3-Media Group Inc. has filed for bankruptcy protection. Comdex's former general manager, Bill Sell, defected and is heading brand and customer development for CeBIT America.

According to Sell, CeBIT America isn't expected to make a profit this year. Princeton, N.J.-based Hannover Fairs USA is prepared to give it several years to break even, he said. "It's a long-term investment," Dineen added.

"This is a completely different model, and people are responding to that," he said. "We just have to remember the focus of the event: quality, quality, quality; enterprise, enterprise, enterprise."

Cowley writes for the IDG News Service. Computerworld news editor Don Tennant contributed to this story.

Sun's Gosling Discusses State of Java

BY CAROL SLIWA

Sun Microsystems Inc. Vice President **James Gosling**, *the creator of Java, last week spoke with* Computerworld *about the company's latest Java activities. Excerpts follow:*

Those who have been to previous JavaOne conferences have noted the declining attendance. Do you think that signals waning interest in Java? I don't think there's any interconnection between the population decline and what's going on in the Java world. The socioeconomic state of the world pretty much explains everything, I think. If you talk to people about the energy of what they are doing, I actually think it's higher today.

Sun talked a lot about working to boost the Java population from 3 million to 10 million developers. Do you think that's a realistic goal? I think it's a very realistic goal. It's a tough one, and a lot depends on how you think of the goal. You've got this huge educational system that is feeding the world with pre-educated Java developers. If you counted up all the people who have learned to program in Java, we are way ahead of 10 million.

Over what time frame will 10 million be achievable? I'd be happy in five years. It wouldn't be at all surprising if it happened a lot faster than that.

Like many companies, Sun is introducing a tool, code-named Project Rave, that seeks to reduce the complexity of developing in Java. Have you been involved in that? Yeah. We tend to come out of the gate with something that works really well at large scale, and at small scales it's too complicated. . . . So there's a dual goal here. One is to make it so that the people at the lower end can use a lot of this infrastructure that was really designed around high-end deployments. There's also this other subtext to it, which is that the things that start small, if they succeed, they always become large. So with these tools, you can do systems that start small, start easy, but they can grow up and turn into big sophisticated systems. ▶

MORE GOSLING
To read the full interview with the father of Java, visit our Web site
QuickLink 39196
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Continued from page 1

Java

has reached the point where market pressure would ensure that no "bully" could succeed in introducing incompatible technology that could fracture a developer community that has grown to value Java's consistency and interoperability.

"My personal feeling is that we're over the edge, but I also feel a little nervous about that," Gosling said. "There are still all kinds of opportunities for mayhem."

Not Ready for Leap

One prominent executive who isn't ready to take the leap that Gosling favors is Jonathan Schwartz, executive vice president of software at Sun. He said the problem with open-source is the "tyranny of the volume leader."

"If Java was open-source, Microsoft could take it, deliver it as they saw fit and drive a definition of Java that was divergent from the one that the community wanted to be compatible," he said. "And to the victor would go the spoils of that nefarious action."

Sun formally established the Java Community Process (JCP) in 1998 to develop and revise Java technology, and it now claims that more than 650 members participate. Under the JCP, intellectual property is protected by a license that requires anyone using a Java spec to demonstrate compatibility with the technology's reference implementation.

Even though Sun has worked to make its standardization process more open — and, along with JCP members, to allow for more technologies to be made available under an open-source licensing and development model — it has yet to make core elements of Java open-source, Gosling said.

APPLICATION DEVELOPMENT

Sun's lawsuit claiming that Microsoft Corp. violated its contract by trying to introduce a version of Java that was incompatible with its specifications has made some colleagues particularly sensitive to the open-source issue, Gosling said. He added that there are still enough differences of opinion at Sun, which tends to be a consensus-driven company, that he can't predict when or if Java will be made open-source.

"There are days when I feel like it's going to be tomorrow. There are days when I feel like it's going to be never," Gosling said. "If I talk to the lawyers involved in the Microsoft case, I always come back completely horrified, [thinking] if we ever do this, we're screwed."

The open-source debate over Java is nothing new at Sun. Gosling and others at the company acknowledged that the discussion started long before the growing popularity of the open-source Linux operating system caused a commotion in the industry. But the debate has heated up more recently, Gosling said.

Rob Gingell, chief engineer at Sun and chairman of the JCP program, said an argument erupted via e-mail about a month ago among about 100 Sun field engineers who work with customers. On the open-source question, they wondered, "Why don't we just say yes?" But he said that on further examination, he realized that they were referring more to the open-source style of development than the intellectual property issues associated with open-source.

"Given its importance to the future of my company and our shareholders' stake in our company, I'm not willing to be risky with it," Gingell said. "I'm going to want to understand it and be able to be definitive about it within a reasonable risk profile before I'm willing to let that go."

Gosling said he didn't become swayed that Java was ready for open-source until about a year ago, and he said he's not convinced he's right. He said he has made his opinion known internally for quite some time, although he hasn't made a point of discussing his views publicly.

"We actually do open-source a lot of stuff — but not the core bits," Gosling said. "And we've talked about slicing up the core so that some of it's open-source, and by and large, that isn't an easier problem than doing the whole thing."

Schwartz said the Java.net online community that Sun introduced last week is "filled to the gills with open-source projects with Java." He also said that he, Gosling and others just published the Java Research License, which allows more open-source development on core parts of Java.

"Anyone who wants to experiment with core parts of Java — everything under the guts of the [virtual machine], the language constructs themselves — is more than welcome to do so," Schwartz said. "But they can't introduce them into the commercial domain."

Gosling, too, is well aware of the potential pitfalls if Sun takes the open-source step. "Open-source ways of dealing with software work really well so long as you get this sort of collegial atmosphere," he said. "If you happen to have a bully on the block who is really strong, it doesn't work." ▶

Opinions on Open-Source Java Mixed

Some of the prominent vendors that work on Java standards through Sun Microsystems' Java Community Process (JCP) favor Java being turned over to the open-source community. Many corporate developers, however, have some strongly divergent opinions on the matter.

The following is a sampling of these developers' views:

■ Clay Mather, senior staff programmer, Charles Schwab & Co., San Francisco: "When you're trying to make reusable code, it's better to have standards. I prefer the standardization that the Java Community Process provides, rather than everybody doing their own thing."

■ Ramu Kannan, director of information technology at Humana Inc., Louisville, Ky.: "Sun is not the company that it used to be. Java should be open. . . . Also, Sun is driving a lot of Java in a certain direction, which I don't think the rest of the community may want."

■ Tom Van Alta, manager, Unix/Basis Services, The Scotts Co., Marysville, Ohio: "I think the JCP is the right way to maintain it. If it becomes open-source, it'll be too hard to control."

■ Bob Calmar, technical fellow, AutoZone, Memphis: "I would like to see it go open-source, because there are those of us who would like to have greater visibility into how the technology works – particularly with new things."

– *Carol Sliwa*

JAVA DEBATE
Read what others have to say about the open-source Java issue
QuickLink 39201

Continued from page 1

Audits

sidiary plans to add a centralized contract manager "who can also assist with compliance issues," Kaul said.

Jane Disbrow, an analyst at Stamford, Conn.-based Gartner, said IT departments generally do a lousy job of monitoring their software agreements. "If your tech support people are like most tech support people, record-keeping is not their forte," she said.

Toyota Motor Corp. recently inked a global desktop and server enterprise licensing agreement with Microsoft that's supposedly "audit-proof," said Charlie Clark, a technician at the automaker's Toyota Technical Center USA Inc. unit in Ann Arbor, Mich.

Microsoft enterprise license holders "are less likely to be audited" than other users of its software, noted Gartner analyst Alvin Park. But Park added that he has been told by several Gartner clients that they were asked by Microsoft to conduct internal audits on server-based products that aren't covered by the enterprise agreements, including SQL Server and server versions of Windows.

Rebecca LaBrunerie, a Microsoft product manager for worldwide licensing and pricing, didn't dispute Park's comment. However, she did say that Microsoft has pulled back on the number of audits it conducts over the past year. "That doesn't mean that we won't talk with our customers about how many licenses they have," LaBrunerie added.

Jacqueline Woods, vice president of global pricing and licensing strategy at Oracle, said the company has kept the number of customer audits it conducts steady at about 400 annually for the past three years. That works out to less than one-tenth of 1% of Oracle's installed base of 200,000 customers, Woods said. In addition, at least 25% of the audits Oracle does are requested by the customers themselves, she said.

El Segundo, Calif.-based Candle Corp. confirmed that it has become much more aggressive about trying to curb piracy of its software. Since launching a formal program a year ago, Candle has audited more than 1,000 of its 5,000 or so customers, said Steve Gerrity, assistant vice president of contracts and administration.

"We view audits as a cost-effective way to defend our intellectual property," Gerrity said. But he added that Candle has seen an increase of 1% to 2% in revenue as a result of the audit program.

Peter Beruk, director of antipiracy at Network Associates Inc. in Santa Clara, Calif., said the security software vendor has also recently increased the number of compliance-related audits it's conducting. But it's "not sending out audit letters to 50 customers a week," he added. "We're doing this more on a case-by-case basis."

Even so, some attendees said the audit threat could hurt user-vendor relationships. "It's like the vendor is saying, 'We don't trust you,'" said Pat Kitchen, director of IT administration and coordination at Pactiv Corp., a Lake Forest, Ill.-based packaging manufacturer. ▶

> **"If your tech support people are like most tech support people, record-keeping is not their forte."**
>
> **JANE DISBROW,** ANALYST, GARTNER INC.

HOW TO

Preparing for Software Audits

CLOSELY COMPARE your software licenses with billing invoices submitted by vendors.

KEEP copious records of your software contracts to guard against possible errors by vendors.

SPELL OUT your audit rights in contracts, including who will conduct and pay for an audit and how it will be done.

DEMAND that you be given at least 30 days' advance notice of a planned audit.

STIPULATE that you should get at least 90 days to resolve compliance problems without incurring any financial penalties.

SOURCE: GARTNER INC., STAMFORD, CONN.

Continued from page 1

RFID

and standardization hurdles before widespread usage can begin.

Wal-Mart's move is expected to result in the deployment of nearly 1 billion RFID tags with embedded electronic product codes (EPC) for tracking and identifying items at the individual crate and pallet level, said Pam Kohn, vice president of the Bentonville, Ark.-based retailer's global supply chain operations.

But even Wal-Mart's initial RFID effort will be narrowly focused. Although RFID tags can gather and track a variety of data related to products, materials and more, Kohn said Wal-Mart will concentrate at first on using the technology to improve inventory management in its supply chain.

"We're still determining all the benefits," Kohn said. "We don't want to overburden ourselves." She added, though, that even if Wal-Mart were to collect no new data with the RFID tags, the efficiency and accuracy with which items can be tracked would be huge benefits in and of themselves.

RFID uses low-powered radio transmitters to read data stored in tags that are embedded with tiny chips and antennas. Proponents of the technology say such "smart" tags can store more detailed information than conventional bar codes, enabling retailers and manufacturers to track items at the unit level.

RFID tags have been available for several years, but adoption has been slow because the tags are more expensive than bar coding and because standards are lacking to ensure interoperability between tags and data readers.

Gary Robertson, executive director of global infrastructure at Delphi Corp., a Troy, Mich.-based maker of automotive electronics systems that uses RFID devices in its manufacturing operations, said Wal-Mart's decision to deploy the technology "will legitimize it and push it into the mainstream."

"The fact that the largest company in the world is publicly adopting EPC open standards should give companies confidence that the day of a single, interoperable RFID system is close at hand," said Kevin Ashton, executive director of MIT's Auto-ID Center in Cambridge, Mass.

The Auto-ID Center is working with Uniform Code Council Inc. (UCC) in Lawrenceville, N.J., and EAN International in Brussels to develop a standardized EPC format for storing data on RFID tags. That effort got another boost last week when Microsoft Corp. said it will join AutoID Inc., a not-for-profit joint venture set up by UCC and EAN to oversee the still-evolving standards.

Cost Possibly $50M

Wal-Mart didn't say how much the effort would cost it or its suppliers or whether new systems will be needed to support the technology. But even at the 5-cents-per-tag price that Wal-Mart said it plans to seek from vendors, the cost of the tags alone would total $50 million.

According to the Auto-ID Center's Web site, RFID tags typically cost at least 50 cents each, and RFID readers sell for $1,000 or more. Big companies could require thousands of readers for all their factories, warehouses and stores, the site says.

Wal-Mart isn't the only retailer putting its faith in RFID. London-based Marks & Spencer PLC, one of the U.K.'s largest retailers, is rolling out RFID technology in its food supply chain operations. The project involves putting 13.56-MHz RFID tags on 3.5 million new plastic trays used to ship products, according to Keith Mahoney, the company's food logistics controller.

Marks & Spencer has subjected the tags to a variety of temperature, moisture and distance tests before deploying them, Mahoney said during a presentation at the conference. Although the lack of common RFID protocols and standards remains an issue, "we could not allow the lack of them to hang up the project," he added.

RFID can yield "a huge benefit" for some companies, said David Hutchins, senior director of enterprise systems at Kraft Foods North America Inc. in Northfield, Ill., and a member of the AutoID board. However, Kraft is still evaluating the technology's potential value in its own supply chain. "The first thing is figuring out the business case," Hutchins said. ▶

CHIP ISSUES

Meeting Wal-Mart's RFID tag needs may not be easy, Texas Instruments warns.

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Surveys Show No Big Boost Likely in IT Budgets This Year

Forrester, Meta say many users plan to spend less than budgeted amounts

BY THOMAS HOFFMAN

Stock markets are strengthening, and consumer confidence has increased in recent months. But thus far, those developments aren't having much of a positive impact on corporate IT spending plans.

In fact, a respective 23% and 30% of North American companies surveyed separately by Forrester Research Inc. and Meta Group Inc. said they plan to shrink their tech spending below the levels they had originally budgeted for this year.

Nearly 70% of the 700 respondents to Cambridge, Mass.-based Forrester's survey indicated that they're holding steady on their IT budgets (see chart). But the survey results, released this month, led Forrester to drop its overall 2003 IT spending forecast from the 1.9% average budget increase it projected in December to a mere 1.3% gain.

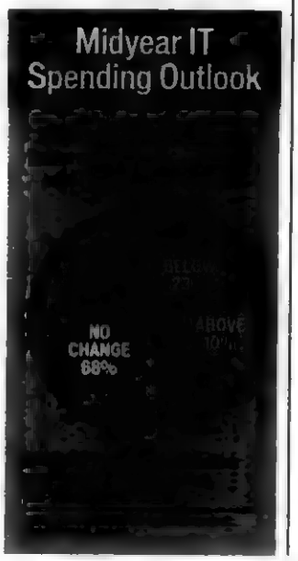
"If you look at IT spending from a Buy, Hold or Sell perspective right now, most companies are taking a Hold approach," said Howard Rubin, executive vice president at Stamford, Conn.-based Meta.

The Meta study, which was completed last month and involved 500 companies, found that 41% of the respondents plan to leave their 2003 IT budgets unchanged. Rubin said the remainder were almost evenly split: 30% plan to cut their budgets, and 29% intend to increase spending.

Holding Steady

The Hold approach to IT spending maps with Corning Inc.'s plans. "At this point, we aren't changing our full-year target," said Richard Fishburn, CIO at the Corning, N.Y.-based maker of optical fiber, cables, photonic technologies and other products.

But Fishburn added that Corning's IT budget called for higher spending in the first half of the year to fund ongoing productivity programs, such as the application of ISO 9000 practices at the company's global IT shared services center. In addition, Corning consolidated help desk activities at three regional sites earlier this year. As a result, IT spending for the rest of the year will drop off from the first-half level, Fishburn said.



Genesee & Wyoming Inc., a Greenwich, Conn.-based operator of short-line and regional railroads, built a marginal increase into its IT budget this year. That's because the company's annual revenue is projected to grow by $20 million, and IT spending is pegged to equal 2% of revenue, said Mike Meyers, vice president of information management and technology at Genesee & Wyoming. Meyers added that he doesn't expect any changes to be made to the budget.

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CRM Vendor Adds Development Hosting

BY MARC L. SONGINI

CRM software vendor Salesforce.com Inc. has announced a hosted application development service that makes Web services technology and widely used tools like Microsoft Corp.'s Visual Studio .Net available to software developers via the Internet.

Salesforce.com CEO Marc Benioff said users of the Sforce offering will also be able to access databases, a document management system and user authentication services without having to invest in or maintain any software themselves. San Francisco-based Salesforce.com will support Sforce users with the same IT infrastructure that's used to run its hosted online applications, he said.

Sforce can be used to build homegrown systems or to customize Salesforce.com's applications and integrate them with third-party products, Benioff said. Monthly fees are $50 per user and $1 for each megabyte of data stored at Salesforce.com's data center, although the first three users and 10MB are free for a year.

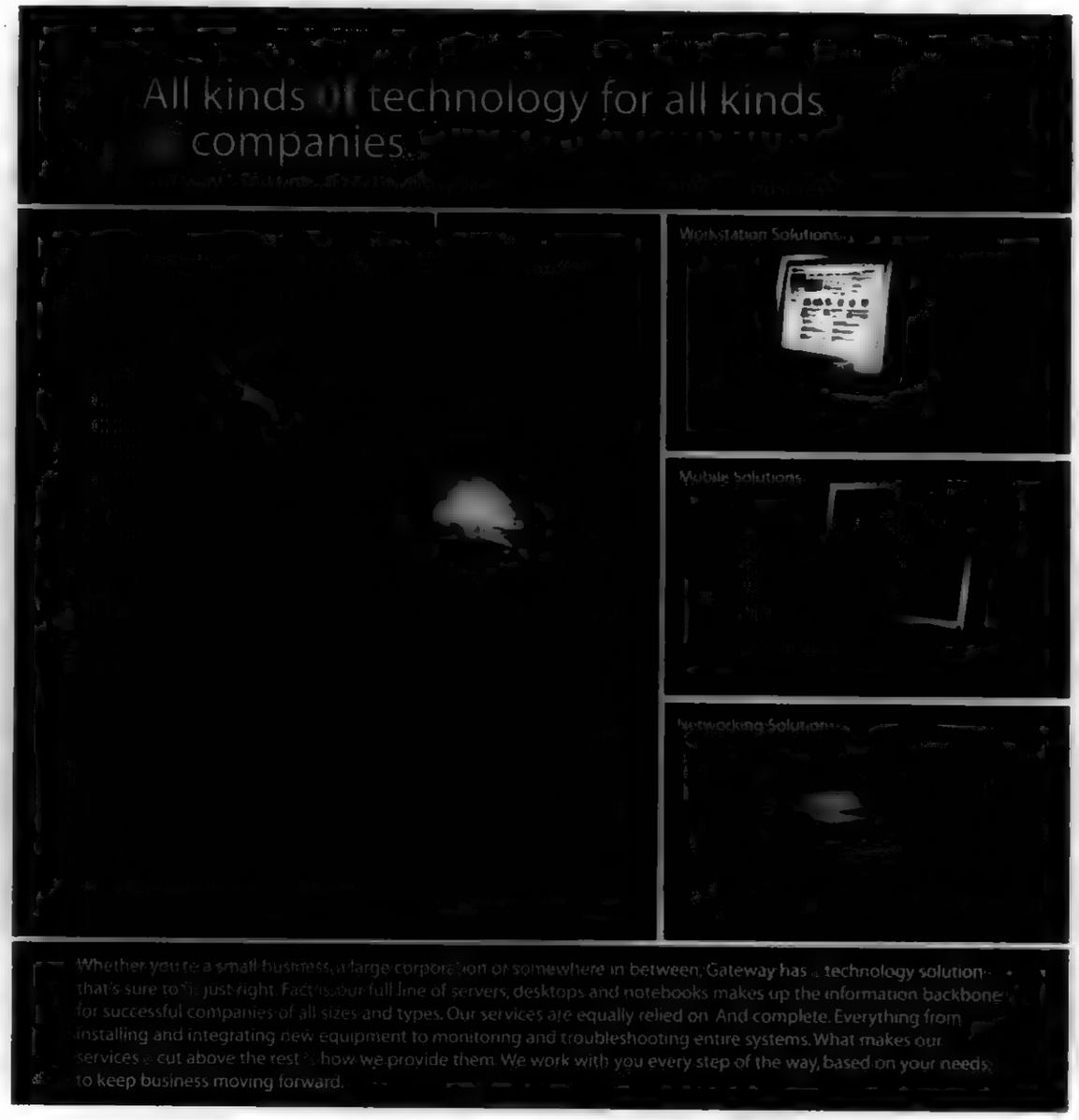
Microsoft, Sun Microsystems Inc. and BEA Systems Inc. have agreed to support Sforce with their development tools, and Salesforce.com said a similar deal is in the works with Borland Software Corp. Sforce also incorporates XML and Web services standards like the Simple Object Access Protocol and the Web Services Description Language.

Sforce sounds promising to Sheldon Tkatch, a senior project manager at Garrett Aviation Service Centers, a Tempe, Ariz.-based division of General Electric Co. The provider of airplane maintenance and modification services uses Salesforce.com's applications, and Tkatch said he wants to tie them to Garrett's Oracle customer database.

Currently, linking customer data to the hosted applications is a time-consuming process that requires end users at Garrett to extract the information in batches or reports and then enter it manually. Doing the necessary integration work in-house would be "technologically prohibitive," Tkatch said. But that process looks more feasible with Sforce, he added.

Wendy Close, an analyst at Gartner Inc. in Stamford, Conn., said Sforce targets application developers with the software-as-a-service concept. The service will most likely appeal to large companies that need more functionality than Salesforce.com's applications provide, she said.

But Close added that she's not sure how much buy-in Sforce will get at first, outside of companies that plan to use Salesforce.com's applications.



MARYFRAN JOHNSON

Larry's Grandstand Play

ORACLE'S HOSTILE TAKEOVER BID for PeopleSoft has sparked a flurry of media coverage in the past 10 days — predictably so. The story has the classic elements of a made-for-TV movie: a dramatic surprise attack, high-stakes finance with antitrust overtones, executive power struggles and a quirky cast of combative CEOs.

But the undisputed star of this show has been Oracle CEO Larry Ellison, an insatiable attention-seeker who obsesses over the tactics of Japanese feudal warlords and who shopped for his fourth wife on the *Oprah* show a few years back.

Now he's shopping for software market share and customer body count among PeopleSoft's thousands of enterprise users, who play the sympathetic but largely helpless victims in this drama.

Why victims? Because their fates are tied to what could become a dead-end software platform.

Larry has made it clear he has zero interest in PeopleSoft's portfolio of applications, strategic product road maps or even the technology fueling it all. So, if he sidesteps the potential antitrust concerns and kills off one of his main competitors, development of new PeopleSoft applications will halt. And the inevitable upgrade march to Oracle's E-Business Suite software will begin.

When CIO Jim Prevo of Green Mountain Coffee Roaster called that prospect "a disaster" [QuickLink 38959] and predicted that Oracle ownership would "destroy much of what we value in PeopleSoft," he was speaking for many of his peers. At a time when IT organizations are trying to standardize platforms, simplify architectures and keep budgets under control, the specter of a forced migration off strategic business software is horrifying.

But what does Larry care? On the customer relationship front, Oracle has a spotty record. The vendor has feuded publicly with its own user group, and two years ago, it was forced by vociferous customer outrage to abandon a controversial database pricing plan.

When news of the hostile bid broke, PeopleSoft CEO Craig Conway, an Oracle veteran, sputtered his outrage over "classic Larry bad behavior," which included blabbing to the media about supposedly secret talks the two had last year about merging. Just four days before Larry turned the spotlight on himself, Conway had announced a pending $1.7 billion acquisition of J.D. Edwards. That move was intended to catapult PeopleSoft over Oracle, making it the No. 2 business software vendor behind SAP, which holds 54% of the market.

That scenario now seems unlikely. Even if Oracle's bid fizzles, it may undermine PeopleSoft's future — especially in the eyes of potential customers. As Wall Street analysts noted, the bid increases the perception that PeopleSoft is in trouble and sows confusion and doubt among customers and prospects. Checking out a vendor's financial stability is a standard business practice for CIOs today, and PeopleSoft just got pushed into the wobbly red zone.

I asked an expert on IT sourcing what PeopleSoft customers could do to protect themselves if Oracle has its way, and unfortunately, there isn't much. Bart Perkins, a managing partner of Leverage Partners and a *Computerworld* columnist, said that the best customer protections reside in the software contract. A good one will include explicit performance metrics and service guarantees, details about promised functionality and a promise of product support for a certain number of years.

But product plans and support can blow up quickly after an acquisition, so that piece of paper may be worthless if Larry's grandstand play succeeds. Here's hoping it doesn't.

PIMM FOX

Site Monitors Get Real

WE KNOW the value of system management software that monitors the performance and availability of Web sites. The goal is to keep sites and robust applications up and running within service parameters set by business and IT.

But most of the performance tools provide synthetic measurements. They score a site or application against a set of scripts or conditions created by the IT department to mirror users and transactions. For example, if a customer goes to a travel site and types in a query, the measurement software will acknowledge that the site is running as long as the customer gets an answer. But there's no way of knowing if the information was indeed what the customer wanted.

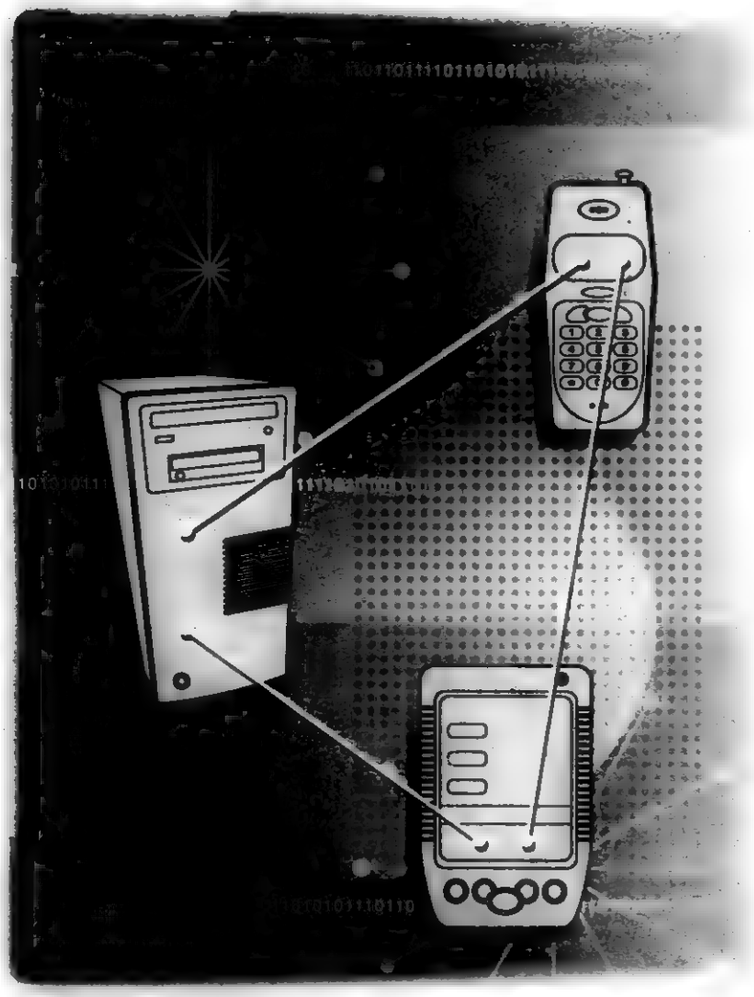
Until now.

Complementing traditional system management technology available from the likes of Mercury Interactive is software from San Francisco-based TeaLeaf Technology Inc., a spin-off from SAP. Designed to monitor actual site and application experience, IntegriTea aggregates information about the application and determines if it's returning appropriate data. Already on board are Priceline.com, Citizens Bank of Rhode Island and Mary Kay Inc.

IntegriTea applies a filter to the Web server and clones information when it hits the server. A copy of each request is made and pushed to an IntegriTea server, which generates a cookie for each session. This makes it possible to follow the application trail of the user. The results are assembled visually so you can record the page a visitor was on, his IP address, the ports, the browser type — almost any information you'd want from a user session.

Event modeling permits preset alerts, so if, say, 10 transactions fail to reach completion within a specific period of time, you can be alerted. Identifying problems early and specifically also makes it easier to effect fixes.

White Paper



Managing and Securing Mobile & Wireless Resources

mobiletrax

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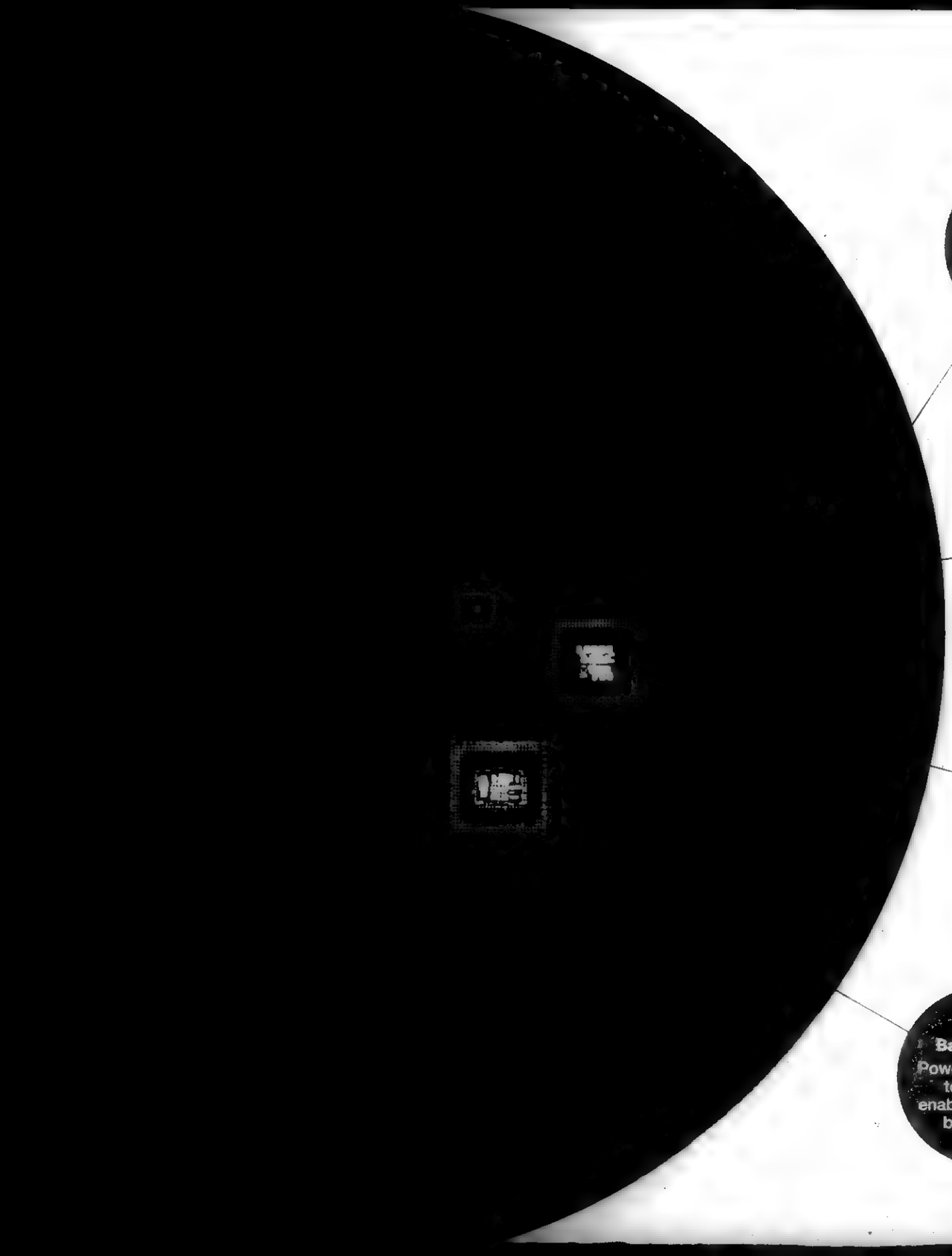

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Managing and Securing Mobile & Wireless Resources

As the mobile workforce continues to grow, IT organizations turn to new tools that let them support a dizzying array of devices

Interestingly, both vertical enterprise workers (such as healthcare, education and financial services staff) and horizontal enterprise workers (such as consultants and sales representatives) will soon make up a predominantly mobile workforce. According to research firm IDC, more than two-thirds of all U.S. employees will be classified as mobile by 2006.

Mobile workers will travel and work in various private and public environments, such as campus buildings, industrial plants, client sites, airport executive lounges, hotel rooms and their residences. They will seek wired and wireless data network access over often unreliable, unsecured and bandwidth-constrained connections to maintain their mobile productivity.

Consequently, the enterprise network will be extended into campus and mobile environments to provide these workers seamless access to their mission-critical enterprise applications, email, personal information managers (PIMs), corporate databases and other mobile resources. This means IT managers and help desk staff will have to extend their own services into the same campus and mobile environments to support not only mobile workers' data access needs, but also a proliferation of mobile and wireless devices.

According to Framingham, Mass.-based IDC, there will be over 112 million enterprise mobile devices for IT support staff to service in 2004. Many of the devices, such as personal digital assistants (PDAs) and smart phones, cost up to $500.

However, due primarily to the inefficient extension of IT support in mobile environments, the total cost of ownership (TCO) of mobile and wireless resources often equals five to 10 times the average capital cost of the devices themselves. For example, Stamford, Conn., research firm Gartner Inc. estimates the TCO for a PDA at $2,700, but that cost soars to $4,400 if the PDA is enabled with a wireless adapter.

Various mobile resource management (MRM) solutions address the data communication and computing needs of the mobile workforce and relieve related support pains. MRM refers to the "lifecycle management" of mobile, wireless and remote devices and related software, content and data, with a primary focus on enterprise applications. MRM solutions centralize mobile resource management, drive increased mobile workforce productivity and decrease the TCO for mobile resources.

MRM Market

As the mobile workforce increases and mobile and wireless devices proliferate, the MRM market is expected to grow at a proportionately high rate. IDC estimates it will top $715

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Mobile devices have improved productivity, but they have also led to a loss of control over one of your company's most valuable assets–information. What was once protected by network security is now stored on these highly-vulnerable devices.

Fortunately, you can regain control with CREDANT Mobile Guardian from CREDANT TECHNOLOGIES, the premier provider of mobile security software. CREDANT Mobile Guardian detects, secures and manages laptops, PDAs and smart phones – and the thousands of people in your company who potentially use these devices.

CREDANT Mobile Guardian represents the most comprehensive platform for filling the dangerous security gap created by mobile devices. It does this by focusing on, and protecting, the information stored within them.

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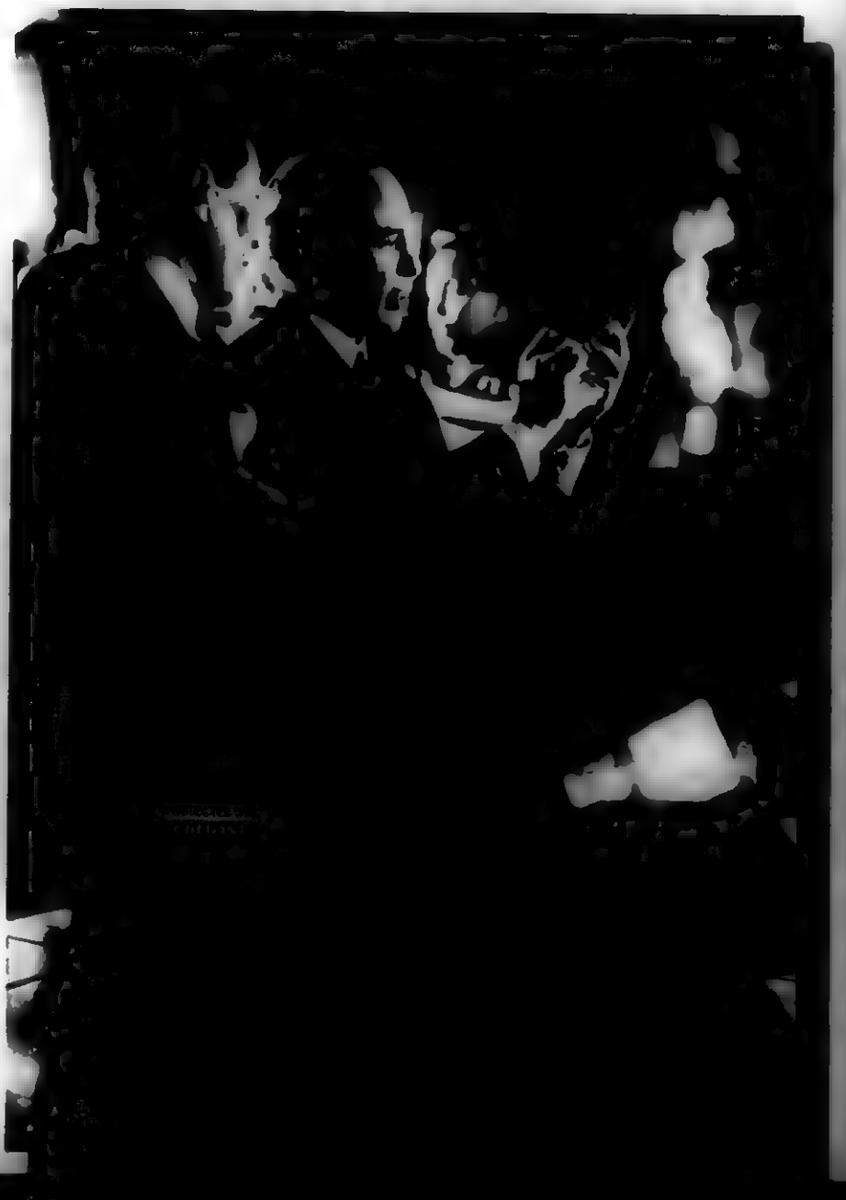
Go to www.credant.com for more information and a schedule of product webinars.



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million in revenues by 2006, a 42.6% compound annual growth rate over $121.3 million in 2001. Similarly, Gartner forecasts a five year growth rate of 40% in MRM market revenues, from $135 million in 2000 to $750 million in 2005.

MRM Solutions

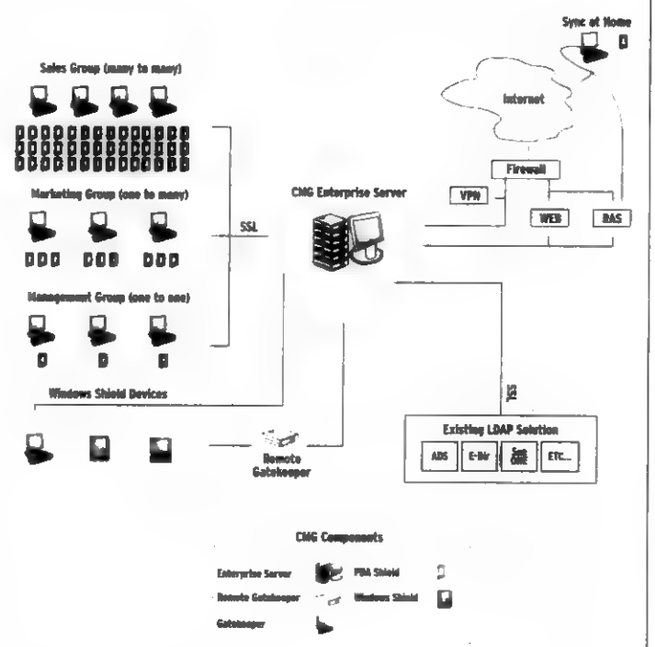
MRM solutions implement product lifecycle management and help IT control and centralize the monitoring, recording, installing, configuring and upgrading of mobile, wireless and remote device systems, operational software and mission-critical applications. The primary MRM features are systems management, software management, data management, security management and centralized administration.

MRM solution architecture includes a server, a management console, a proxy service and a device client. The MRM platform can be integrated with legacy management systems like authentication servers (e.g. RADIUS), user directory servers (e.g. LDAP) and desktop management platforms (such as Microsoft's Systems Management Server, or SMS). Figure 1 shows a typical MRM architecture, this one from Credant Technologies' CREDANT Mobile Guardian (CMG) system diagram.

MRM Vendors

As Figure 2 shows, MRM vendors consist of heritage desktop management (e.g. Novell or Tivoli), remote control (e.g. Altiris or XcelleNet) and database synchronization (e.g. Synchrologic or Sybase) solution providers—collectively known as "mobile device management" vendors—in addition to mobile device security vendors, such as Wavelink and Senforce Technologies.

Figure 1. Typical MRM architecture - Credant's CMG solution



Source: MobileTrax

Most MRM vendors have extended their heritage product features to provide end-to-end MRM solutions, including security features. These extended MRM features are added to vendors' product suites through internal research and development, cross-vendor licensing and merger-and-acquisition strategies. For example, Novell, a heritage desktop management vendor, acquired Callisto, a heritage remote control vendor, to extend Novell's ZENworks product functionality.

Systems Management

Systems management functions allow IT support staff to deploy, manage and troubleshoot mobile and wireless systems. Key systems management functions include asset management, operating systems migration and license management.

- **Asset management.** Asset management functions enable the

monitoring, tracking and reporting of mobile and wireless hardware and software. The data is stored in Open Database Connectivity (ODBC)-compliant data sources, such as Microsoft SQL Server, for the purposes of license management, software deployment and TCO management.

- **Operating system migration.** Operating system migration provides a pre-migration assessment of the user's software and hardware landscape, including a snapshot of the computer personality setting. Post-migration status reporting and security patching are also used after the installation is complete and the personality settings are restored. Most current operating system migrations involve upgrades of Windows 9X/NT to Windows 2000/XP.
- **License management.** License management functions include the auditing of user devices to determine the status of their software licenses. Software usage information is used to determine the number and type of applications, as well as redundant and unused software licenses. Additionally, software license contracts can be managed with built in notification policies in cases in which licensing amounts have been exceeded, as often happens.

Software Management

Software management functions allow IT support staff to provide policy-based deployment, management, troubleshooting and upgrade of mobile and wireless operating software and mission critical applications. Key software management functions include software installation and updates, configuration and troubleshooting.

- **Installation and updates.** Software installation and updates can be planned based on asset management information and user profiles. Queries can be used to group mobile and wireless devices that contain

Figure 2. MRM Vendors

MRM Vendor	Web Site	MRM Heritage	Primary MRM Product
Aether Systems	www.aethersystems.com	Data Synchronization	Aether ScoutSync
AirPrism	www.airprism.com	Remote Management	The AirPrism Suite
Altiris	www.altiris.com	Remote Management	Client Management Suite
Bluefire Security Technologies	www.bluefiresecurity.com	Device Security	Bluefire Enterprise Manager
Credant Technologies	www.credant.com	Device Security	CREDANT Mobile Guardian
Extended Systems	www.extendedsystems.com	Data Synchronization	XTNDConnect Server
IBM Tivoli	www.ibm.com/software/tivoli	Desktop Management	Tivoli
ManageSoft	www.managesoft.com	Desktop Management	ManageSoft 6.5
Marimba	www.marimba.com	Desktop Management	Desktop/Mobile Management
Mobile Automation	www.mobileautomation.com	Remote Management	Mobile Lifecycle Management Suite
Novadigm	www.novadigm.com	Remote Management	Radia
Novell	www.novell.com	Remote Management	ZENworks for Handhelds
ON Technology	www.on.com	Desktop Management	ON iCommand
Pumatech	www.pumatech.com	Data Synchronization	Enterprise Intellisync
Rapport Technologies	www.rapporttechnologies.com	Remote Management	Rapport 4.0
Senforce Technologies	www.senforce.com	Device Security	Senforce Shield
Sybase	www.sybase.com	Data Synchronization	i-Anywhere m-Business Platform
Synchrologic	www.synchrologic.com	Data Synchronization	Synchrologic Mobile Suite
Targus	www.targus.com	Device Security	Targus DEFCON MDP
Vaultus	www.vaultus.com	Device Security	Vaultus Mobile Platform
Wavelink	www.wavelink.com	Device Security	Wavelink Avalanche
XcelleNet	www.xcellenet.com	Remote Management	Afaria

Source: MobileTrax

newly installed software or require software upgrades, and automatic installations can be scheduled. For example, Rapport Technologies' Rapport 4.0 can update the client down to the BIOS level — a new level of update capability.

- **Configuration.** Devices can be configured to ensure a standardized and authorized deployment of software and to eliminate employee-installed applications and related rogue applications. Device buttons, menus and power settings can also be configured.
- **Troubleshooting.** Troubleshooting functions include the monitoring of installed software, the detection of missing or corrupted files and the distribution of software patches and replacement of missing files—all completed in the background of a communication session.

Data Management

Data management functions allow IT support staff to ensure reliable data transmission across various data networks, such as wired and wireless LANs and WANs and the Internet. Key data management functions include database synchronization, bandwidth management, data compression, checkpoint restart and byte-level differencing.

- **Database synchronization.** This allows for wired and wireless synchronization of mission-critical data and applications, such as PIMs and email, and includes backup-and-restore functionality.
- **Bandwidth management.** Bandwidth management functionality enables background diagnostic analyses, software upgrades and file transfer by allocating limits to the amount of bandwidth used during a communication session.
- **Data compression.** This is automatically implemented based on the bandwidth limitations of the wired or wireless connection.

As a significant number of vertical and horizontal enterprise workers travel and work in mobile environments, IT support staff will have to provide them with seamless, secure mission-critical data and applications.

- **Checkpoint restart.** Checkpoint restart enables interrupted data transmissions to resume at the point of interruption when a wireless connection is lost.
- **Byte-level differencing.** This differencing enables changes and updates only (as opposed to entire files) to be transmitted during file distribution.

Security Management

Security management functions allow IT support staff to implement data, user, device and network security based on mobile and wireless security policies. Wherever possible, the security policies should be integrated with wired security policies and should be designed to adapt to changing environments. Security management functions include data encryption, user authentication, location-aware management, theft protection and other popular desktop PC security solutions.

- **Data encryption.** Mission-critical data is protected during transmission using HTTP and Secure Socket Layer (SSL)-based encryption methods. The Advanced Encryption Scheme (AES), a U.S. government-approved data encryption algorithm (up to 256-bit key security), will soon replace other limited encryption algorithms such as the RC4 stream cipher in wireless LAN systems.
- **User authentication.** User information stored on directory servers, such as Microsoft Active Directory, can be used to grant users access to mission-critical applications and data.
- **Location-aware management.** Device security solutions should be location-aware and automatically open and close the device's adapter ports, based on the changing environment, the user's service preferences and the security policies.
- **Theft protection.** Biometric access (e.g. fingerprint reader), motion sensors and power-on passwords protect idle and unattended devices from potential theft.
- **Desktop PC security solutions.** Popular desktop PC security

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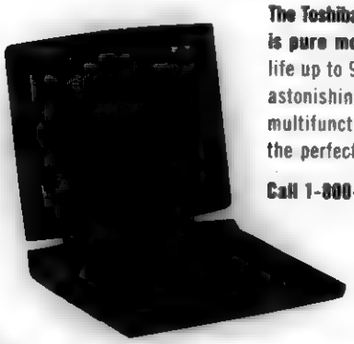

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solutions, such as virtual private networks (VPNs), personal firewalls and anti virus software applications, can be implemented by IT organizations to protect the mission-critical data and applications on mobile computing devices.

Centralized Administration

The centralized administration of today's MRM solutions can help IT support staff efficiently and effectively control the management of mobile resources. Centralized administration functions include console management, remote control and legacy platform integration.

- **Console management.** A management console allows IT support staff to deploy, manage and update systems, software and data from a Web-based interface.
- **Remote control.** Remote-control software enables IT support staff to view, operate, diagnose, configure and maintain mobile and wireless devices over the Internet or a wireless network using a centralized console and without user intervention. The function has traditionally been used to control remote machines, such as point-of-sale terminals, kiosks and utility meters.
- **Legacy platform integration.** MRM solutions should always be integrated with desktop management platforms in order to ensure the centralized and consistent policy-based management of both fixed and mobile enterprise resources. Legacy platforms include management servers (some examples include Microsoft's SMS and Hewlett-Packard Co.'s OpenView Service Desk) in addition to directory servers such as LDAP and Microsoft's Active Directory.

Conclusion

As a significant number of vertical and horizontal enterprise workers travel and work in mobile environments, IT support staff will have to provide them with seamless, reliable and secure mission-critical applications and data. Moreover, IT organizations will be faced with the challenge of supporting a proliferation of mobile and wireless devices, remote terminals and nearly endless related operating software.

The rapidly expanding universe of MRM solutions, which include systems management, software management, data management, security management and centralized administration features, will greatly help enterprise IT organizations efficiently procure, deploy, configure, monitor, upgrade and secure mission-critical mobile resources. The MRM solutions will efficiently manage and secure mobile resources, resulting in an increase in mobile worker productivity and a decrease in TCO.◆

About MobileTrax

MobileTrax LLC is a Cupertino, Calif.-based professional services firm that focuses on the mobile computing and wireless data communications markets. MobileTrax provides market research and consulting services regarding the enterprise and consumer markets. The MobileTrax Enterprise IT Service provides vendor-sponsored monthly in-depth reports regarding important mobile and wireless topics, including "What IT Needs to Know," which gives IT groups specific recommendations on what they must know to succeed in mobile and wireless deployments.

MobileTrax publishes two free industry newsletters. "Inside Mobile" provides editorial analysis and insights regarding important topics in mobile and wireless and is published on the first and third Mondays of the month. "Mobile Letter" covers insights regarding new products and services and is published on the second and fourth Mondays of the month. For more information, visit www.mobiletrax.com or call (650) 248-9366.

MobileTrax is headed by J. Gerry Purdy, Ph.D., a globally recognized authority on mobile computing and wireless data communications. Dr. Purdy is also a General Partner at Diamondhead Ventures, an early-stage venture capital firm.

MRM: An IT Support Staff Perspective

Many enterprise IT support staffs aren't prepared to enforce mobile and wireless security policies; efficiently provide seamless access to mission-critical applications and data; and support the proliferation of mobile and wireless devices. MRM solutions address the mobile and wireless "pains" of enterprise IT support staffs, as demonstrated by the following deployments.

S.H. Leggitt: Centralizing the Management of Handhelds

The increased use of handheld devices by the mobile workforce presents various challenges to IT support staffs. They must manage their mobile and wireless inventories and deploy, upgrade and maintain the mission-critical applications and content from a central management console.

S.H. Leggitt is an industrial products manufacturer. The company is headquartered in San Marcos, Texas, and provides LP gas regulators, hose assemblies, custom brass fittings and plumbing components for the LP gas, RV and plumbing markets. Naturally, the company employs a significant number of consultants and sales representatives, many of whom use handheld devices.

S.H. Leggitt needed an MRM solution that could centralize and remotely manage its handheld device usage, licensing and memory status as well as upgrade and distribute its mission-critical documents and content to the mobile workforce. After evaluating several solutions, the company selected Novell's ZENworks for Handhelds solution to address its mobile and wireless "pains."

Novell ZENworks for Handhelds provides automated management of handheld devices to increase mobile workforce productivity and to reduce TCO. ZENworks for Handhelds provided the S.H. Leggitt IT support staff with the following benefits:

- Remote management and security of the handheld devices through a central management console.
- Systems management, including inventory tracking; software license auditing and upgrades; and system memory monitoring and upgrades.
- Software management, including the configuration of standardized buttons, menus and settings on the mobile devices and the remote delivery of PDF-formatted content.

INTEGRIS Health: Managing the Security of PHI

Medical staffs use PDAs to retrieve, store and update protected health information (PHI). If the handhelds aren't properly managed and secured, the PHI stored on them may be carelessly exposed or lost.

The Health Insurance Portability and Accountability Act (HIPAA), which was enacted to enforce the privacy and security protection of consumers' electronically transmitted medical information, will impact many healthcare service providers and their ability to competitively provide managed and secured mobile and wireless services.

INTEGRIS Health is a healthcare management operation. The company is based in Oklahoma City and operates various medical facilities throughout the state.

INTEGRIS Health needed an MRM solution that would enable it to enforce its wireless security policies, support various handheld devices and comply with HIPAA. The company selected Credant Technologies' CREDANT Mobile Guardian solution to address its mobile and

wireless "pains."

CREDANT Mobile Guardian (CMG) addresses security issues with centrally managed policy administration and on device user authentication and policy enforcement. CMG provided INTEGRIS IT support staff the following benefits:

- User and role based mobile and wireless security policy enforcement.
- User authentication (e.g. PINs or passwords), including self service reset options and the encryption of data residing on corporate databases, and removable CompactFlash cards.
- Automated installation and update of software during synchronization and the purging of PHI from lost or stolen mobile devices.

What IT Needs to Know

As the mobile workforce grows and mobile and wireless devices proliferate, IT support staff must provide for the adequate and efficient management and security of mobile mission-critical applications and data. Key MRM strategies IT support staffers need to know are:

- Develop and implement mobile and wireless security policies that are integrated with campus and wired security policies and cover the procurement, deployment, management and security of mobile devices and mission-critical applications and data.
- Procure and deploy an MRM solution that enables system, software, data and security management through use of a central management console.
- Compare and select MRM vendors based on the relative strength of their heritage features (e.g. synchronization or device security) as well as their ability to provide an end-to-end MRM solution.

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wireless "pains."

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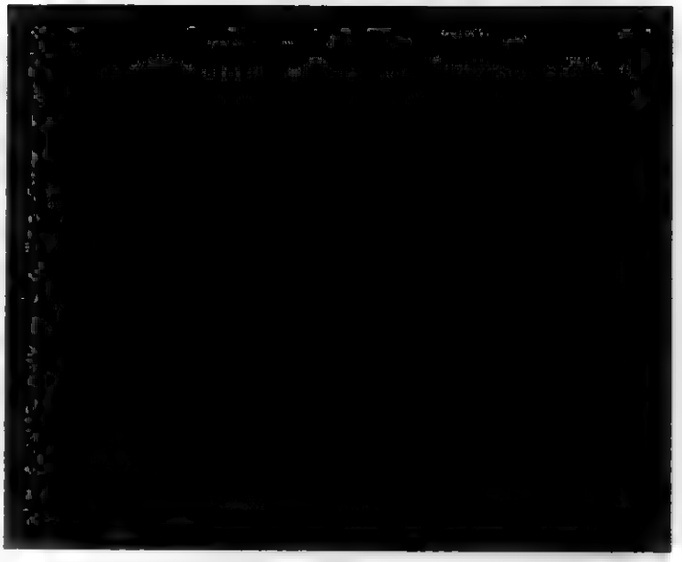

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MRM: A Mobile Worker Perspective

Mobile sales and service workers need real-time access to enterprise networks and databases to provide just-in-time sales and services based on customers' personal attributes and histories. They also need reliable and transparent troubleshooting and maintenance support. MRM solutions address the mobile and wireless "pains" of mobile workforces.

Tulsa Dental: Enabling Personalized Mobile Product Sales

Mobile sales workforces use mobile and wireless devices to provide product sales and related value-added services. These road warriors need reliable and frequently updated client information that can be accessed at regular intervals and customized to drive incremental and repeat sales.

Tulsa Dental, a division of DENTSPLY International, is a medical equipment supplier. The company is headquartered in Tulsa, Okla., and provides endodontic products to dentists. Its field sales representatives sell directly to dentists. Their broad line of offerings includes educational course enrollment, product literature, dental supplies and equipment for dentists' offices.

Tulsa Dental needed an MRM solution that would enable its mobile workforce to efficiently gather sales orders from the field; periodically synchronize the content with the enterprise database back at headquarters; and receive updated product, service and client information. The company selected Synchrologic's Mobile Suite solution to address its mobile and wireless "pains."

Tulsa Dental needed an MRM solution that would enable its mobile workforce to gather sales orders from the field, synchronize with the enterprise database and receive updated client information.

Synchrologic Mobile Suite helps companies lower the total cost of ownership of mobile devices while simultaneously providing controlled access to the mission-critical information needed by workers to stay productive in mobile environments. Synchrologic Mobile Suite provided the Tulsa Dental mobile workforce with the following benefits:

- Periodic or immediate transmission and retrieval of mission-critical customer information through synchronization functions.
- Current customer information, including sales histories and product and literature orders.
- Value-added service capabilities, such as educational course enrollment and mobile credit card billing.

Federated Insurance: Providing Real-Time Mobile Customer Service

Mobile service workforces require updated product or service information in order to provide the superior customer service required by enterprises seeking to compete in the challenging economy that has held sway for the past three years. Therefore,

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these mobile professionals need to retrieve updated service policies, documentation and forms in real-time if they are to respond as quickly and accurately as possible to their customers' questions, concerns and needs while in mobile environments.

Federated Insurance is a mutual property and casualty insurance provider. The company is headquartered in Owatonna, Minn., and specializes in business insurance for a wide variety of vertical markets. All told, the company employs more than 200 field marketing and service staffers, who provide in-person policy sales, loss prevention education and claims resolution.

Federated Insurance needed an MRM solution that would enable its mobile workforce to efficiently access the corporate intranet and download updated policies, forms, contracts and other mission-critical content. After evaluating a broad cross-section of potential solutions, the company selected XcelleNet's Afaria solution to address its mobile and wireless "pains."

XcelleNet Afaria provides mobile and wireless systems and software management functions that bring not only greater efficiency, but also increased productivity and significantly improved user satisfaction. Afaria provided the Federated Insurance mobile workforce benefits that included the following:

- Rapid access to mission-critical documents and applications using the same Web-based intranet interface that's used by desktop PC users.
- Automated, seamless and efficient updates of mission-critical documents and software applications using such tools as byte-level differencing and checkpoint-restart functions.
- Automated Web-based troubleshooting, including the background reporting, repair and replacement of any files that are corrupted or missing.

What Mobile Workers Need to Know

Mobile workers must be able to access mission-critical applications, content and data to maintain their sales productivity and to ensure superior customer sales and service. Key MRM strategies mobile workers need to know are:

- Access mission-critical application, content and data with a Web-based interface that is integrated with and similar to their desktop management infrastructure and interfaces.
- Retrieve only the updates or changes in mission-critical documents or content through efficient data management functions, such as checkpoint-restart and byte-level differencing.
- Troubleshoot and repair mobile device systems transparently through background monitoring and maintenance functions.

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Real-time monitoring can also be a boon in fraud detection. An online music retailer was able to watch for instances of fictitious credit card generation via overseas IP addresses. The software foiled an attempt to ping the server with randomized credit card numbers by checking failed entries within a three-hour time period.

Yet another use for this technology is monitoring low-volume, high-dollar business-to-business transactions to ensure that customers are always getting the information they want. A manufacturer of drill presses is using it to keep watch on inventory, delivery dates and suborders for components.

Traditional monitoring software, akin to a closed-circuit TV camera, is still necessary, but it's no replacement for having a live guard keeping watch. And more important, one who takes notes you can act upon.

DAVID MOSCHELLA

IT Mature? Think Again

HAS THE IT industry lost faith in itself? In April, Larry Ellison told *The Wall Street Journal* that the computer industry "is as large as it's going to be." Google's Eric Schmidt and others are making comparisons to historical market bubbles involving canals and railroads, which were followed by relatively humdrum periods. Perhaps most aggressively, in a controversial *Harvard Business Review* article, editor at large Nicholas G. Carr argues that IT doesn't even matter anymore, and that it's rapidly losing its ability to deliver competitive and strategic advantage.

This type of pessimism has emerged during every prolonged IT market downturn. For example, in the late 1980s, when the U.S. economy seemed to have lost its edge, IT got much of the blame. I remember meeting with senior executives at IBM, who were pondering a study from a large management consulting firm that had concluded that IT really wasn't such a great business to be in and that IBM should prepare itself for a low-growth and low-profit future.

But it's been more than three years since the collapse of the Internet bubble, and it's time for all of us to put our hair shirts back in the closet. A practical first step would be to stop referring to the IT industry as "mature," which Webster's defines as "having completed natural growth and development." Does anyone really believe that these words apply to our business?

The most obvious flaw in this surprisingly widespread idea is its total lack of global perspective. The U.S., with 5% of the world's population, accounts for some 40% of the global IT business. How could anyone use the word *mature* to describe the state of IT usage in India, China, Russia, Brazil and many other countries? Indeed, if someday the rest of the world invests in IT at even half the current per capita rate in the U.S., the global IT industry would more than triple.

I'll give pessimists the benefit of the doubt that when they describe the IT industry as mature, they are really just talking about the U.S. and perhaps a handful of other developed nations. But even here, their arguments can't withstand much scrutiny. Consider the consumer market, where radical changes can be expected once high-bandwidth Internet, 3G-style wireless and home network systems are widely in place.

Even in business, *maturity* is the wrong word. Industry researchers say IT spending now accounts for 7% to 9% of the U.S. economy. But as more business is digitized and more tasks go online, is it really so hard to imagine that in seven to 10 years, IT-based activities could comprise, say, 15% to 20% of overall economic activity? Such a shift would allow today's U.S. IT business to more than double. And mature industries don't double every seven to 10 years.

The reality is that IT isn't just a separate economic sector like manufacturing, retail or insurance; it's an increasingly essential part of nearly every industry. It also remains the single largest source of business innovation and competitive advantage. IBM's Sam Palmisano got it right recently when he said IT spending can consistently grow from roughly 1.8 to 2.3 times the rate of the overall economy. Over time, this will result in a vast new IT landscape, which will make today's "mature" industry look primitive by comparison.

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READERS' LETTERS

More Than Techies

AS A SENIOR IT executive (CIO), I am constantly amazed at the cry for "business-savvy IT executives" [QuickLink 38152]. That's because my experience has been that when IT managers attempt to exercise business savvy, they are politely but firmly informed by word or deed that they are just "technical people." It is an empty cry offered by people of little insight and less business acumen.

James D. Wells Jr.
Norwich, Conn.

Fair Trade

THE ARTICLE "Group Touts Vermont as Outsourcing Alternative" [QuickLink 38198] and the related box on New Jersey illustrate the self-obsession with which American businesses and legislators view international trade in general and the North American Free Trade Agreement in particular.

The balance of payments in IT hardware and software between the U.S. and Canada is overwhelmingly in favor of the U.S. Trade between the two countries in the area of IT services is dramatically smaller, and the balance of payments between the parties is somewhat more equitable.

Why must Canadians suffer punitive U.S. attitudes, business practices and legislation whenever a small part of the cash flows the other way? Must you have all of your money and most of ours too?

T. Reynolds
Ottawa

Regaining Luster

THOMAS HOFFMAN and Gary H. Anthes are right on with their "Tarnished Image" piece [QuickLink 38043]. IT has a big credibility problem in most enterprises. Combine that with offshoring and a weak economy, and the IT jobs recovery may be further off than most believe. IT singing its own praises is definitely part of the solution, but so is using IT to create value for the enterprise and speaking the business side's language to communicate that value. Somewhere along the line, many so-called IT professionals appear to have forgotten that it's all about managing technology for the good of the enterprise.

Leon Kappelman
Director, IS Research Center, University of North Texas, Dallas

IT WOULD BE interesting to see whether or not companies that have IT departments with tarnished reputations have an active project management process in place and a project management office that is backed by senior management. Too many times, I've seen project managers bullied into fixed budgets and timelines by senior managers. This inevitably leads to projects that aren't delivered on time or within budget.

Scott Burgett
Project manager, Atlanta

Don't Forget MOM

I AM RATHER DISAPPOINTED by your article on event-driven architecture (and Gartner's take on it, but that was nothing new). The article ["Event-driven Architecture Poised for Wide Adoption," QuickLink 38332] gives the impression that event-driven architecture is something new and that middleware packages are just about to start to support it in earnest. On the contrary, sophisticated event brokering has been a feature of message-oriented middleware like BEA Tuxedo or NCR (now also BEA) TopEnd for decades.

Dragi Raos
Managing partner, Pardus, Zagreb, Croatia

Vendors Should Assess Themselves First

AS I READ Patrick Thibodeau's interview with Juergen Rottler, a vice president in HP's services division [QuickLink 38328], I couldn't help but smile at the headline, "Step 1: Hire a Consultant, HP Exec Says," which echoed Rottler's advice about the first step to take in adopting the on-demand model. I think Rottler is more likely saying, "Hire an HP consultant. For $25,000, HP will study your situation in order to better help HP tell you how HP can help you – for more money." In my years as a CIO, I was always suspicious of this pattern. I think a more appealing approach (at least in the eyes of the targeted CIOs) would be for HP to invest its own time and resources to make that assessment. Why should the customer pay to help a vendor make its sales pitch? If HP truly feels it can differentiate itself based on the strength of its "intellectual property and methodologies," it should likewise see that this assessment process is an investment worth making.

Bruce Barnes
President, Bold Vision LLC, Dublin, Ohio

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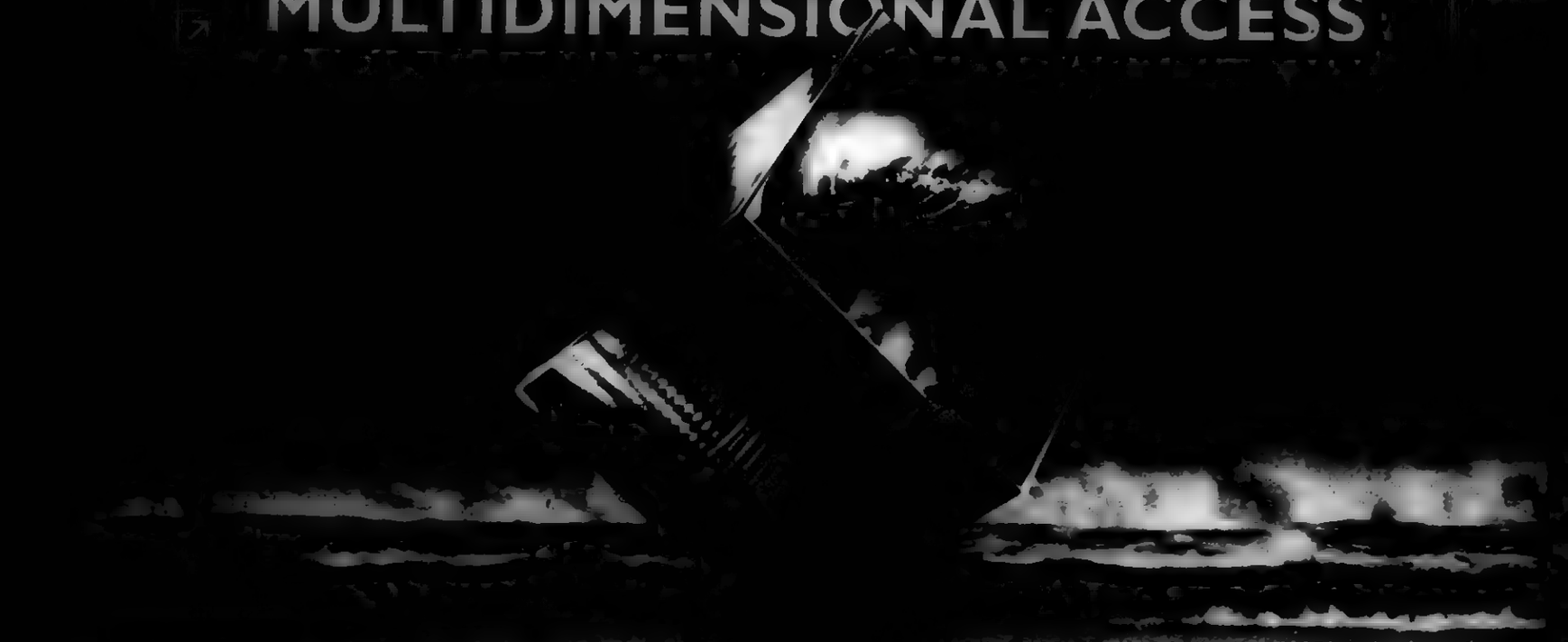

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Q&A
Lining Technology Up With Business
Siki Giunta, the CEO of Managed Objects, talks about her company's focus on making IT more accountable for the success of the business. **Page 30**

FUTURE WATCH
Captchas Eat Spam
Programs that distinguish between humans and machines could help block spam and contribute to advances in areas such as artificial intelligence. **Page 32**

SECURITY MANAGER'S JOURNAL
Security Sweep Reveals Access Token Violations
Vince Tuesday's after-hours survey of physical security uncovers an array of policy violations, including an unguarded access token with the passnumber written on it. **Page 33**

TOM RAYMOND

WEB SERVICES: INSIDE JOBS

Here's how two early adopters are using Web services for internal integration projects.

By Carol Sliwa

IT'S NOT HARD TO FIND companies that have dipped their toes into the water to explore how Web services might help address some of their nagging integration problems. But few have launched major initiatives of the scope at Eastman Chemical Co. and Merrill Lynch & Co.

One of the distinguishing characteristics that separates these early adopters from the mere dabblers is the systematic approach they take to building the sort of service-oriented development architecture that experts say they'll need to realize the full benefits of Web services. Some of the biggest challenges they've faced so far have been finding the right tools and establishing best practices without a well-established road map.

Eastman Chemical

EASTMAN CHEMICAL, a Kingsport, Tenn.-based maker of chemicals, fibers and plastics, is plotting the rollout of a service-oriented architecture across key legacy systems to give users more visibility and control over their business processes.

To do that, the IT department is taking stock of all of the company's application servers (which run on AIX, Windows 2000 and Windows NT), assessing what the applications do, stripping off the user interfaces and exposing the application functions as services, says Carroll Pleasant, an associate analyst in Eastman's emerging digital technologies group.

"Once we're done, the [users] should be the ones deciding what the business processes will be, rather than having the applications determine the business process for them," he says.

Like a number of other companies, Eastman got started with Web services by focusing on a key project that would help its IT department learn about the new technology. Developers created a simple read-only Web service to give customers access to technical data in its product catalog.

The product catalog Web service, which went live about a year ago, eliminated the need for customers to screen-scrape data from Eastman's site or to download a monolithic catalog to spreadsheets. Customers instead can now go to the Web site and make a request that causes the system to send an XML-based message using SOAP over HTTP to Eastman's Saqqara Systems Inc. database. The latter then does the data retrieval and sends back the information via XML and SOAP.

With one successful project under its belt, Eastman's next big step was tackling an internal Web service it calls a management score card. The service lets the company's top 150 executives access financial, manufacturing and other data from several disparate internal and external systems for competitive analysis purposes.

Developers used Visual Basic 6.0 and Microsoft's SOAP tool kit to build

"Anybody who gets into this deeply will find very quickly that they need a tool set for managing services. It's as fundamental as running your data center monitoring tools.

CARROLL PLEASANT, ASSOCIATE ANALYST, EMERGING DIGITAL TECHNOLOGIES GROUP

the interfaces to its data warehouse and other back-end systems. Pleasant notes that, in hindsight, the newer and more reliable Visual Studio .Net tool kit — which Eastman developers now use — would have been a better choice, since it generates more of the low-level plumbing code. But the team lacked experience with it at the time.

To tie together the data, Eastman developers turned to Java-based server software from New York-based Droplets Inc. to deliver a client with a rich graphical user interface that "deploys like a Web application," Pleasant says. "The user just clicks on a shortcut and points to the application running on the server," he says.

Not everything went so smoothly. Long before the management score card went live last December, Eastman realized it would have to figure out how to manage its growing collection of services so that programmers wouldn't have to do checks to make sure all the services are running.

"Anybody who gets into this deeply will find very quickly that they need a tool set for managing services," says Pleasant. "It's as fundamental as running your data center monitoring tools."

Eastman experimented with tools from NextAxiom Technology Inc. in Pleasanton, Calif., and webMethods Inc. in Fairfax, Va., to create a Web services management "engine" that's more than a mere registry for the publication of services that applications can consume. The engine also needs to manage the security model, the orchestration between Web services, debugging and monitoring of the services, fail-over capabilities, caching and data transformation, Pleasant says.

When Pleasant surveyed the product landscape, he found a variety of confusing choices from small start-ups. "There's no consensus yet as to exactly what a Web service management tool should do or what services should reside there vs. the application server," he says. "It's very tough, because you can't just do an apples-to-apples comparison between these guys. Each one represents some fundamentally different approach as to how you're going to build the service-oriented architecture."

Another decision Eastman faced was how to "chunk" its data and whether to make "little calls to services or one big one" to compensate for the performance hits that result when data is transformed into and out of XML, Pleasant says.

To boost performance, Eastman had to learn the fine points of caching data so that multiple requests for the same information don't trigger individual calls to the database every time.

The company has done most of its work without help of high-priced consultants, although NextAxiom and other vendors have assisted with Eastman's near-term focus to create composite applications that tie together low-level services from existing legacy "application silos" and present the data in a view that aligns with the user's business processes. Microsoft's support for Web services and XML will also be helpful going forward, since Eastman is a heavy Microsoft user.

But one of the continuing challenges Eastman faces is the dearth of role models, since few have done what it's attempting to do.

"It's going to take a long, long time for everything to switch over to Web services and a service-oriented architecture," Pleasant says. "We see the movement going on with almost all of our vendors. We're confident they're going this route. But it takes time to get there."

Merrill Lynch

INTEGRATION HEADACHES drove Merrill Lynch to turn to Web services about one year ago as a cheaper and more efficient alternative to the middleware it uses to enable its thousands of mainframe applications to talk to its middle-tier and Web-based front-end systems.

The challenge confronting the New York-based financial services company is far more expansive than most companies will ever encounter. Merrill Lynch has 23,000 CICS programs running on its mainframes, and it's very difficult to integrate those programs with Microsoft's .Net development platform, IBM's WebSphere or any other platforms or tool sets, notes Jim Crew, director of the infrastructure and data services group.

Exposing those CICS applications with language-agnostic Web services interfaces and sending data using interoperable XML held great appeal. So Merrill Lynch created its own tool set, called X4ML, to help its mainframe programmers build interfaces and run Web services without need of XML, Java, Visual Basic or Web services skills and without having to modify the CICS programs. "There's nothing in the marketplace that's nearly as advanced as what we built," says Crew.

The tool set, which the firm continually fine-tunes, has an analyzer component that looks at a compiled listing of a Cobol program, tries to figure out its I/O and automatically produces the Web Services Description Language files that represent the interface and all of the runtime metadata, says Crew.

"Our goal is to make sure that 90 cents on the dollar is spent on the application and 10 cents on plumbing. Web services is getting us closer to that point.

JIM CREW, DIRECTOR OF THE INFRASTRUCTURE AND DATA SERVICES GROUP

X4ML can be accessed either through HTTP synchronously or through IBM's MQSeries synchronously or asynchronously, says Dave Cohen, a vice president in Merrill Lynch's technology architecture group. "That's important for helping with the goal of cost reduction," he notes.

Venkat Pillay, a vice president in the infrastructure and data services group, says his team was apprehensive about scalability going through a CICS transaction gateway. But performance testing showed that TCP/IP and HTTP listeners in CICS provided the fastest, most scalable and efficient way to get into CICS, he says.

To boost performance, Merrill also wrote its own XML parser to run in CICS, since the off-the-shelf Java-based XML parsers were too slow, says Mike Card, another vice president in infrastructure and data services.

Card says the old system drove about 19 transactions per second, but using X4ML and Web services, the figure shot to 239 per second.

Through its work, Merrill Lynch hopes to phase out many of its CICS programs. For instance, if three programs do account inquiries, only one Web service is needed to expose that function. But Crew says that's not the ultimate objective. "The goal is lowering the cost of running the business by reusing existing resources," he says.

Crew estimates that for every dollar spent on an application, 90 cents goes to plumbing code. "Our goal is to make sure that 90 cents on the dollar is spent on the application and 10 cents on plumbing. Web services is getting us closer to that point," he says.

Merrill Lynch IT executives often point out that the firm cut the cost of developing an investment banking application from $800,000 to $30,000 by using Web services instead of traditional development methods. Crew attributes the differential to X4ML's ability to eliminate plumbing code.

Cohen says reusing code should help to reduce the turnaround time for new projects, which often depended on developer knowledge of how to call a particular CICS transaction using legacy protocols. Web service interfaces and more widely accepted programming tools will ease the process.

So far, Merrill Lynch has used X4ML in more than 20 applications running in production and several more in development. The tool has also been used to build Web services interfaces to about 350 CICS programs during the past year, according to Crew.

The company has created an X4ML directory with capabilities similar to the UDDI standard to document its Web services, but it plans to migrate to UDDI later this year.

"Once we start using UDDI, we will see the benefit of application reusability," says Pillay. "A lot more people will be able to find each other's services and reuse the code."

So far, all of Merrill Lynch's work with Web services has been internal. Crew says he expects it to stay that way for at least the near term because of the lack of security standards. But internal Web services alone can have a significant impact at Merrill Lynch.

"What a huge productivity tool," says Crew.

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Personal firewall management systems allow centralized control and enforcement of security settings for remote users. By Drew Robb

REINING IN Personal Firewalls

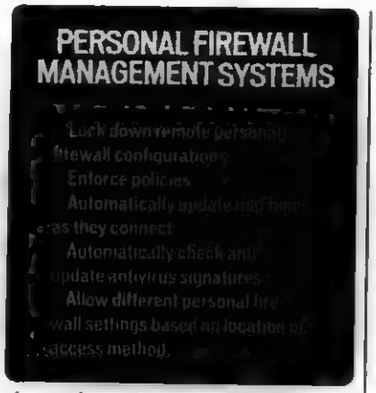
IT'S TOUGH ENOUGH defending the IT perimeter against spyware, viruses, worms and unauthorized intrusions. But no matter how good their defenses are, companies still risk getting hurt by those they trust most: remote workers. "If anyone wants to attack, all they have to do is drop in a Trojan [horse] and wait for the person to log in," says Dennis Peasley, information security officer at furniture maker Herman Miller Inc. in Zeeland, Mich.

Personal firewalls help, but standalone versions don't always protect the corporate LAN adequately. For example, Peasley initially installed ZoneAlarm from San Francisco-based Zone Labs Inc. on 900 laptops. But the distributed personal firewall installations were difficult to monitor and maintain. Peasley now uses Zone Labs' newer, server-based Integrity software to centrally manage those remote personal firewalls. "With any new system we install, the main cost is not the cost of the software, but the cost of managing it," he says. "Centralized management cuts those costs."

Stand-alone personal firewalls don't work well for corporate LAN access because end users have access to the software and tend to misconfigure it or shut it off entirely, and administrators face problems supporting and installing updates. Because the update process is time-consuming, administrators may avoid updates altogether, leaving unpatched clients open to new vulnerabilities.

"I've seen personal firewall software that was individually installed on several large computer systems, and it always becomes a mess," says Kevin Beaver, president of Principle Logic LLC, an information security consulting firm in Kennesaw, Ga. "Configurations and patches were inconsistent, and the administrators spent way too much time on the 'sneaker net,' going around to remedy problems."

The best centrally managed personal firewall systems won't let end users disable the local firewall software or change the settings, says John Pescatore, an analyst at Gartner Inc. in Stamford, Conn. "Users will just say yes to everything, so you have to centrally manage them in a way that is invisible to the client," he says.



Some tools also integrate with antivirus and virtual private network (VPN) software. Pescatore says two of the more advanced products in this arena, Integrity and Sygate Secure Enterprise, from Sygate Technologies Inc. in Fremont, Calif., include a back-end server that can act as a gateway through which remote-user access can be controlled (see diagram, next page).

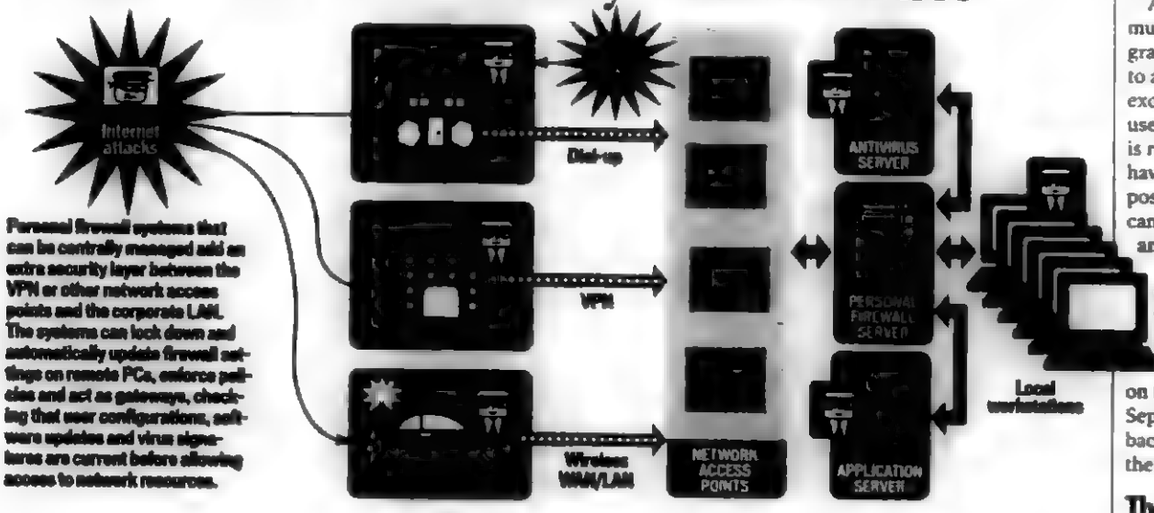
Peasley uses that feature on his Integrity firewall system. The end user connects to the Cisco VPN 3030 concentrator, which directs the user session to the Integrity server to authenticate the client, checks that the client's antivirus software is up to date and provides any necessary updates before allowing access to the network.

Vendors of related security products and security suites have jumped in with their own centrally managed firewall offerings. These typically include tight integration with sister security products. The downside is that they may be weaker in terms of management capabilities, integration with existing directory structures, reporting features and even the level of security they offer when compared with dedicated desktop firewall management products.

Symantec Corp. in Cupertino, Calif., and Network Associates Inc. in Santa Clara, Calif., have added personal firewalls to their corporate antivirus software, as have VPN vendors such as InfoExpress Inc. in Mountain View, Calif., and Check Point Software Technologies Ltd. in Redwood City, Calif. Sticking with one vendor generally makes it easier to integrate the security products, and in some cases, they can be managed from the same console.

"If you are committed to using an antivirus product, see if they also have a firewall product so you don't have to write the code to get the parts to talk to each other," says Robert Hillery, principal at security consulting firm HawkSI LLC in Hanover, N.H. Having a single vendor for both products also

Personal Firewall Plays Central Role



Personal firewall systems that can be centrally managed add an extra security layer between the VPN or other network access points and the corporate LAN. The systems can lock down and automatically update firewall settings on remote PCs, enforce policies and act as gateways, checking that user configurations, software updates and virus signatures are current before allowing access to network resources.

eliminates finger-pointing, he says.

Most organizations like to stick with familiar vendors and leverage what they already have. When the city of El Paso, Texas, needed to buy 1,000 firewalls as part of its Health Insurance Portability and Accountability Act compliance program, it chose Network Associates' McAfee Desktop Firewall, in part because the city already used McAfee VirusScan.

"We can manage the firewalls through the same interface as the antivirus software," says Francisco Sepulveda, the city's information security officer. "This makes it easy to operate and to deploy updates."

Although this ability to remotely deploy personal firewall policy updates is a key feature, not everyone chooses to make use of it. For example, a West Coast beverage company uses InfoExpress' VPN software and recently installed that company's CyberArmor personal firewall on 500 new laptops before sending them out into the field. The company uses InfoExpress' CyberGatekeeper to enforce policies, but it uses uses Novell Inc.'s ZENworks to deploy and manage them.

"We roll out policy updates through ZENworks, not InfoExpress' management server, because we didn't want to have multiple products out there updating different things on the laptops," explains the company's network engineer, who declined to be identified.

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But even that isn't enough. Obtaining a complete picture of the network's security status requires correlating the desktop firewall log data with that provided by intrusion-detection systems (IDS) and other security and network elements. Many network systems management packages include these features. In addition, less costly standalone products such as Erftstadt Germany-based Adiscon GmbH's EventReporter, Vancouver, Wash.-based TNT Software's ELM Log Manager and Sanford, Maine-based Sonic Technologies Inc.'s Logalot consolidate logs into a single view. The administrator can then set management policies that make sense of the data.

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– *Drew Robb*

Personal firewall management systems allow centralized control and enforcement of security settings for remote users. By Drew Robb

REINING IN Personal Firewalls

IT'S TOUGH ENOUGH defending the IT perimeter against spyware, viruses, worms and unauthorized intrusions. But no matter how good their defenses are, companies still risk getting hurt by those they trust most: remote workers. "If anyone wants to attack, all they have to do is drop in a Trojan [horse] and wait for the person to log in," says Dennis Peasley, information security officer at furniture maker Herman Miller Inc. in Zeeland, Mich.

Personal firewalls help, but standalone versions don't always protect the corporate LAN adequately. For example, Peasley initially installed ZoneAlarm from San Francisco-based Zone Labs Inc. on 900 laptops. But the distributed personal firewall installations were difficult to monitor and maintain. Peasley now uses Zone Labs' newer, server-based Integrity software to centrally manage those remote personal firewalls. "With any new system we install, the main cost is not the cost of the software, but the cost of managing it," he says. "Centralized management cuts those costs."

Stand-alone personal firewalls don't work well for corporate LAN access because end users have access to the software and tend to misconfigure it or shut it off entirely, and administrators face problems supporting and installing updates. Because the update process is time-consuming, administrators may avoid updates altogether, leaving unpatched clients open to new vulnerabilities.

"I've seen personal firewall software that was individually installed on several large computer systems, and it always becomes a mess," says Kevin Beaver, president of Principle Logic LLC, an information security consulting firm in Kennesaw, Ga. "Configurations and patches were inconsistent, and the administrators spent way too much time on the 'sneaker net,' going around to remedy problems."

The best centrally managed personal firewall systems won't let end users disable the local firewall software or change the settings, says John Pescatore, an analyst at Gartner Inc. in Stamford, Conn. "Users will just say yes to everything, so you have to centrally manage them in a way that is invisible to the client," he says.

Some tools also integrate with antivirus and virtual private network (VPN) software. Pescatore says two of the more advanced products in this arena, Integrity and Sygate Secure Enterprise, from Sygate Technologies Inc. in Fremont, Calif., include a back-end server that can act as a gateway through which remote-user access can be controlled (see diagram, next page).

Peasley uses that feature on his Integrity firewall system. The end user connects to the Cisco VPN 3030 concentrator, which directs the user session to the Integrity server to authenticate the client, checks that the client's antivirus software is up to date and provides any necessary updates before allowing access to the network.

Vendors of related security products and security suites have jumped in with their own centrally managed firewall offerings. These typically include tight integration with sister security products. The downside is that they may be weaker in terms of management capabilities, integration with existing directory structures, reporting features and even the level of security they offer when compared with dedicated desktop firewall management products.

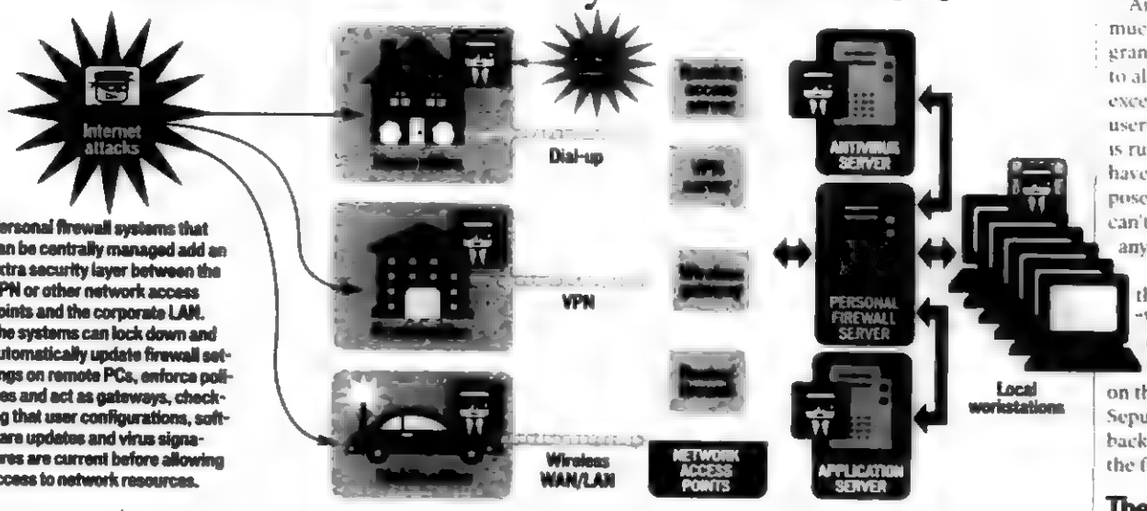
Symantec Corp. in Cupertino, Calif., and Network Associates Inc. in Santa Clara, Calif., have added personal firewalls to their corporate antivirus software, as have VPN vendors such as InfoExpress Inc. in Mountain View, Calif., and Check Point Software Technologies Ltd. in Redwood City, Calif. Sticking with one vendor generally makes it easier to integrate the security products, and in some cases, they can be managed from the same console.

"If you are committed to using an antivirus product, see if they also have a firewall product so you don't have to write the code to get the parts to talk to each other," says Robert Hillery, principal at security consulting firm HawkSI LLC in Hanover, N.H. Having a single vendor for both products also

PERSONAL FIREWALL MANAGEMENT SYSTEMS

- Lock down remote personal firewall configurations
- Enforce policies
- Automatically update machines as they connect
- Automatically check and update antivirus signatures
- Allow different personal firewall settings based on location or access method

Personal Firewall Plays Central Role



Personal firewall systems that can be centrally managed add an extra security layer between the VPN or other network access points and the corporate LAN. The systems can lock down and automatically update firewall settings on remote PCs, enforce policies and act as gateways, checking that user configurations, software updates and virus signatures are current before allowing access to network resources.

eliminates finger-pointing, he says.

Most organizations like to stick with familiar vendors and leverage what they already have. When the city of El Paso, Texas, needed to buy 1,000 firewalls as part of its Health Insurance Portability and Accountability Act compliance program, it chose Network Associates' McAfee Desktop Firewall, in part because the city already used McAfee VirusScan.

"We can manage the firewalls through the same interface as the antivirus software," says Francisco Sepulveda, the city's information security officer. "This makes it easy to operate and to deploy updates."

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Lining Technology Up With Business

Managed Objects' CEO tells how business service management software helps IT and business managers see eye to eye.

Managed Objects Inc. CEO **Siki Giunta** *says her McLean, Va.-based company is looking to "set a table" at which senior IT managers have a place alongside other corporate decision-makers. Giunta claims that with business service management (BSM) software and methods, CEOs and CFOs have a way to accurately align their IT systems with their business needs. According to Giunta, BSM allows IT managers to assess which pieces of technology are most critical to any given business process, and to monitor them accordingly.*

Giunta spoke to Computerworld *technology editor Tommy Peterson about why she thinks BSM is not just another fleeting three-letter acronym and the imperative for IT to be more closely focused on business goals.*

What is business service management? It is a method and an approach so that our customers can see technology from a business point of view. When I buy a piece of technology, I should know what part of the business it's going to impact. And if that piece of technology is not available, how the end user and the business is going to be affected. It allows our customers to maximize what they really have and at the same time to deploy new technology in pieces and for the most important business processes.

Big corporations have 10 or 15 different processes that comprise 90% of the revenue. But IT people don't think that way — they think in terms of metrics, they think in terms of servers or databases or even the applications themselves. They don't see technology as a continuum and at the same time they don't realize that IT availability really affects business availability. We provide a methodology and software that changes the way IT people think about managing technology. It makes them realize quite clearly the service they provide to the business.

Can you be more specific about the technologies involved? Business service management is the climax of a series of ways of doing technology. In the '90s, after we decided, "Let's get out of the mainframes and let's go buy lots of client/server technologies," the connectivity and the network — that's the first thing people would think was most important. In the '90s, people were thinking that the network was the big thing and they bought a lot of network managers. But they realized the network was only the connectivity piece — there are a lot of things in the middle, like servers, so they went and bought the frameworks and agents that would monitor the box. But that, too, would only provide another piece of the puzzle.

What it did create was a lot of double screens to watch. They had to screen the network and they had to watch a filter and alarms from metric managers and then they had to watch another product that would view the system. So people said, "I want to go to a single console," so they bought MOM, meaning manager of managers. What a MOM really does is just take the screen away — it allows you to filter the event, and probably you're trying to find some common events that are really affecting the business. Still, everything is in the hands of the people who understand the event list, people who can say, "Oh, I know that when this server goes down, business is affected."

LOOK AHEAD

For more of what Siki Giunta has to say about the future of IT and business, visit our Web site:

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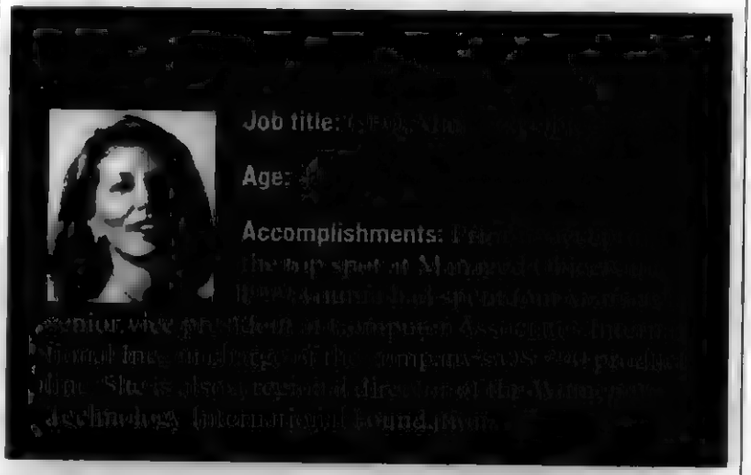
What we do with BSM is we provide an integration to these two layers. We include the security and storage that impact the business. And we say instead of filtering the events, why don't you use an object layer. It has more power to all the instrumentation that you've done, because when you instrument, if you have an object environment, you can have configuration, you can have graphical design, you can have command and control.

Instead of writing scripts to filter events, why don't you actually isolate each of the elements supporting an application and use them as objects and start building the relationships among the objects? That way you can say that one server in a business process is probably more important because, say, it hosts the databases.



What does that mean in terms of action, and in terms of the other technology? You start thinking not just availability and up or down, you start thinking in terms of state-of-the-business process. And the good [state-of-the-business process] reflects good service that IT is providing to the business. Obviously, when you're out of a good state, you're in a critical state and the service is deteriorated.

We're finding that the customers are starting to see IT from an end-user and an application point of view because obviously the end user is the element that is impacted first, and they've done a lot of testing and end-user performance and application monitoring. In fact, I would say people will see that the application is the business. Technology is actually getting nearer to the business. BSM is the totality of all the elements of technology — network systems, databases, end user, applications — and how you correlate all of that to determine a good state of the business and relate that to the optimum service that IT delivers to the business.

Your technology would seem to put IT back into the role of a support service, yet it spotlights the jobs of IT managers as crucial to making the business run better. Which way do your customers see this as cutting? What Managed Objects provides is a dinner table where the IT people can talk to the line-of-business people. We provide enough technology and scalability for the IT people so that they benefit from what we provide. At the same time, we conflate their terminology into business terms in a way that the line-of-business understands it. The line-of-business talks about volume and talks about day and time and calendars. And those concepts can be applied to our formula so the IT people can represent them for the line-of-business.

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Captchas Eat Spam

Ingenious computer tests may also advance machine vision and AI. By Jaikumar Vijayan

ON THE INTERNET, nobody knows you're a dog. Or a rogue robot program stealthily gathering personal information from chat rooms or registering for thousands of free e-mail accounts from which to blast out spam.

One way to stymie such bots is to use a captcha. Short for "completely automatic public Turing test to tell computers and humans apart," a captcha is a program that can generate and grade tests that are easy for humans to solve but very difficult for computers to crack.

Examples include words that have been precisely distorted by computers (see "Shark Attack," at right), images overlaid with other images or audio clips with background noise.

By including a captcha as part of the registration process for a free e-mail account, for instance, it would be relatively easy to establish whether the registrant is a human or a robot program.

"The human visual system and all of our experience in reading makes it possible to read images of text which computer vision systems at their best cannot do reliably," explains Henry Baird, a principal scientist at Palo Alto Research Center Inc. (PARC) in California.

The concept of using programs like captchas to deal with bots and spam on the Internet has been around since 1997. A team of researchers at what was then Digital Equipment Corp. was working on a way to deal with bots that were trying to influence the way certain sites were ranked on the company's AltaVista search engine. Researchers at the company developed and patented a character-recognition test that was used during the AltaVista registration process to weed out automated programs.

FUTURE WATCH

In September 2000, Pittsburgh-based Carnegie Mellon University's computer science department started developing similar programs in response to a request from Yahoo Inc.

Like AltaVista, Yahoo was grappling with rogue programs that were invading its chat rooms and illegally marketing products, stealing personal information and spamming users. "The idea was to create a computer program that could distinguish bots from humans. The program would have to serve as a sentry, but it couldn't itself pass the very test it gives," says Manuel Blum, a professor of computer science at Carnegie Mellon.

Captchas

Short for "completely automatic public Turing test to tell computers and humans apart," captchas are programs that can generate and grade tests that are easy for humans to solve but very difficult for computers to crack.

The result was Gimpy, a captcha containing seven words chosen at random from a dictionary of 850 words and then distorted and overlaid with clutter via software. Passing the test required identifying at least three of the distorted words correctly.

A simpler one-word version of Gimpy, called E-Z Gimpy, is currently used by Yahoo on its Web site to weed out humans from bots during the registration process.

Meanwhile, researchers at the University of Hong Kong are working on a captcha that overlays audio clutter on top of a voice reading out random numbers and letters.

PARC is using its optical character recognition (OCR) expertise to write programs that can break captchas. As a result, PARC is getting a quantitative idea of the circumstances under which OCR fails. Programs capable of overcoming captchas can help build machines that are better able to recognize characters than current machines are.

PARC's captchas, called BaffleText, rely on words that have been mutilated and distorted to the point where even the best computer vision technology can't decipher them, though humans can.

"Imagine a word that has undergone a shark attack. If you do the engineering carefully, then the characters are largely destroyed. However, there is enough left that people just look at it and see the whole word," says Baird.

Ironically, although captchas could play a useful role in dealing with rogue bots and spam, the effort to break them could prove even more valuable in the long term, Baird says.

Captchas present an interesting challenge to the artificial intelligence and computer vision communities, and research that goes into breaking them could benefit these fields enormously, he says.

Since captchas are designed to defeat the best computer vision technologies that are available today, any program that is capable of defeating captchas will contribute to better vision systems, says Jitendra Malik, a computer vision specialist at the University of California, Berkeley.

Captchas present researchers with many of the same complexities found in the real world, but in a somewhat more controlled fashion, he says. "For example, we have learned what kind of background noise is more difficult to deal with and what is not," says Malik.

Computer vision systems often try to recognize an object in a cluttered field. That could mean being able to recognize a face in a crowd or a particular piece of furniture in a room crowded with other pieces of furniture, regardless of lighting, contrast or other conditions, he says.

Malik has written programs to crack both versions of Gimpy, and that has helped him understand how to deal with background noise in an image. He says he hopes that research will yield breakthroughs in computer vision.

A similar goal is driving PARC's research, Baird says. "In a quantitative way, we will know exactly under what circumstances machine vision fails and use that to build better ones," he says.

Shark Attack

These nonsense words were generated by captcha software at PARC and then distorted so that they look as if they have "undergone a shark attack," as PARC's Henry Baird puts it. Humans can readily read them, but the best software can't.

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CAPTCHA CAPABILITY

Creating captchas isn't easy. Find out why.

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The result was Gimpy, a captcha containing seven words chosen at random from a dictionary of 850 words and then distorted and overlaid with clutter via software. Passing the test required identifying at least three of the distorted words correctly.

A simpler one-word version of Gimpy, called E-Z Gimpy, is currently used by Yahoo on its Web site to weed out humans from bots during the registration process.

Meanwhile, researchers at the University of Hong Kong are working on a captcha that overlays audio clutter on top of a voice reading out random numbers and letters.

PARC is using its optical character recognition (OCR) expertise to write programs that can break captchas. As a result, PARC is getting a quantitative idea of the circumstances under which OCR fails. Programs capable of overcoming captchas can help build machines that are better able to recognize characters than current machines are.

PARC's captchas, called BaffleText, rely on words that have been mutilated and distorted to the point where even the best computer vision technology can't decipher them, though humans can.

"Imagine a word that has undergone a shark attack. If you do the engineering carefully, then the characters are largely destroyed. However, there is enough left that people just look at it and see the whole word," says Baird.

Ironically, although captchas could play a useful role in dealing with rogue bots and spam, the effort to break them could prove even more valuable in the long term, Baird says.

Captchas present an interesting challenge to the artificial intelligence and computer vision communities, and research that goes into breaking them could benefit these fields enormously, he says.

Since captchas are designed to defeat the best computer vision technologies that are available today, any program that is capable of defeating captchas will contribute to better vision systems, says Jitendra Malik, a computer vision specialist at the University of California, Berkeley.

Captchas present researchers with many of the same complexities found in the real world, but in a somewhat more controlled fashion, he says. "For example, we have learned what kind of background noise is more difficult to deal with and what is not," says Malik.

Computer vision systems often try to recognize an object in a cluttered field. That could mean being able to recognize a face in a crowd or a particular piece of furniture in a room crowded with other pieces of furniture, regardless of lighting, contrast or other conditions, he says.

Malik has written programs to crack both versions of Gimpy, and that has helped him understand how to deal with background noise in an image. He says he hopes that research will yield breakthroughs in computer vision.

A similar goal is driving PARC's research, Baird says. "In a quantitative way, we will know exactly under what circumstances machine vision fails and use that to build better ones," he says.

Shark Attack

These nonsense words were generated by captcha software at PARC and then distorted so that they look as if they have "undergone a shark attack," as PARC's Henry Baird puts it. Humans can readily read them, but the best software can't.

SOURCE: PALO ALTO RESEARCH CENTER 2003

CAPTCHA CAPABILITY

Creating captchas isn't easy. Find out why.

QuickLink 39870
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Security Sweep Reveals Access-Token Violations

An after-hours walk-through uncovers an array of security problems, including an unguarded token with the passnumber clearly written on it. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

THE TERRORISM ALERTS over the past few months have dramatically increased management's focus on physical security at my company. My team doesn't directly cover physical security, but our scope does extend to all of information security, not just IT or computer security. This means we're responsible for protecting information that's printed out or in transit, as well as data that resides within our information systems.

This can lead to overlap with the physical security team as well as security gaps, so we work very closely with the other team to try to avoid these problems.

They focus on guarding people, buildings and property. They also have stronger ties to law enforcement and the government. So while they deal with things like detecting phone taps and meeting-room bugs and handle the disposal of confidential materials, we cover information labeling and disclosure processes. While they stop social-engineering attackers from talking their way onto the premises, we handle social-engineering attacks via the telephone or e-mail.

Making a Sweep

Given the increased awareness about physical security, I decided to have my team carry out one of our regular sweeps of the building. I wanted to measure the access available to malicious intruders or insiders in search of confidential information or intellectual property.

The results would be anonymous to avoid creating scapegoats. Our goal was to inform management of the current level of exposure and to make sure that we would be included in future awareness-raising activities.

First, we had to agree on procedures that wouldn't put users at risk of disciplinary action, and I needed to find a way to protect my team. People have a high level of attachment to their work spaces: They see the space as theirs and are fiercely protective of it. Our tests might result in someone blaming us for thefts or claiming that we damaged their machines.

So I put a few simple ground rules in place. The first rule was not to touch anything. That meant no lifting keyboards and no opening drawers. However, the staff could take photographs, so there would be no debate about what was discovered. And to make sure we didn't get busted for snooping, we had a physical security team member with us at all times. I knew we wouldn't find everything, but at least we could do a swift, repeatable exercise and track our success at changing attitudes over time.

> **I was shocked at the type and distribution of problems at our company. . . . I clearly need to do more awareness work.**

The good news is that only about 3% of work areas had problems. The bad news is that the problems we discovered were pretty bad. Also, I had expected problems to be concentrated within specific departments. But the security policy violations we found were evenly spread across the company.

Password Problems

Password policy violations were the most common vulnerability. One person was writing passwords on Post-it notes on his wall, crossing out old ones as they expired and adding the new. One might expect that he would have at least thrown away the old notes once he had filled them with passwords, but six password-filled Post-it notes covered his wall, all focused on a sports theme. We also found a password list that included jennifer1, jennifer2, jennifer3 and so on. You'd think that if Jennifer was changing only one number on her password, she wouldn't need to write it down.

In another area, we found several sensitive documents sitting unattended in printer output trays. These included project plans, delivery dates and internal memos. All had been clearly marked "confidential," although I can't be sure if the documents were just incorrectly marked or a true information security risk.

More troubling was the discovery of several two-factor remote access tokens that users had left sitting on their desks. The technology is designed to cope with that eventuality, since you need both the changing code displayed on the token and a passnumber to gain access. I don't think the devices have any resale value, so the risk of theft is low. But at $75 each, they shouldn't be just lying about.

The most frightening thing I found was an access token that had a four-digit number written on the front. I can only assume that was the passnumber for that token. A thief would still need to know the user name to do anything malicious, but our user names follow a standard pattern, and anyone could easily figure out whose desk this was, guess the user name and gain access to our high-security systems with the token. Considering the risk, I decided to break one of our ground rules and confiscate the token.

So how did we do overall? Worse than I expected, but better than I feared. I can't help but keep an eye out for this sort of thing when I visit other companies, and I'm surprised at how many violations I see. And though I'd like to think that security vulnerabilities are more frequent elsewhere, I was shocked at the type and distribution of problems at our company. No group was unaffected. I clearly need to do more awareness work. I suppose it's time to start nagging again.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1500**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

Apple Fixes OS X Security Glitch

BRIEFS

RadVision Releases V1.5 of SIP Tool Kit

RadVision Ltd. in Glen Rock, N.J., this week announced Version 1.5 of its SIP Server Developer Toolkit, which contains two new optional modules, Presence and Back-to-Back User Agent (B2BUA). B2BUA takes a traditional Session Initiation Protocol (SIP) end-to-end call and mediates it through a central SIP server, enabling a corporation or service provider to manage and track a call from beginning to end. It also offers new features such as billing, usage and accounting, RadVision said. Presence now includes voice and videoconferencing in addition to instant messaging. Version 1.5 is now shipping. Pricing wasn't disclosed.

Sanctum Rolls Out Testing Product

Sanctum Inc. last week introduced an automated testing tool for detecting and fixing defects within any Java or .Net application development environment. Sanctum's AppScan DE 1.7 is integrated into Microsoft Corp.'s Visual Studio .Net 2003 environment and is available as a plug-in for several integrated development environments. The product retails at $1,495, though Santa Clara, Calif.-based Sanctum is offering it for $995 through Aug. 1.

Lab Picks Software For Supercomputer

The Los Alamos National Laboratory has chosen Platform Computing Inc.'s Platform Load Sharing Facility (LSF) software to help harness the total computing power in the lab's new ASCI-Q supercomputer. The supercomputer is built from 2,048 Hewlett-Packard Co. AlphaServer ES45 servers and uses Toronto-based Platform's LSF workload management software to distribute the total computing power across the machine. ASCI-Q will be used to conduct predictive nuclear weapon simulations.

NICHOLAS PETRELEY

Inside Story From The SCO Mailbag

SOMETIMES THE STORY behind a high-profile news story can be pieced together from the correspondence of the major players. I thought I'd take a peek into SCO's mailbag to see who's writing CEO Darl McBride, VP Chris Sontag and attorney David Boies and find out what they're saying about SCO's claims that it owns the legal rights to Unix and maybe even Linux.

Dear Mr. Boies, Mr. McBride and Mr. Sontag: This letter is to let you know that I have signed and returned the NDA. While I appreciate your offer to pay for my travel expenses, there's really no need for me to fly out to your location to view anything. I just "know" there are definitely hundreds, if not thousands, of instances where Linux programmers illegally incorporated SCO intellectual property in their code. I will be glad to report this information at your request. Let me know if and when you need anymore expert testimony.

Sincerely,
Jayson Blair, formerly of *The New York Times*

Dear Mr. Boies, Mr. McBride and Mr. Sontag: Thank you for your communication with our blessed monastery. We confess that we were entirely baffled by your allegations until we realized that you were using the words *Unix* and *eunuchs* interchangeably. We sense that you may be confused on a few other important issues, as well. While it is not unheard of for monks to be *eunuchs*, not all of us are. And even if we were, we would not be infringing on your copyrights for *Unix*. We have attached a list of historic and religious resources you may wish to investigate to educate yourselves on these matters. Regardless, our particular monastic order requires a vow of poverty, therefore we respectfully decline your offer to sell us SCO in order to avoid litigation, since we have no disposable funds.

Sincerely,
Brother Sebastian

Dear Mr. Boies, Mr. McBride and Mr. Sontag: We are concerned about our current investment in Unix licenses. It has come to our attention that SCO does not actually own the copyrights and patents for Unix. Since we paid considerably more money than the normal fees, we are concerned that our investment may be affected by your misrepresentation of your alleged leverage over the use of said copyrights and patents. Obviously, it is better for all concerned to be discreet on this matter, so we have elected not to pursue legal means of recovering our investment. Instead, we would like to invite all of the management at SCO to a vacation retreat in Hawaii in order to discuss this matter further.

We have arranged all the transportation and will send a black limousine to your headquarters to pick you up on Thursday at 9 a.m. Please have all your corporate officers waiting outside on the sidewalk for this ride, preferably lined up side by side so that we can get a clear view of everyone at once when the limousine arrives.

Sincerely, Bill Gates

Dear Mr. Boies, Mr. McBride and Mr. Sontag: This is to notify you that we cannot comply with your request to forward your letter to its intended recipient because said recipient is fictional. I did take the liberty of discussing the issues you raised with our corporate lawyers, however. They advise me that it is extremely unlikely that a judge will agree with your charge that the name "Scooby Doo" infringes on the SCO trademark and has damaged your business as a result. While you are correct that the two names share three consecutive letters, we are confident that customers are able to distinguish between an operating system and a cartoon dog with a speech impediment.

It is quite true that Velma is the kind of character that would work with an advanced operating system, and that might mean something if the characters were real. Regardless, we are not in a position to dispute what your experts under NDA saw in your "source code" since we are unfamiliar with the term *source code*. But we are quite certain that our fictional characters Velma and Shaggy did not misappropriate the words *jinkies* or *zoinks* from anything owned or created by SCO. Finally, the theory that we chose the name "Mystery Machine" to hide the secret use of your intellectual property would be fascinating if our Mystery Machine were a computer instead of a cartoon flower-power van.

Sincerely,
Betty Cohen, president, Cartoon Network

WANT OUR OPINION?

For more columns and links to our archives, go to www.computerworld.com/opinions

QUOTE OF THE WEEK

"Achievement is a blend of intelligence, motivation and personality, and that blend makes the difference between A and B players rather than talent per se.

– Vineeta Vijayaraghavan, consultant, Katzenbach Partners LLC

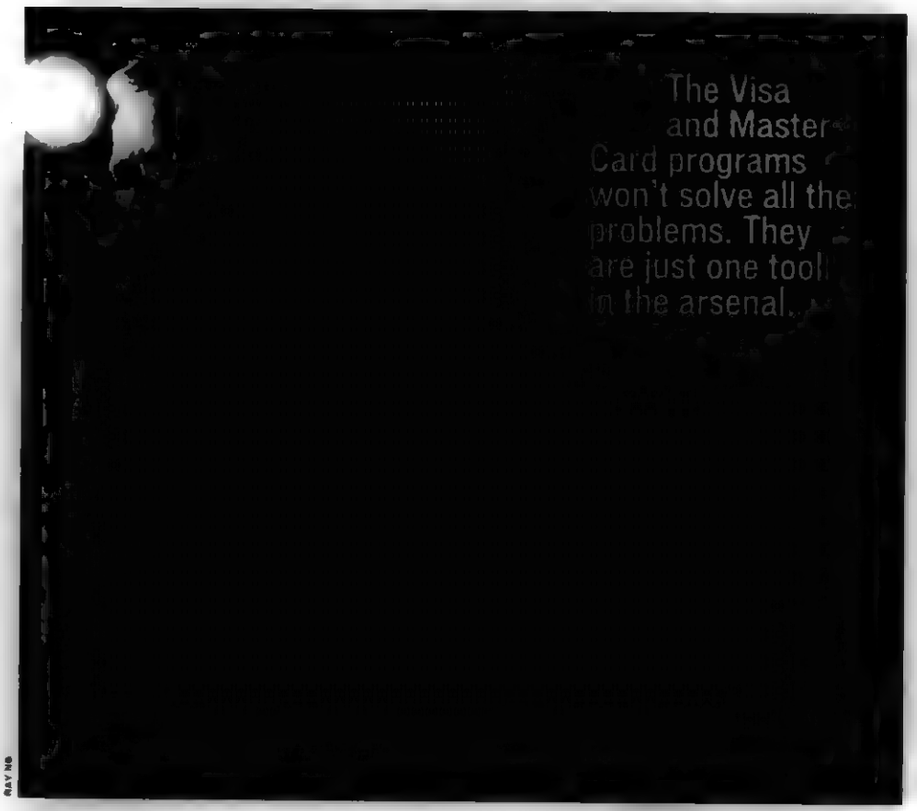
Dashboard Democracy

Desktop business-intelligence displays used to provide financial data to executives. Now they're finding a new home in the cubicle — where real work gets done — says Deb Masdea (right), director of business knowledge services at The Scotts Co. **Page 40**

OPINION

A Reality Check On Going Offshore

Columnist Bart Perkins provides a checklist of issues to consider — from U.S. privacy and security laws to the employee backlash — before taking the offshore IT plunge. **Page 42**



RAY NG

Fraud-Busters

KNOWLEDGE CENTER

NOBODY LIKES BEING RIPPED OFF. But for online retailers, the pain of being ripped off by unethical consumers, identity thieves and bogus-card gangs has been magnified by what they consider to be the not-my-problem attitude of credit card issuers and card associations like Visa and MasterCard.

Tom Mahoney, a network administrator at Franklin & Marshall College in Lancaster, Pa., recalls vividly the shock he and his wife felt shortly after they launched their own mom-and-pop e-business in 1997 and discovered not only the threat of fraud but also the double whammy from the credit card companies.

"We thought from the beginning something was fishy — getting orders for herbs and personal care products with U.S. credit cards, all . . . for shipping to Yugoslavia," says Mahoney. He recalls that his card processor had assured him that if he had an authorization number for the transaction, then "all was well." But then the chargebacks started coming in, and banks refused to honor the transactions and added penalty fees for Mahoney's business.

Mahoney says he called some of the banks and was shocked to discover that many of the credit card numbers in question had never even been issued to cardholders, yet they were granted authorization numbers. "That's when I learned that something was wrong with the system," he says.

Today, credit card fraud is pegged as a $160 million annual problem for just the top 25 online retailers, according to Gartner Inc. in Stamford, Conn. But there are some glimmers of hope for improvement.

One encouraging sign is that Visa International Inc. and MasterCard International Inc. recently started full-scale marketing of credit card systems that require online purchasers to supply additional passwords or security codes (Verify by Visa and MasterCard's similar SecureCode). It's an attempt to provide an online equivalent of the in-store signature. Even more important, from the retailers' perspective, merchants that join the programs will finally be freed from most of the liability and onerous charge-

Web retailers are teaming up to fight online credit card fraud and take back the e-neighborhood.

By Alan R. Earls

Possible Signs of Fraud

- **Country of origin.** Orders from Romania, Macedonia, Belarus, Pakistan, Russia, Lithuania, Egypt, Nigeria, Colombia, Malaysia and Indonesia have a very high incidence of fraud and often have unverifiable addresses.
- **Untraceable e-mail address.** In many fraudulent orders, the customer's e-mail address is provided by a free e-mail service, which is relatively untraceable.
- **Express shipping.** Most fraudulent orders specify overnight or one-day shipping.
- **Shipping address differs from billing address.** If you are selling valuable items, it's a good policy to ship only to the billing address of the credit card holder.
- **Suspicious billing address.** If the billing address is something generic like 123 Main St., the order could be fraudulent. Use Internet mapping tools to see if the address can be verified.
- **Request to leave at door.** Someone placing a very valuable order who specifies that the package is to be left at the door could be using an unwitting person's house as a drop-off point. You should require a signature upon delivery.

Merchant Fraud Squad

This secretive group of merchants, which has hundreds of members, shares tips and tricks for combating online fraud. It recently changed its name to the Merchant Risk Council.

Founding members:

- **American Express Co.**
- **Barnesandnoble.com Inc.**
- **ClearCommerce Corp.**
- **Expedia Inc.**
- **First Data Corp.**
- **Starwood Hotels & Resorts Worldwide Inc.**
- **Quest Inc.**

backs that so irked Mahoney. Instead, banks will absorb the costs of fraud themselves.

But merchants, analysts and even Foster City, Calif.-based Visa and Purchase, N.Y.-based MasterCard acknowledge that no one is out of the woods yet and that the new programs don't cover every situation. It may be a few more years before the two companies' programs reach critical mass and begin to show significant results. Plus, there's some concern that the pop-up window that requires the new codes will drive some legitimate customers away.

"The Visa and MasterCard programs won't solve all the problems. They are just one tool in the arsenal," says Mick Lester, director of Web services at K-B Kids, a Denver-based unit of KB Holdings LLC. Still, he says, "with the liability shift to the card issuer, I definitely think merchants should jump aboard."

For now, Lester says that even with Verify by Visa and SecureCode, K-B Kids won't abandon its homegrown fraud-busting methods, such as verifying and comparing card and shipping addresses, as well as flagging and scrutinizing transactions involving expensive items.

K-B Kids also uses a scoring system to look for fraud, says Lester. The system weighs every aspect of a transaction for its risk potential. K-B Kids even maintains its own "negative database" — a file of card numbers that have generated problems in the past, including those used by consumers who claim that they haven't received their shipments and refuse to pay.

Although K-B Kids and other large retailers (notably Amazon.com Inc.) have invested heavily in proprietary fraud-prevention methods, many smaller organizations haven't been able to afford those investments, and as a result, they've been flocking to third-party services and consortia.

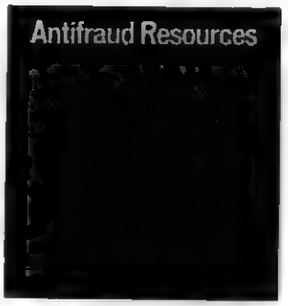
For his part, Mahoney launched an organization called Merchant 911, which provides its members with a confidential forum to share fraud-prevention methods and air gripes about banks and credit card companies. Mahoney also makes available a selection of databases and antifraud tools.

Meanwhile, on the West Coast, IT veteran Dan Clements has set up an organization called CardCops.com that provides a forum for merchants and consumers to share information about what he calls "compromised" credit cards. Shoppers who think their card may have been stolen or misused can e-mail him at NeighborNetWatch@CardCops.com.

But Clements, CEO of the Malibu, Calif.-based organization, says some of his best information comes from "the underground" — IT professionals at merchant companies who are privy to information about cards that may have been hacked by thieves, a problem that merchants are often reluctant to report.

Clements says his staff of 12 also hunts out bogus or suspect cards by doing targeted Google searches and visiting chat rooms where, he says, cards are often first tested by crooks.

But perhaps the most significant fraud-fighting effort is the Merchant Risk Council, which until recently was known as the Merchant Fraud Squad. "We are organized much like a neighborhood watch," says Cathy Black, a board member of the nonprofit group and the director of fraud prevention at American Express Co. in New York.



The Merchant Risk Council has scores of members, including many large corporations. It's secretive about its work and methods because, as Black explains, whenever a story comes out about a fraud-fighting strategy, the "bad guys" learn how to change their methods. However, she says the focus is on sharing emerging trends and information in a secure environment.

For example, at the group's annual conference in March — which was closed to the press — there were presentations on "global trends in cybercrime," "predictive models for fraud" and "emerging fraud schemes," according to the group's Web site.

The group is also powerful enough to lobby vendors to change their practices. For instance, Black says the Merchant Risk Council persuaded some delivery companies to watch for suspicious activity such as unusual shipping patterns.

But, as Black notes wearily, fraud isn't going away, no matter what merchants and card companies do. "There is no magic bullet — all the fraud solutions have a shelf life — we will always have to continue to migrate toward new solutions," she says.

Earls is a freelance writer in Franklin, Mass.

How One Merchant Battles Fraud

Even small and midsize online merchants that lack the clout of big businesses can do plenty to defend themselves from credit card fraud. A case in point is Computerized Horizons, a small software company in Worcester, Mass. R. Scott Perry, the company's technology specialist, says that some bad experiences with card fraud a few years ago – compounded by chargebacks and chronic inaction on fraud from card companies – compelled his organization to act.

"Since we deal primarily with businesses, all of whom have their own domain name, one of our main tools to help detect fraud is to see if the billing address for the credit card matches the address that is listed in the Whois record for their domain or is nearby," says Perry. (Whois is a domain directory at *www.networksolutions.com*.) Like many other methods, this is inexact and subjective. Mismatches just raise questions about the buyer's legitimacy and, taken with other indicators, could lead Computerized Horizons to turn down the sale.

Another tool calculates the distance between the area covered by a ZIP code and the area usually associated with the customer's telephone numbers. Again, mismatches raise questions about the legitimacy of the order. Even the IP address from which an order is placed can help hint at fraud. "At the very least, this will show the country that the person placing the order is located in," says Perry.

For foreign orders, Perry uses the Merchant 911 Web site, which has a database of credit card issuers that identifies the country in which a card was issued. This can be cross-referenced with the country that the IP address is registered to and the one in the billing address. Orders that originate from or include a "free" e-mail address also raise a red flag.

Perry says the best fraud-detection tool is often just comparing new orders against prior orders to look for patterns that aren't typical, such as the time of day when the order was placed. Perry says his job would be easier if all credit card companies maintained a database of stolen cards, but he's doubtful that will happen anytime soon. So, like other merchants, he will continue to improvise and develop workarounds to keep card fraud from putting him out of business.

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SOURCE: YAHOO INC.'S "SMART SELLING" WEB PAGE

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SOURCE: MERCHANT FRAUD SQUAD WEB SITE

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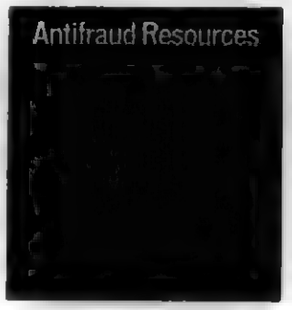

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Perry says the best fraud-detection tool is old-fashioned eyeballing new orders against prior orders to look for patterns that aren't typical, such as the time of day when the order was placed. Perry says his job would be easier if all credit card companies maintained a database of stolen cards, but he's doubtful that will happen anytime soon. So, like other merchants, he will continue to improvise and develop workarounds to keep card fraud from putting him out of business.

– *Alan R. Earls*

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Nurture the B Team

IT stars get all the glory, but your supporting actors get the job done.

It's always about the stars, the A players on the fast track to bonuses, promotions and glory. IT leaders will do nearly anything to get them — and keep them. But what about the rest of us? In this month's Harvard Business Review, **Vineeta Vijayaraghavan** *and Thomas J. DeLong posit that a company's long-term performance and even survival really depend much more on the B players, those steady, capable performers outside the spotlight. Vijayaraghavan, a consultant at Katzenbach Partners LLC, an organizational strategy firm in New York, talked with Kathleen Melymuka about the vital contributions of these "best supporting actors" and how to make sure you're not taking them for granted.*

Who are the B players? Those that, in a rough ranking, are neither fast-track — in the top 10% — nor struggling in the bottom 10%. Intuitively, most managers can tell you who they are.

You say being a B is more about temperament than talent. Explain? Oliver Wendell Holmes said that F.D.R. had a second-class mind and a first-class temperament. Achievement is a blend of intelligence, motivation and personality, and that blend makes the difference between A and B players rather than talent per se.

Tell me about the B players who are "recovered A" players. At Microsoft, one of the top 20 performers was an A player who burned out and went rock climbing. He later came back, but to a smaller group — a think tank for new-product development. We call him a "recovered A" because he comes from that world. He maintained calling cards from that world. He knows how it works, and he can move in and out of that world.

Other B players are "truth tellers." Can you give me an example? These are people who have a zeal for the truth. They're not necessarily "company types," which A players tend to be. They're willing to tell the truth even at a cost to their standing in the company. One was a manager in charge of building a technology infrastructure for his trading division. He discovered that someone with status had paid more than the going price for a system. No one had dared raise a question, but he wasn't cowed and spoke up and saved the company millions of dollars.

Some B players are "go-to" people. What does that mean? Those aren't functional experts, but they have an extraordinary feel for the processes and norms of the company. They can make connections and go across departments and divisions to get things done. They're familiar with who really has the power, even if it's not the person in the formal role.

Managing B Players

Advice from Vineeta Vijayaraghavan:

Pick the right manager. "Leaders tend to be A players, so they're not always the best managers for B players. They have to learn to accept differences and manage B players differently. If they're not the best mentors in the organization for the B players, find others."

Give them your time. "A and C players tend to be the squeaky ones. B players just get the job done. Make sure you talk to all your direct reports, including those who don't initiate contact."

Nurture their careers. "Recognize their contributions, and give them choices. Have conversations with them about career paths. Consider what you can do to keep good performers who don't want to go through the traditional route."

Aren't there B players who are really just plain mediocre performers? Yes, definitely. Those we categorized as middling. But that's often an alignment issue — an issue of where and how to use their skills. Managers tend to not have as many conversations with B players about how to use their skills because they think there's not enough ROI in it.

What else do B players do for the company? A players tend to say, "I'm the brand." If a better opportunity comes up, they'll jump ship. B players aren't martyrs, but they tend to be willing to take on long-term projects and stay for the whole thing. They are really good at building trust with clients through these long-term projects. This trust creates a platform for innovations that the A players might dream up but couldn't otherwise have gotten clients to sign on for. They also tend to remind leaders to grow slowly. A players want to add head count and say they ran a big department. B players are more likely to say, "If we grow that fast, these are my concerns about quality. And if the growth cycle gets cut short, how will we handle that?"

How do B players help a company in transition? They're less affected by shakeups because they're less likely to be tapped for promotions or be fired. They provide continuity and pass on knowledge. They provide ballast in bad economic times because they stick around. They're not just there for big bonuses. B players in an IT department are critical for mentoring new people and assimilating them into the corporate structure. They provide cultural support and informal management while management is in transition.

These B players sound like a lot of IT people I know. I think IT is full of these. IT people are often stars and also often classic B's. IT people see things differently. One technology company told us how their B players showed management that it wasn't worth it to work long hours because long hours brought higher error rates and less creativity in product development.

Don't B players get tired of holding things together with so little credit? Yes, absolutely. They will only stay for so long if not recognized. Managing them takes more time than managers give them, but still a tenth of the time it takes to manage stars. We're urging managers to spend that time. It's a small investment compared to time they spend with A players.

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@yahoo.com.*

This is the latest in a series of monthly discussions with **Harvard Business Review** authors on topics of interest to IT managers.

WebSphere

Scott's Co... says dashboards put information in the hands of the managers who need to answer questions.

STAN KAGOY

DASHBOARD Democracy

Desktop business-intelligence displays are moving from the executive suite to the cubicles, where the ROI is even better. By Mark Leon

THE EXECUTIVE INFORMATION SYSTEMS (EIS) of the 1980s stayed in the executive suite and provided fancy pie charts of financial data. But now these business-intelligence tools have found a new home in the cubicles.

They've also found some new names: "dashboards and scorecards," says John Hagerty, an analyst at AMR Research Inc. in Boston. "We are now seeing them all over the enterprise, and for a variety of reasons." Hagerty says more than half of the 135 companies he recently surveyed are implementing dashboards, which are also spreading into various nonfinancial departments (see chart, next page).

Dashboards aren't just for financial data anymore. "At Southwest Airlines, they call them 'cockpits,' and they're specialized so that the guy in charge of putting peanuts on airplanes gets a different view than the guy who's in charge of purchasing jet fuel," says John Kopcke, chief technology officer at software vendor Hyperion Solutions Corp.

The Bottom Line

The payoff is that delivering dashboard data to front-line workers puts business intelligence in the hands of people who can exploit it to make money-saving decisions on a daily basis.

Motorola Inc., for example, deployed business-intelligence software from Informatica Corp. in Redwood City, Calif., last year to about 200 desktops in various purchasing offices. Falgun Patel, senior manager for sourcing systems at Schaumburg, Ill.-based Motorola, says his dashboard gives him unprecedented access to purchasing information.

"We got the system up and running in mid-2002," says Patel. "Prior to that, we had to pull information from a variety of spreadsheets and custom databases from locations all over the globe." In fact, this is still the case, but now Informatica's software does the pulling, and sourcing officers like Patel can get instant access to sophisticated metrics.

"It used to take 20 days for one of our indirect purchasing officers to collect global stats," says Chet

Phillips, IT director for business intelligence at Motorola. "Now it takes minutes."

Patel says the result is smarter, faster decisions. "On my dashboard, I can immediately see our global spend with a particular supplier," he explains. "I can slice the data in a number of ways — various charts, historical records, purchases by departments, etc. This gives me exactly what I need to negotiate a better deal with the supplier."

He says the dashboard also allows him to be more proactive. "By combining the purchasing analytics on my desktop with current market conditions, I can determine whether it is better to negotiate for a commodity or go ahead and lock in a supply," Patel says.

The result is a fabulous return on investment. "We estimate that this system saved us about $15 million a month in 2002," says Phillips.

Reality Wins

One reason for the democratization of business intelligence is that reality finally caught up with perception. "So often it is the high-level executive who is seduced by the 'Wow! Cool!' appeal of an EIS," says Deb Masdea, director of business knowledge services at The Scotts Co., a producer of lawn and garden products in Marysville, Ohio.

But, Masdea says, it is midlevel managers and analysts who need the data. "In reality, an executive is probably going to want hard copy, and if there is a question, he or she will pick up the phone. The midlevel managers are the ones who have to answer these questions," she says.

With this in mind, Scotts decided to push data analytics to the masses back in 1998. The project coincided with the company's adoption of a corporatewide SAP ERP system; the business-intelligence software is also from SAP AG.

Prior to this, a distribution manager would have to pick up the phone to get the latest statistics from manufacturing and distribution facilities. "Now that manager can open a report to get a daily snapshot of activity," says Masdea. "We can even pull in POS [point-of-sale] and inventory data from our big retail customers. If inventory at an outlet looks too low, the manager can call a sales rep or the buyer directly."

This is critical in the lawn and garden business, she says. "It is a very seasonal industry, which means it is easy to miss an opportunity," Masdea says. "These dashboards empower our managers to be proactive."

The Daily Snapshot

One place where dashboards are making inroads is in sales departments. At Honeywell Inc.'s Specialty Materials Division in Morristown, N.J., dashboards give everyone in sales a clear view into business performance — every day.

In September, the division finished installing 100 dashboards from Cognos Corp. throughout the sales department. "We wanted everyone to see the same information at the same time," says Jane Booth, director of data and knowledge management at the division.

Access is truly democratic. "Sales reps can see their own sales stats, but they can also see how the other salespeople are doing," she says. "And managers have access, too."

Booth says she likes the results. "We moved quickly from a monthly or quarterly view to a daily snapshot of what is going on. A big benefit for us is that now we have a common definition and view of all this information."

In a Glass House

Dashboards can have a big effect on communications — and company politics — in the organization.

Booz Allen Hamilton Inc. in McLean, Va., is rolling out Hyperion's performance scorecard to its 1,200-person global operations team. Sophisticated analytics will allow the human resources department, for example, to "call up stats on turnover . . . correlate these with training and possibly deduce that more departmental training is needed," says John Monczewski, manager of the consulting firm's balanced scorecard project.

And in the spirit of democratization, Monczewski says employees will be able to look at scorecards for all departments in the team. "I would say that 90% of the information is available to everyone," he says. "We want people to see as much as possible."

Why? "It is not enough to optimize your own performance," Monczewski says. "You need to see if this comes at the expense of someone else on the team. We don't want people to get locked into the notion that this is just a dashboard on personal metrics."

At CB Richard Ellis, a giant commercial real estate company in Los Angeles, desktop scorecards from PeopleSoft Inc. are used by 64 U.S. office managers to determine which brokers deserve to get perks or additional resources, based on the revenue they bring in.

Previously, that process lacked precision, says Sue Willess, senior project manager. "Now the office manager can quickly see revenues, expenses and salaries for each brokerage team," says Willess, and then determine whether a broker's request for, say, an additional office assistant is really justified.

In addition, managers can see the numbers for every other office. This kind of wide-open scorecard probably wouldn't work in some environments, but it's perfect for sales, where everyone thrives on competition, Willess says, adding, "Our office managers like to say now that 'you can run, but you can't hide.' "

There is a potential downside to this plethora of information: AMR's Hagerty calls it "metric madness."

"Dashboards and scorecards are about measuring," says Hagerty. "If measures are too broad and diverse, then dashboards can be a distraction." So, not surprisingly, the democratization of business intelligence comes with responsibility. "It requires management discipline," Hagerty says, "so you can focus on only those measures that really matter to the users."

Leon is a freelance writer in San Francisco.

NOT GOOD for Control Freaks

Business-intelligence software may be ready for the people, but the people aren't always ready for it.

The problem is that dashboard democracy often requires middle managers – for whom information is power – to give up some control.

"Historically, our midlevel managers had total control over the green-bar reports that showed up on their desks," says **Deb Masdea**, director of business knowledge services at The Scotts Co.

But when new dashboards started popping up on desktops throughout the company, that data monopoly vanished. "Suddenly, that manager's boss, and some of his employees, had instant access to all those reports," she says.

It was a tough sell, and it took time to get those managers to release their grip on the information, but Masdea says two things made the transition successful. "We had to show these managers that by giving up control, they also reduced their workload because they no longer had total responsibility for managing all that data," she says.

The other strategy was to sell the system from the business rather than technical side of the house. "We had analysts – superusers from the manager's own business units – do the training," says Masdea. "These were not techie types, so they could talk to the managers in their own language and clearly show them the business benefits of the system."

At real estate firm CB Richard Ellis, senior project manager **Sue Willess** used similar approaches to make sure a new PeopleSoft scorecard system didn't fall by the wayside. Plus, she shrewdly started deployment with office managers who she knew would be most resistant to change. "Our experience is that it is easy for people to criticize the thing they know the least about," says Willess. "But these potential detractors will also be your biggest supporters if you can get them on board early."

– *Mark Leon*

OUTSIDE LOOKING IN

Dashboards aren't just for employees inside the company. A Web-based dashboard can also be a tool for providing valuable data to customers in the supply chain.

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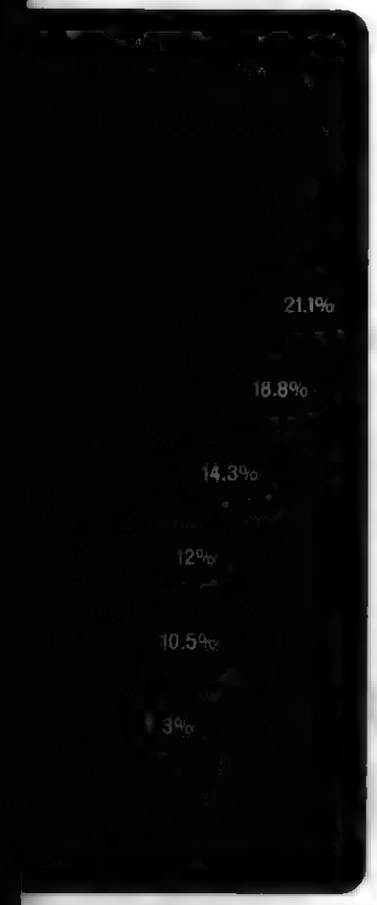

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BRIEFS

Documentum Issued Records Patent

Documentum Inc. has been issued a U.S. patent for its records management technology, which automates and streamlines the classification of electronic records. The technology is a key component of the Pleasanton, Calif.-based company's Records Management Edition and Records Services for Email. The system handles many requirements of the Securities and Exchange Commission's Rules 17a-3 and 17a-4, the Health Insurance Portability and Accountability Act and the Sarbanes-Oxley Act.

Mpower Hires Exec

Russell A. Shipley started last week as the new-technology officer at Mpower Communications Corp. in Pittsfield, N.Y., a provider of broadband Internet access and telephone services to business customers. He will work on improving Mpower's integrated data and voice product and the company's facilities-based network. Shipley held senior positions at Global Crossing Ltd. and Frontier Communications Corp., where he led the planning, engineering and construction of the nationwide fiber-optic network shared by Frontier and Qwest Communications International Inc.

BPO Market Will Grow, Gartner Says

The global business-process outsourcing (BPO) market is expected to grow 10.5% to $122 billion in 2003, up from $110 billion in 2002, according to Gartner Inc. Large companies will expand outsourcing to entire lines of online products and services, such as payroll and transaction processing. North America is predicted to represent 57% of the total BPO market, or $69 billion. Growth is estimated at 10.9%, or $27 billion, in Western Europe and at 7.8%, or $8.7 billion, in the Asia-Pacific region.

BART PERKINS

A Reality Check on Going Offshore

YOU'VE HEARD THE HYPE about how going offshore can save you big bucks on IT expenses. Your CFO thinks it's a great idea. You've completed a baseline of your IT portfolio. Now you're ready to develop your sourcing strategy and determine which work to outsource and whether you want any of it done offshore. In addition to the concerns that go along with outsourcing any function, some special considerations need to be addressed as part of the offshore decision:

■ **Intellectual property.** Determine to what degree any intellectual property you either take offshore or develop offshore will be protected in the courts. Some countries don't offer the same levels of legal protection found in the U.S. and Western Europe.

■ **Privacy and security.** Laws such as the Health Insurance Portability and Accountability Act and California's Cyber-Security Act [QuickLink 38357] mandate the way data must be handled and the actions that must be undertaken in the event that data is compromised. European Union law regulates where data must be physically stored and what data can be transmitted across country borders. Lower-cost countries follow U.S. and European law to differing degrees. Beware.

■ **Geopolitical risk.** War or terrorism could hurt the ability of your offshore provider to operate. While 9/11 proved that the U.S. isn't immune to terrorism, each part of the world has its own risks. The U.S. Department of State maintains a Web site (*http://travel.state.gov*) describing the potential risk of terrorist activities by country.

■ **IT infrastructure.** Lower-cost countries don't always have the same capabilities we take for granted in highly industrialized countries. When I was CIO at Dole Food, we had to remove several PCs from remote Philippine farms because the locals stole the telephone wires to sell the copper.

In Honduras, we had an uninterruptible power supply (UPS) to keep the computer running when one of that country's frequent blackouts hit. Unfortunately, we didn't have a UPS for the computer room's air conditioner, so we kept it as cold as possible and gave the staff ski jackets. When the power went out, the staff spread plastic sheets over the computer to prevent the condensation from overhead pipes from dripping into the computer.

■ **Travel.** Geography may not be your friend. If it requires 18 hours in a plane (and an expensive ticket) to get to your offshore facility, you won't visit it very often. Moreover, travel inside a Third World country can be very time-consuming and difficult — roads and bridges may be poorly maintained or targets of terrorist activities. Finally, travel in some countries requires many additional vaccinations.

■ **Communication.** Both the sales staff and the technical staff at the outsourcing vendor need to have excellent English skills. You don't want to have to use an interpreter whenever a problem arises. Moreover, if your provider is in a different time zone, find out if they'll work when you work (even if it's the middle of their night). If your workdays overlap for only a few hours, communication will be difficult. And your crisis will never occur during the overlap!

■ **Culture.** Cultural differences need to be understood and leveraged. It's easy to inadvertently insult offshore partners if you aren't careful. Greetings, forms of address, gestures, value systems and punctuality vary widely around the globe.

For example, Americans tend to glorify the hero and question authority. But, according to recent diversity studies, some Asians do what they're told even when they disagree with the approach. Study the local customs carefully before venturing abroad.

■ **Political backlash.** Many of your employees are unhappy with the number of jobs going offshore. Be prepared to address negative publicity and, in some cases, staff sabotage.

Going offshore presents unique challenges. Addressing them directly as part of your initial offshore decision will mitigate your risk and increase your chances of success. ◗

BEFORE YOU GO . . .

Read Bart Perkins' previous column on preparing for the offshore experience:

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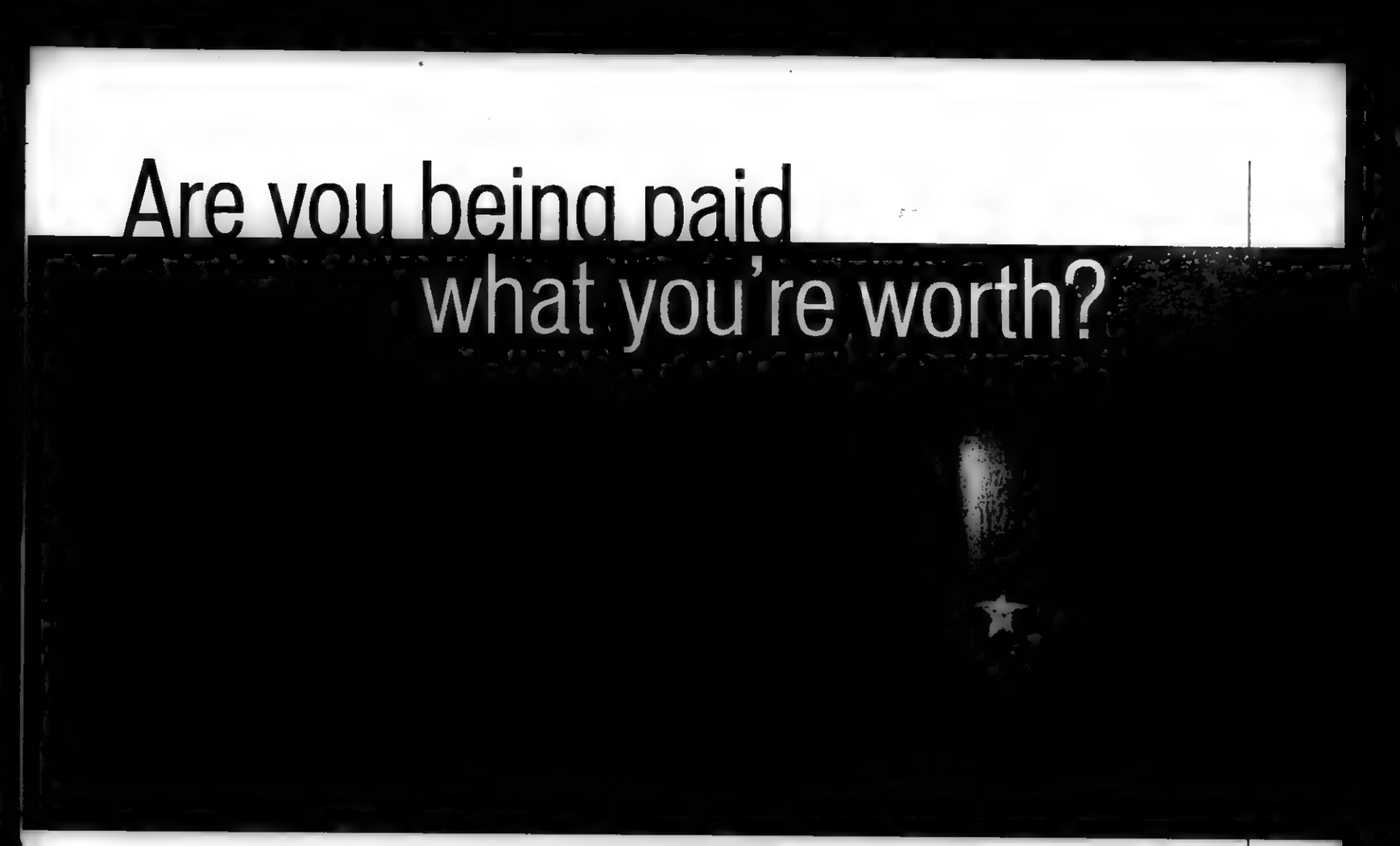
Are you being paid what you're worth?



Find out when Computerworld publishes the results from our 17th Annual Salary Survey of IT Professionals!

How much are other IT professionals with your experience and credentials earning? With help from you and your IT colleagues across the country, Computerworld will answer those questions with results from our 17th Annual Salary Survey.

Please take our survey now and enter a drawing to win a $499 gift certificate from Amazon.com. **Our survey period closes on Thursday, July 3 at 5:00 p.m.**

Survey results and feature stories that offer practical career advice will be published in the October 27, 2003, issue of Computerworld. The issue will offer detailed information on average salaries and bonuses, by title, industry and region. You'll be able to compare your organization's compensation plans with those of other organizations and find the hottest areas of the country for IT pay.

To take the survey, and qualify for the drawing, go to:
computerworld.com/ss2003

COMPUTERWORLD
SALARY SURVEY
2003

LAN ADMINISTRATOR. Duties include, Applying advanced knowledge of computer systems, hardware and software, network protocols and end user requirements to maintain and manage large LAN system. Monitor and respond to complex technical control software problems utilizing a variety of software testing tools and techniques. Analyze and recover LAN systems and applications and fix/troubleshoot daily issues related to accessing information and/or application. Provide system solutions to internal units for accessing their information and task automatization. Administer and configure Servers and their network resources to provide information access to internal users. Establish personal and shared network storage for data and application files, and maintain the network security and network printing. Study vendor products to determine those that best meet system needs. Train team members in network protocols. Daily work with: Windows NT and Novell networks; Bindview, LDAP, NDS, PC/LAN,TCP/IP, IPX and Zenworks. Min. Req'ts: BS/BA (foreign equivalent accepted) in CS, MIS or related field of study plus 2 yrs exp. in job offered or 2 yrs exp. in related occupation (i.e. Networking or Systems Analysis). MUST possess demonstrated expertise in the following: (1) Network Admin. and implementation in Windows NT and Novell multi-protocol environments for large networks (100+users); (2) Project Management experience using Bindview network management software; (3) Documentation of network procedures and training materials; and (4) Using: LDAP, NDS, PC/LAN, TCP/IP, IPX and Zenworks. Basic pay is $44,000 per year FT and standard company benefits. EEO Submit 2 resumes and respond to Case No. 2002-02287. Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

Medical System Engineer. Drive international medical customer needs into detailed product design and implementation plans as well as provide system-level support during the development phase. Work with international customers, applications engineers and software engineers during the development stage to break down program requirements into a medical imaging system definition. Define project requirements with the engineering organization and program management in order to create an overall engineering plan, and validate the solution with customers. Work with hardware and software architects to analyze the use of new technologies and architectures to converge onto new systems solutions for the traditional and new market opportunities in medical imaging applications such as MRI, CT, Digital X-ray and Ultrasound. Requirements include a Master's degree or equivalent in Computer Science, an Engineering discipline or closely related field and two years of work experience in the job offered or related field of medical imaging system engineering. Applicants must have unrestricted authorization to work in the United States. Salary $75,000/year. 40 hours/wk. Respond with two copies of resume to Case #2002021917, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston,MA 02114.

Principal Obase Administrator. Utilize knowledge of a variety of corp. computing and dbase products & services to dev., implement, maintain and test numerous dbase systems utilized by co. Lead products & subprojects of significant tech. complexity. Coordinate app rollouts, s/w upgrades, & data migration. Also measure capacity and conduct workload & performance analyses & analyze highly complex tech sys problems. Responsible for providing dbase admin support for Corp and Commercial markets apps. Utilize high-level expertise in MS SQL Server & Sybase ASE & Replication Server. High-level competence in AIX and Windows 2000, dbase des., SQL access path analysis and tuning, dbase perf tuning, and backup/recovery. Depict highly complex ideas, issues and designs to varied audiences & communicate project objectives, scope & direction across project teams. Identify analyze and resolve problems that occur within mission-critical distributed processing architectures and provide emergency off-shift support & occasional weekend implementations. Emergency off hours support and some weekends in addition to M-F sched may be req'd at times.

Bach in CS, Eng, or related (or equiv) + 5 yrs exp utilizing AIX tools & utilities and shell scripting req'd. At least 3 of 5 yrs must incl exp w/ Sybase, and SQL Server. $85,000/year full time

Applicants should direct fax (2) resumes to Job Order # 2003-194 PO Box 989 Concord, NH 03302-0989

Senior Systems Analyst (Chicago, IL) - Senior OO developer with experience in OO technologies to play a key role in the design, coding, implementation and support of pharmacy operations applications and initiatives. Will be responsible for the design, coding and implementation of complex modules in JAVA, JAVA script and HTML for a system requiring quick performance and throughput. Will utilize Websphere to tune and debug 3-tier architecture applications to optimize performance. Will lead team members in applying new technology. Must have a B.S. or equiv. in Comp. Sci., Management Info Sys., Eng.or related field and 5 yrs of exp. in the job offered or 5 yrs of exp. in a position involving full life-cycle business software development. Exp. gained may have been obtained concurrently and must include: (i) 2 yrs exp. in OO JAVA analysis, design and development; (ii) 2 yrs exp. each in VisualAge JAVA, JAVA Script, SQL and UNIX; (iii) proficiency in Websphere and its relation to 3-tier architecture systems; (iv) 2 yrs exp. designing, coding, testing and implementing complicated modules as part of a high volume transaction systems with proficiency in tuning systems to achieve maximum performance; and (v) 1 yr exp. leading team members in applying new technology. Must have proof of legal authority to work in the U.S. Submit resume to C. Helen (REF:SBA), Caremark Inc., 1000 Lakeside, Bannockburn, IL 60015.

Software Developer .

Duties: Responsibilities include the design, development, and support of several applications, including interfaces with the Marketing Systems Intranet, desktop applications, and the enhancement of existing systems. Additionally, the incumbent will utilize cutting edge technologies in enterprise-level development tools; work on platforms that include NT Server clustering technology; and develop client/server database applications and datatypes driven web sites and applications.

Requirements: Bachelor's Degree in Computer Science, related discipline, or technical training and a minimum of three years related technical experience required. Experience developing complex Windows NT GUI database and Web applications using PowerBuilder, Visual Basic, MS Visual InterDev, DHTML, SQL Server, and UNIX also required. Incumbent must also have project management experience and a detailed understanding of application software and Systems Design Methodology validity to transfer this knowledge in the form of new technical directives and initiatives.

Please forward your resume and cover letter referencing Job Order #37277 for a Software Developer to

Bureau of Labor Standards
45 State House Station
Augusta, Maine 04333-0045

Senior Consultant & Quality Assurance Specialist

170 Systems, Inc. provides advanced, Web-deployed solutions that enable e-businesses to capture and manage all of their information online, collaborate and optimize intra-company and B2B transactions. Through content management, document imaging and workflow products and services, we help companies and government agencies to integrate their information across their enterprise applications. We manage major implementations for Global 1000 companies in more than 40 countries.

170 Systems seeks top-notch, talented individuals to join the 170 Systems team. 170 Systems is a dynamic, fast-paced organization with a commitment to excellence in everything that we do. If you are looking for a challenging position as a Senior Consultant, a Quality Assurance Specialist, or a similar position in a growing leading-edge software company, then please visit the Careers section at www.170systems.com to apply. 170 Systems is an equal opportunity employer.

IT PROFESSIONAL

www.mainframeconsulting.com has immediate openings for Software Engineers and Analyst/Programmers for assignments in Boston/North East with the following skills:

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JAVA/SWING/EJB's
ACTUATE/eTOOLS
ASP.NET
QA TESTERS
PM/Business Analysts

CLIENT/SERVER
UNIX/C++/PERL/SQL
Oracle Financials
Oracle/Sybase DBA's
UNIX Admin ANT Admin
VC++/VB/COM/DCOM
Data Warehouse Specialists

Mainframe Consulting, Inc.
27 Water Street
Wakefield, MA 01880-3038
Careers@mainframeconsulting.com
(781) 246-8500

Web Developer for Miami to develop software for personal financial planning and life insurances especially for the Dutch market using online version, desktop with online technology using XML and XSL, MSMQ and BIZTALK. Full time position M-F pays market level salary. Applicants with 5 yrs related exp send resumes only to Human Resources, Sungard, 2000 S. Dixie Hwy, Miami, FL 33133.

System Administrator reqd for Imp/Exp & seller of foreign goods in NYC. Admin win/servers & app. s/ware & monitor servers & LAN to analyze/resolve support related issues, maintain systems reporting for performance optimization & upgrades; maintain, dev & update d/base on SQL Server 2000 envrmt; maintain & perform web server backup & recovery. Bach in Comp Sci & 1 yr exp in field or 1 yr exp as IT Mgr reqd. 40hr/wk, 9a-5p. Send 2 resumes to Hind Fashion, Inc. 1220 Broadway, #800, NY, NY 10001.

Software Engineer. 8a-5p. 40 hrs/wk. Dsgn, dvlp, implmt & coord integration of s/ware systms applying knowl of communications, network mgmt, parallel processing, comp system architecture, comp graphics & system s/ware. Masters or equiv in Comp Sci, Info Systms, Electrical, Electronics or related field of Engg reqd. In lieu of Masters, Bach in specified majors & 5 yrs of progressive work exp as comp prof'l w/above skills accepted. Resume to: Allied Informatics, Inc., 6525 The Corners Parkway, Ste 110, Norcross, GA 30092.

Database Administrator wanted by medical group in Monterey Park, CA. to design, implement and maintain database on network. 3 years experience required. Send resume to Andrew S.O. Sun, M.D., Inc. at 929 S. Atlantic Blvd, Monterey Park, CA 91754.

Software Engineers with extensive design, development, maintenance and support experience for complex software systems to work in our Anchorage, AK office. Advanced level computer skills a must. Send resume to SAIC, 1049 W 5th Ave., Anchorage, AK 99501. Attn: H.R., Req#SWE. or on-line to ETSG.ALASKA@saic.com with Req#SWE in subject line. EOE.

Saras has openings for IT professionals. BS/MS is must. Skills in SAP, Baan, Peoplesoft, Oracle Apps, Sybase, AS/400, VB, PB, JAVA, JavaScript, PERL, Cat, HTML, XML, C, C++, OOPS, Web logic & Lotus Notes preferred. Also want Marketing Executive. resume@sarasamerica.com

Infogem is seeking IT professionals. Req. BS. Skills in following areas are plus: Oracle9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Travel is required. Send resume to infojobs@infogeminc.com.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liason between technical developers and users/customers. Requirements: Bachelor's degree* in computer science, math, statistics, business administration or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with Java application server (either WebLogic, WebSphere or JRUN); and UNIX also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Sunset Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V

Gimme the Best LLC (Houston, TX) is seeking a Computer Programmer. 1 yr. exp. using MASM, SQL ReportWriter/Menu and Objective-C. Send resume to 8601 Sidwell, Houston, TX 77087 or jobs@gimmethebest.com. Attn: Jill

F.S. Construction is seeking an Industrial Engineering Programmer. 6 mon. exp. in SAP R/3 Enterprise, Prismevare Project Planner V3.0, and MS Project. Mail resume to 19 Briar Hollow Ln, # 270, Houston, TX 77027. Attn. Mike Poona, or email: mpoona@fsdesignbuild.com

DBA DATA ADMINISTRATOR: Coordinate physical changes to computer data bases; and codes, tests, and implements physical data base, applying knowledge of data base management systems. Design logical and physical data bases as well as maintain, manage and update land base layers including all editing, archiving and SDE maintenance by using the following computer languages and software: Java Script, Oracle 7 w/8 i;, IBM unix environment, Internet Application Development, Visual Basic, C, C++ and GIS. Job is in Juno Beach, 40hrs/wk, 8:30am-5:00pm/ M-F, must have 2 yrs. Exp in job offered or 2 yrs in related occupation (Software Analyst). Please send resume to SUI TECHNOLOGY INC at 3201 W Griffin Rd Ste#203, Davie, Fl. 33312

Navision Developer Develop/program customizations in Microsoft Navision Financial package, design & document user specified solutions; create system & end user utilization reports; manage data conversion (flat files, importation programs, etc.); provide Navision AVISTA customer support; teach development classes; program installation & setup of client/server software on Navision server & SQL server Req. 4 yrs work exp in job offered or 4 yrs exp in related occupation as Developer or any suitable combo of edu., training, and/or work exp. Send resume to Computasystems of Georgia, Inc., 3100 Breckinridge Blvd., Ste 725, Duluth, GA 30096 Ref BN.

PROGRAMMER-ANALYSTS needed at client sites to analyze s/ware suitability, define d/bases & applic patterns & write reqmts for system architecture, dvlp & integrate project & maintain & support project using Persistence, Visibroker, Purify & Quantify (Rational), Rational Rose, C++, Rogue Wave Libraries, Oracle, VC++, COM, OLEDB for IP (Internet Publishing), IIS, IMAN & IMAN/DAV portals. Apply to: Kiremic, Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Software Engineers needed by Alpharetta based IT Co - Bachelors degree with 1-2 years of experience in job. Exp in Skill sets incl: Java, J2P, Servlets, JDBC, XML, TIBCO, UML, Unix, NT, VB, ASP, C#, Net, Business Objects, Crystal Reports, Oracle, SQL Server, JavaScript, XML, C, C++, AS/400, COBOL, DB2, CICS, JCL, MVS, VSAM, Embedded/Firmware, Cold-fusion, Perl, PHP, Network Administration, Rational Clearcase Administration, Netscape proxy server, Microsoft Exchange Server Administration, MOSeries, WEB Methods, Vitre, SAP, Peoplesoft, Lotus Domino Server Administration. FREQUENT TRAVEL REQUIRED. Send resumes to jobs0503@coolsl.com, Ref: Ad#3308.

Programmer Analyst needed to research/design/develop computer software systems, applying principles and techniques of computer science, engineering, science, and mathematical analysis, using Cobol II, MVS, TSO/ISPF software. Must have Bachelor's Degree in Engineering, Science or Computer Science and two years of prior work experience in the job offered or as a Programmer. Must also have two years of experience using Cobol II, MVS and TSO/ISPF software. $84,378.08 per year. 40 hrs/wk. 8am-5pm. Send resumes to MDCD/ESA, P.O. BOX 11170, Detroit, MI 48232-1170 Ref. No. 210084. 'Employer Paid Ad'.

IA Foundation for Medical Care has multiple Programmer III job openings for which we need to hire exprd prgmrs. Candidates must have bach & at least 4 yrs exp in prgmg or equiv. Req skills incl: Java, C, C++, SQL, J2EE, Servlets, JSP, Java Beans, JDBC, XML, XSLT, multi-threaded Java application dvlpmt, Oracle. Exp prgmg, implmtg & testing web-based applics on Unix & Win NT/Win2K. Some job openings also req Java 2 Platform Sun Certification, exp implmtg content mgmt systms to websites, &/or demonstrated proficiency with Eclipse, NetBeans Java, IBM VisualAge, IBM WebSphere, Junit, Swing, Apache, Jboss, Tomcat, Rational Rose. Send resume to Anne Dennis, 4725 121st St, Des Moines, IA 50323-2316.

IT co in Philadelphia, PA with multiple openings seeks Sftwre Enggs/Prog Anlysts w/full skill sets:
1. C, C++, VB, Dev 2000, Oracle, SQL, Javascript & Crystal Rprts. (Job Code NEA).
2. Oracle, SQL, PL/SQL, Dev 2000, VB, VBScript, JavaScript, CGI & Rational Rose. (Job Code OJR).
3. Oracle, Dev 2000, Designr 2000, Java, SQL* Loader, VB, Unix Shell Scripts & HTML (Job Code UVS).
Req Bach/Masters or equiv in Comp Sci, Engg, Tech, Sci or equiv & min 1-3 yrs exp. Send resume to Edge Technologies, Inc., 1822 Spring Garden Street, Philadelphia, PA 19130, fax: 973 331 9390.
e-mail: nas@edgetek.com.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with either Java, JSP, EJB or J2EE, and writing applications that interface with relational databases (either Oracle, Sybase, SQL Server or Teradata) also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810 EOE M/F/D/V.

Computers - Senior Software Professionals needed. Seeking qual. candidates possessing Bachelor's in CS, IS or equiv. and/or rel. work exp. Part of the req. rel. exp. must include 2 yrs. working with SQL Server, Visual Studio & Rational Rose. Two years exp. in public health service preferred. Must be willing to travel & relocate as req'd. Fwd. resume & ref. to Cal2Cal Corp., Attn: HR, 2182 DuPont Dr., #213, Irvine, CA 92612.

Programmer Analysts (multiple positions) sought by Edison, NJ-based s/ware consultancy firm. Must have Bach or equiv in Comp Sci & 3 yrs s/ware exp. Respond to: AK Systems, Inc, 100 Metroplex Drive, Suite 303, Edison, NJ 08817 or http://www.aksystems-inc.com/joinnow.htm.

Senior Software Engineer-Platform Services. Lead and participate in the specification, design, development and support of company product including the overall architecture, component interfaces and communication schemes, client and server-side programs written in Java and C++, Java and C++ based product APIs, and Oracle, SQL Server and LDAP database schemas. Assist with development of project plans and schedules. Follow rigorous software engineering standards including developing product requirements, functional and design specifications and adhering to coding standards. Create new tools and procedures to enhance the development process. Lead efforts to identify and resolve any product performance issues. Mentor junior engineers. Requirements include a Bachelor's degree or equivalent in Computer Science, an Engineering discipline or closely related field and four years of work experience in the job offered or related field of development of large-scale, high-performance systems and network management systems and protocols using Java and C++. Applicants must have unrestricted authorization to work in the United States. Salary $92,633/year. 40 hours/wk. Respond with two copies of resume to Case #2002016884, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

Programmer/Analyst - Handheld Devices (Atlanta, GA) Interpret reqmts of Handheld Project Team & translate into dsgn documentation and/or coded solutions. Conduct testing of handheld systems. Maintain & enhance components of handheld, desktop, & AS400 systms. Provide tech assistance to team members & end users. Other duties as reqd. BS in Comp Sci or Engg (or foreign equiv.) & at least 3 yrs of handheld systms prgmg & dvlpmt exp. Applicant must have extensive exp (at least 1.5 yrs) working w/.NET Compact Framework, Windows CE, C++, & VB. $60K. Submit resumes to: K. Buntley, Rollins, Inc., 2170 Piedmont Rd, NE, Atlanta, GA 30324.

Computer Progr. for full life-cycle applic dev. & maint. for CDC's STD Curriculum websites in Training/ Health comm. Develop user mgmt. system for website. Develop curriculum portal using ASP 3.0, MS SQL Server 2000, HTML 4.0, DHTML, Style Sheets (CSS), VBScript 5.0, and JavaScript 1.2. Develop GS § 508 compliant web pages and support downloading of document in MS Word, MS PowerPoint, Acrobat .pdf using Bobby Worldwide 5.0. Requires Bachelor's degree in Comp. Science or Equivalent + 2 yrs. exp. in job duties. In lieu of Bachelor's degree will accept candidates with 5 years of IT exp. Comp. salary. Apply: BCA, 2180 Satellite Blvd., #325, Duluth, GA 30097 with proof of permanent work authorization in the United States.

Programmer, Gainesville, FL - Design, engineer and test computer programs and systems for information technology company. BS in Computer Science. Salary commensurate with exp. 40 hrs/wk, 8 AM – 5 PM, M – F. Mail resume to: Info Tech, Inc., 5700 SW 34th Street, Suite 1235, Gainesville, FL 32608.

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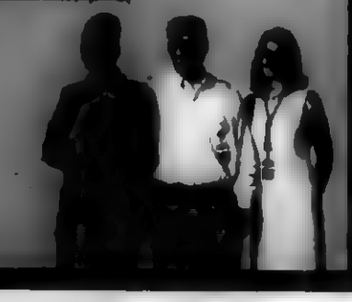
Bentonville, AR 72716-0550
Fax: (479) 277-4227
Email: ISDAP@wal-mart.com

For more information, call toll-free:
1-888-XDSS-ISD or visit our
Web site at:
www.walmartstores.com



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Software
Data Conversion Specialist

Data Conversion Specialist, 40-hr wk, 9AM-5PM. Associates or foreign degree equiv in computer science + 2 years in job offered or 2 yrs as Systems Analyst. Provide technical skills to ensure a successful, quick and accurate conversion of data from all systems; provide input to the detailed implementation project plan; provide a channel of communication with implementation and support to representatives; keep specifications current throughout the projects, work with client representatives to determine specifications for data mappings including analyzing source data, writing SQL queries; develop, test and implement automated data conversion routine including programs for extraction, transformation and loading of data to the new database using Visual Basic and SQL or FoxPro. Submit resume to jobs@campusmgmt.com or Joe Bozza, HR Director, Campus Management Corp, 777 Yamato Rd, #400, Boca Raton, FL 33431.

Programmer Analyst, 40-hr wk, 8 - 4PM, Bachelor's or foreign degree equiv. in Computer Science or Computer Engg or Electrical Engg.+ 2 yrs exp in job offered or 2 years as Systems Analyst. Analyze, review and rewrite programs; prepare records and reports; consult with staff and users to identify operating procedure problems; formulate and review plans regarding steps required to develop programs; devise flow charts and diagrams; modify programs. Resume to Danne-Andrea Corp., 4210 NW 4 St., Miami, FL 33126.

DATABASE ADMINISTRATOR: DBA is responsible for administration and control of departments data resources, including RDMS, and for providing complete DBA support and administration for Production, Pre-Production and Development Servers. Duties include: utilizing data dictionary SW to ensure data integrity, security, and to eliminate data redundancy; provide technical design and data modeling, coding procedures, and triggers; licensing issues; maintain SW tools and applications; conduct tuning; maintain an enterprise wide data repository; secure and maintain all current and future applications to ensure recoverability; provide end users with training and answers for technical issues; create documentation for database applications, and migrate databases to different storage and operating platforms. Daily work with Sybase 11.5.1, HP UX 11, Solaris 2.7, Oracle, WinNT, SQL and UNIX scripts. Must be available 24x7 for beeper customer support calls. Min. Reqts: BS/BA (foreign equivalent accepted) in CS, MIS or related field of study plus 2 yrs exp. in job offered or 2 yrs exp. in related occupation (i.e. System Analyst or DBA Developer or related). MUST possess demonstrated expertise with: (1) Database support and administration for Production, Pre-Production and Development Servers, (2) Database development in Sybase 11.5.1, HP UX 11, Solaris 2.7, Oracle, and WinNT environments; and (3) programming in SQL and Unix Scripts. Basic pay is $58,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02286 Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

Manhattan Associates, Inc. a worldwide leader in supply chain execution systems is looking for IT professionals to join our team at our Atlanta, GA, Burlington, MA, and Mishawaka, IN locations. **Operations Research Analyst.** Analyze complex mgmt info req. for transportation/logistics optimization-based decision support sys; incorporate math & computer models & other analytical approaches to deliver research based algorithmic/ heuristic solutions for re-engineering into production-ready engines & incorp into existing software apps. Req: PhD in operational research, transportation or logistics & documented research in transportation or logistics optimization. Implementation **Consultants.** Consultants & specialists will coordinate client projects & interact with client org, evaluate client bus ops & sys environments to implement client proprietary software sys, advise & design sys test plans, develop test & product environ at client sites, & develop proposals & supports for sales presentations. Req: BS in comp. sci, engg, or related tech field (some req. MS). Substantial travel req. **Quality Assurance Analysts.** Assist in design & develop of software test procedures, plans & automated scripts using J++ and IBM Rational Robot to automate software testing. Prepare test recommends & doc procedures for product design thru production. Evaluate test equip. used to perform quality checks. Document defects & assist with repairs. Maintain defect tracking system. Req. BS in comp. sci, engg, or related tech. field. Resumes to: J. Lurey, Manhattan Associates, 2300 Windy Ridge Pkwy, 7th Fl. N., Atlanta, GA 30339

NETWORK PLANNING ANALYST LEAD Duties include: Responsible for network needs assessment and for architecture design and delivery of strategic high performance network solutions, including directory services integration, NOS architecture, high-speed switch networks, PKI/SSL, and least privilege best practice. Provide senior level technical leadership in solutions design and implementation across the organization, working with both implementation and production support teams. Will assess the impact on issues such as scalability, maintainability, reliability, extensibility and usability for planning and designing high-level network system architecture. Implement authorization, authentication and access control procedures. Daily work with: Shiva, Checkpoint, NOS design, Novell Netware, Windows NT and 2000 security procedures. Min Reqs.: BS/BA (foreign equivalent accepted) in CS, MIS, or related field of study plus 2 yrs exp in job offered or 2 yrs exp in a related occupation (i.e. System or Network Support/Analyses) OR IN ALTERNATIVE 4 yrs exp. in job offered or related occupation in lieu of BA/BS plus 2 years exp. MUST possess demonstrated expertise in the following: (1) Network modeling, architecture, and NOS design, (2) Security procedures for Novell Netware, Windows NT Server, and Windows 2000 and (3) IP Wan, Internet or internet-working. Basic pay is $58,000 per year FT and standard company benefits. EEO. Submit 2 resumes and respond to Case No. 2002-02298, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

COMPUTERFIT

Sr Project Mgr, Manh Svcs, Hauppauge, NY Assist US & South African dvlpmt teams w/ dvlp & implement Premier Services. Consult w/ US & S. African clts. & document proposed tech soln (staffg, svcs. & resources needed). Participate in RFP, RFQ or sales cycle for clt. svcs. & high tech sls. in U.S. & Africa. Create a needs analyses (at times w/ Systems Engrs), soln design, create work & project plan elmt. & participation, when req'd in pre-sales presentations. Coord. & manage in-house & on-site resources for projects. Train new Project Mgrs. & other members. Perform risk mgmt & project allocation & planning mtgs w/ mgmt. REQUIRES: Bach's degree (or equiv) in any field plus 1.5 yrs. exp. in job offrd or as Project Mgr. Exp., which may have been obtained concurrently, must incld. 1.5 yrs. exp. design & implement Premier Services.

Sr. Consultant Reston, VA. Determine, recommend, plan layout & install comp. hdwr & softwr sys. & equip for max. efficiency. Dvlp info mgmt sys & components. Dvlp & design graphical user interface & softwr applics. using Visual Basic, Sheridan Data Widgets, Crystal Rpts, MSMQ, ADO, .NET, COP, SOL, XML & ASP. Write tech descript. of user needs, applics, & prog f(s). REQUIRES: M.S. (or foreign equiv) in Comp Sci or Elect Engr plus 2 yrs exp. in job offrd or as Softwr Engr. Exp., which may have been obtained concurrently, must incld. 2 yrs exp utilizing Visual Basic6, Crystal Reports7, ASP, ADO, & RDBMS.

Qualified applic., mail resume w/cl to D.Schofield, Dimension Data, Inc., 135 Newbury St, Framingham, MA 01701

Cedar Rapids, IA - Computer Programmer - Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data and information. Work on software development projects for clients/customers. Projects involve development of new computer applications or systems, enhancement to existing computer applications/programs or conversion of older mainframe systems/programs to new Windows based systems/programs/applications. Must have Bachelor's in electronics engineering or computer science and 5 years experience as a computer professional. Must be a Microsoft Certified Product Specialist in Database Design and Implementation using SQL Server 7.0. Experience must include 2 years with Windows, Windows NT, RDBMS, C++, SQL and SQL server. Must have experience in developing systems with business and finance applications and experience in design, development and implementation of software from customer requirements. Position is 40 hours/week from 8 to 5 w/salary $69,636/yr. Must have proof of legal authority to work in the U.S. Submit resume to Iowa Workforce Center, 800 7th St. SE, Cedar Rapids, Iowa 52408-0729. Refer to Job Order No. 1101761. Employer paid advertisement.

International Programming & Systems, Inc. has employment opportunities for Systems Analysts with any of the following skills: SAP/R/3/BW, TERADATA, V8 Developers exp. in WIRELESS/802.X; STRATUS, UNIX, UNIX Systems Admin and Network admin. Positions are available throughout the US inc. Hamilton & W. Trenton NJ, Philadelphia, PA. IPS also has openings for Sales and Recruiting staff in our San Francisco office. Electronic responses are encouraged, cfiswell@ipsamerica.com or mail resume to IPS, 1875 So. Grant Street, #300, San Mateo, CA 94402 (Fax) 650-572-9678. Principals only please.

Imaging Software Engineer. Develop and maintain business-specific implementation of purchased document technology applications using ActionPoint scripting language; develop reusable program modules (COM objects) for business application integration; maintain DocuPACT source code developed in object oriented technology; create and maintain WEB interface for DocuPACT based on XML; provide solutions to DocuPACT user problems, use MS SQL to extract data into document repository; incorporate document technologies into strategic design and architecture of Enterprise Application Integration solutions; and collect define, publish, and adopt enterprise wide standards for unstructured data repository/ storage, metadata and style sheets definitions, and systems security and access. Minimum requirements: Bachelor's degree or equivalent in computer science or engineering plus two years experience. Prior experience must include two years of C++ and one year in web development and imaging systems or document management systems using XML/HTML, Java, and DocuPact. Competitive salary. Hours: 8 am - 5 pm, M-F. *Must have indefinite right to work in U.S. Send resume demonstrating minimum requirements to Tipton Bradford, c/o ChoicePoint AVP-Human Resources, 1000 Alderman Drive, 70-A, Alpharetta, GA 30005

Cedar Rapids, IA and various locations in U.S. - SAP Programmer - Convert project specifications and statements of problems and procedures to detailed logical flow charts for coding into computer language. Develop and write computer programs to store, locate, and retrieve specific documents, data and information. Design and write programs in SAP R/3. Involved with development of SAP R/3 system. Work with ABAP/4 in SAP R/3. Must have Bachelor's in computer science and 2 years experience as a computer professional. Will accept Associate's plus 6 years work experience in lieu of Bachelor's. Must have SAP R/3 4.x FI Module Certification and SAP R/3 3.x ABAP/4 Developer Certification. Must have experience in Developer and Work Bench, Screen Painter, Menu Painter, Interactive Report, Module pool programming, Modification, SAP Script (Smart Form), User-Exit, BDC Programming, Data Transfer, RFC Programming, Runtime Analysis, Data Dictionary. Position is 40 hours/week from 8 to 5 w/salary $69,636/yr. Must have proof of legal authority to work in the U.S. Submit resume to Iowa Workforce Center, 800 7th St. SE, Cedar Rapids, Iowa 52408-0729. Refer to Job Order No. 1101761. Employer paid advertisement.

Software Professionals and Managers

Mejesco Software, Inc., a leading IT consulting firm with U.S. headquarters in Irving, TX, is looking for qualified IT Professionals and IT Business Development Directors.

For IT positions, we need experienced Software Engineers/ Programmer Analysts/Systems Analysts with the following skill areas: Siebel Scopus/Ventaver/ Clarify/Siebel/Java/ASP/EJB/ Power Builder/Visual Basic/ VC++/SQL Server/Oracle/ Ingress/Informix.

Ideal candidates for IT Business Development Director positions will have technical background, i.e., Bachelor's degree in Engineering, Computer Science, Electronics or related field and IT business development/management experience.

Positions may require relocation to various job sites throughout the United States. Qualified applicants send resumes to: HR Manager, Mejesco Software, Inc., 222 W. Las Colinas Blvd., Irving, TX 75039.

Sr Computer Systems Analyst wanted to work in Rochester Hills, MI to maintain business information systems operational at all times with scheduled downtime having a minimum impact on users; research and recommend state-of-the-art systems to replace or augment current equipment or software; write new software utilities including reports to support users' needs; provide consulting services and training to computer users; and provide user and system documentation. Requires: BS degree in Engineering, Business or Computer Science, 7 years experience as a Systems Administrator; at least 1 year of Oracle experience through coursework or employment experience; and at least one bachelor degree level course in each of the following: Program Logic Controllers, Robotics in Manufacturing, Automated Manufacturing Systems. 40 hours per week, overtime varies. 8:00 a.m. to 5:00 p.m. $94,440 per year. Employer paid ad. Send resume to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170, refer to Reference No. 210543.

Sr. Consultant Job location: Hartford, CT. Duties: Perform database admin & analysis, design, data modeling, & troubleshooting tasks & testing activities. Design & develop complex solutions from customer's business reqmnts. Translate business/func. Reqmnts. into code. Implement system enhance. & changes from tech reqmnts & specs. Develop, modify, test & deploy Oracle forms, reports, PL/SQL stored procedures & complex SQL queries & views using Oracle Perform Pro*COBOL coding required to maintain & enhance existing product set. Requires: M.S. in Comp Sci., Eng. or a related field & 3 yrs exp. in the job offered or 3 yrs. exp. as a Database Admin. or Consultant. Concurrent exp. must incl 3 yrs. exp. performing database analysis & 3 yrs. exp. using Oracle. Send resume (no calls) to: Mercy Baldwin, CTG, Inc., 3 Neptune Dr., Ste. Q17, Poughkeepsie, NY 12601-5571.

Programmer/Analyst: Analyze, design, develop, test, implement and maintain customized business software applications in a mainframe or midframe environment using AS/400 and RPG/400 technologies. Will also provide in-depth trouble shooting and problem solving as well as analysis, design, development and implementation assistance to AS/400 programmers, system administrators, operators and end users. Must have Bachelor's or equivalent in CS/Math/Engineering or related. Must have 2 yrs exp. in job offered or in related business applications development using AS/400 and RPG/400. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $75,000/yr. Hrs. 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case # 200202403, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

Technical Project Mgr. Job location: Chicago, IL. Duties: Resp. for managing tech. teams for PeopleSoft Financials & HRMS modules. Create tech. design spec. docs. using pre-defined business functions. Manage & train resources to code Unix Shell scripts & SQR (reports & interfaces). SQA Robot, Component Interface & PeopleCode & to use PGP & SSL Encryption. Create & manage projects using MS-Project. Manage tech. teams resp. for PeopleSoft Appl. Security & testing teams that perform func., integration & user acceptance testing. Requires: B.S. in Comp. Sci., Eng. or a related field & 4 yrs. exp. in the job offered or 4 yrs. exp. as a Developer, Syst. Analyst, Director or Tech. Lead. Concurrent exp. must incl. 4 yrs. exp. coding UNIX Shell scripts & 1 yr. exp. managing resources to code using PeopleCode. Send resumes (no calls) to: Diana Tweddle, Answerthink, Inc., 817 W. Peachtree St., Ste. 800, Atlanta, GA 30308.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and maintain application software using Oracle DBA, PL/SQL, Oracle Forms/Reports, Oracle Forms Services, Oracle Reports Services, Oracle Designer, Pro*C, C++, Visual C++, UNIX Shell Scripting and Btrieve SQL Utility under SUN Solaris and UNIX operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs. of exp. in the job offered or as a Systems Analyst. Competitive salary offered. Send resume to: Donna F. Loop, Spartech Corporation, 120 S. Central Ave., Ste. 1700, Clayton, MO 63105. Att: Job NM.

Computer Programmer Job location: Middletown, NJ. Duties: Assist w/develop. of network provisioning & automation software platforms in C++, Java, CORBA, X-Windows, Oracle & UNIX environ. Perform programming using Java, C/C++, JSP, Servlet, J2EE, JDBC, SQL, PL/SQL & Oracle. Design & develop JSP tag libraries & custom tags, JavaBeans, Servlets & JSPs. Debug system defects & malfunctions. Requires: B.S. (or foreign equiv.) in Comp. Sci., Eng. or a related field & 2 yrs. exp. in the job offered or 2 yrs. exp. as a Developer, Software Eng., Prog/Analyst or Prog. Concurrent exp. must incl. 2 yrs. exp. designing & developing JSP tag libraries & custom tags & 2 yrs. exp. using Java & C++. Send resume (no calls) to: Marcy Baldwin, CTG, Inc., 3 Neptune Dr., Ste. Q17, Poughkeepsie, NY 12601-5571.

(SEQ CHAPTER \h \r 1) **Programmer/Analyst:** Analyze, design, develop, test, implement and maintain customized software applications in a client/server environment using Oracle, Unix and SQL technologies. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have BS or equivalent in CS/Math/Engineering or related. Must have 2 yrs exp. in job offered. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $69,359.94/yr. Hrs. 8:00pm-5:00pm, 40/wk. Please send 2 copies of resume to: Case # 2002-02313, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

SW Engineer - Under direct supervision of Sr. SW Eng., perform unit design & develop software & testing on co.'s cutting edge telephony devices. Develop & enhance server-side utility tools & participate in design & code reviews. Will test & integrate telecom. products & provide critical bug fixes for customers. Will provide customer software enhancements & use programming/analytical skills to provide services for debugging. BS in Comp. Eng., Comp. Sci. E.E. or equiv. + 2 yrs. exp. in job offered or rel. software development. Must have knowledge in at least 1 of the following: telecom. protocols ISDN or SS7, Call Processing, ATM or TCP/IP as well as strong coding skills in C 40 hrs/wk. Sal.: $85,000/yr. Send 2 resumes to: Case #2002018865, Labor Exchange Office, 19 Stamford St. 1st Fl. Boston MA 02114.

(SEQ CHAPTER \h \r 1) **Programmer/Analyst:** Analyze, design, develop, test, implement and maintain customized software applications using J2EE platform, Java, and Cobra. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have Bachelor or equivalent in CS/Math/Engineering or related. Must have 2 years exp. in job offered or in Design, development and integration of enterprise applications. Such experience must include Java, Cobra and J2EE technologies. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $75,000/yr. Hrs. 8:00a.m.-5:00p.m., 40/wk. Please send 2 copies of resume to: Case No. 200202294, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

VP SOFTWARE ENGINEERING to direct and coordinate activities of software engineering department in the design and development of applications using object oriented methodology, UML, EJB, JSP, JMS, C++, PERL, ASP, Cold Fusion, MS SQL Server, Sybase, MS MQ, Tibco RV, SOAP, TCP/IP, LDAP, JavaScript, Shockwave, Vignette Story Server, Interwoven TeamSite and Tibco PortalBuilder. Review analyses of activities, costs, operations and forecast data to determine department progress toward stated goals and objectives; Analyze technology trends, human resource needs, and market demand to plan recommend and manage organizational and operational changes to enhance processes. Require, B.S. in Computer Science, or a closely related field with 2 yrs. of exp. in the job offered or as a Software Engineer. Experience must include at least six months leading a software development team and being responsible for all project management activities. Competitive salary offered. Send resume to: Cheri Cannon, Macquarium, Inc., 1800 Peachtree St., NW, Suite 250, Atlanta, GA 30309, Attn. Job SK.

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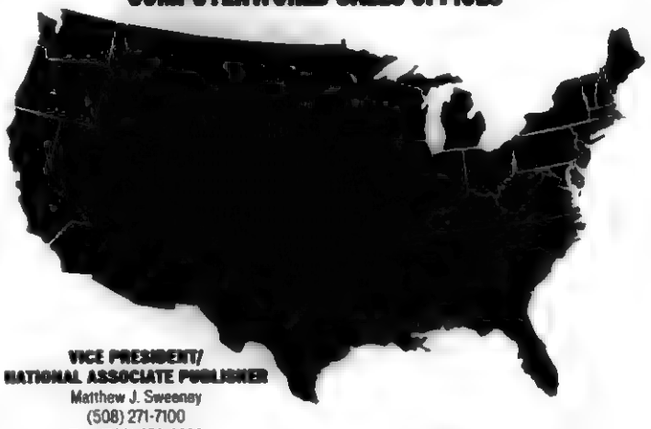

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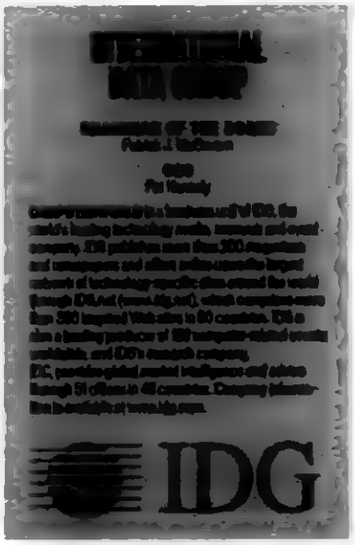

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Oracle Bid

to potentially standardize its human resource operations on a single set of applications.

"I believe it's Oracle's motivation to stall the market as long as possible," Hill said at the annual conference of J.D. Edwards' Quest user group here last week. Denver-based J.D. Edwards this month agreed to be acquired by Pleasanton, Calif.-based PeopleSoft, a deal that now could hinge on whether Oracle succeeds in its effort to buy PeopleSoft.

Hill said Praxair runs applications from all three vendors in its various business units, including Oracle financials and PeopleSoft human resource and payroll systems. He added that if Oracle prevails in its takeover attempt, he would reconsider his PeopleSoft investment — even though Oracle CEO Larry Ellison has promised free migrations to Oracle's E-Business Suite 11i software or Version 8 of PeopleSoft's applications.

"It never happens that way," Hill said. "Any ERP conversion is a highly costly and complex endeavor, and [the need to do one] would cause us to re-evaluate the marketplace."

Oracle, which formally launched a tender offer for PeopleSoft's stock last week, has said it would continue to support PeopleSoft's existing users and wouldn't force them to migrate to its own applications. But Oracle doesn't plan to actively sell PeopleSoft's products to new customers and has indicated that it would reassess PeopleSoft's agreement to buy J.D. Edwards.

"We see only a potential downside of significant additional costs," said Bill Monroe, chief operating officer at the Texas Education Agency in Austin, which runs PeopleSoft's financial management and CRM software.

"Conversion to another system could cost over $2 million, plus database costs," Monroe said. He added that agency officials have yet to assess other factors that could result from a takeover by Oracle, such as the potential that software projects will have to be delayed or that future functionality will be lost.

Mark Federle, CIO at The Weitz Co., a Des Moines, Iowa-based construction firm that runs hosted versions of J.D. Edwards' OneWorld XE applications, is considering an upgrade to Version 8 of the ERP software within the next year.

That project wouldn't be affected by a merger of J.D. Edwards with PeopleSoft, Federle said. But he added that if Oracle buys the two companies and then eliminates OneWorld XE functions that are specific to the construction industry, he will stick with the J.D. Edwards applications for as long as he can while looking for new software that meets his needs.

PeopleSoft's board last week voted unanimously to recommend that shareholders reject Oracle's $5.1 billion offer, saying that the takeover "would undoubtedly face lengthy antitrust scrutiny" and has "a significant likelihood" of being blocked by the government. Oracle and PeopleSoft are currently the No. 2 and No. 3 business application vendors, respectively, behind market leader SAP AG.

PeopleSoft also claimed that the unsolicited offer undervalues the company and was designed to disrupt its operations and sales momentum by creating uncertainties for users.

Meanwhile, J.D. Edwards filed lawsuits in Colorado and California state courts charging that Oracle had engaged in unfair business practices and illegally interfered with the planned merger of PeopleSoft and J.D. Edwards. "We will not sit by idly while Oracle pursues this arrogant, unlawful and destructive course of action," J.D. Edwards CEO Bob Dutkowsky said in a statement.

Oracle responded that the J.D. Edwards suits have "no merit whatsoever." It also asserted that PeopleSoft has "put the self-interest of [its] management over the best interests of PeopleSoft shareholders" by rejecting Oracle's offer.

Several J.D. Edwards users at the Quest Global 2003 conference said they have yet to fully assess what a takeover of PeopleSoft by Oracle would mean to them. "I think the only thing to do is sit back and wait," said Leah Hansen, applications manager at CanWel Distribution Ltd., a building materials distributor in Vancouver, British Columbia. "We don't know what's going to happen."

BUSINESS AS USUAL

At Quest: J.D. Edwards outlines a series of enhancements to its applications:
Quickl.ink 39144

At Sapphire: SAP readies upgrades, woos PeopleSoft and J.D. Edwards users:
Quickl.ink 39172
www.computerworld.com

> **Craig Conway said our offer is designed to disrupt PeopleSoft's strong momentum in the market. I'm not sure how [software sales dropping 39%] is strong momentum.**
>
> LARRY ELLISON, CEO, ORACLE CORP.

> **PeopleSoft was targeted for a hostile bid exactly because we have stronger products [than Oracle].**
>
> CRAIG CONWAY, CEO, PEOPLESOFT INC.

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FRANK HAYES ■ FRANKLY SPEAKING

A Virus Checklist

BUGBEAR. KLEZ. SOBIG — that's the one that appears to come from Microsoft.com. This summer, the virus hits just keep coming. It's as if, for the past month, the virus world has been softening us up for Microsoft's announcement last week that it's getting into the antivirus business.

Will Microsoft's arrival really help? Probably not. Antivirus subscriptions make for a steady revenue stream, and Microsoft is big on steady revenue streams these days. But the company isn't likely to add much new in the line of virus-protection technology.

Besides, except for software security holes, the real virus problem today isn't about technology. It's about people.

People who get sucked in by interesting e-mail subject lines. People who click to open mystery attachments. People who visit Web sites or download files that they shouldn't. People who work their way around firewalls and virus shields. And yes, people who fail to keep firewalls and virus shields maintained.

Virus writers use "social engineering" — clever psychological tricks — to help their payloads get through. They leverage human curiosity, vanity, fear and foolishness to defeat even the best antivirus technology.

You've got the technology you need. Now, in this long, hot summer of virus attacks, it's the perfect time to make sure you have a handle on the people part of the problem, too.

■ Start by making sure antivirus software is actually running on all your PCs. You probably can't afford a machine-by-machine sweep right now. But make sure every time a support tech touches a PC, that tech checks its antivirus logs, confirms that virus scans and definition downloads are running on schedule, and verifies that settings are correct.

■ Remember, users are clever. If antivirus software gets in the way, they'll turn it off or work around it — and then tell they're co-workers how they did it. So if you spot a problem machine with scans turned off or settings changed, there's a good chance that nearby PCs will be that way too.

■ Keep track of your biggest problem users — both the clever ones who change settings and the dumb ones who open every attachment. Talk with them. Explain the problem. Ask why they break the rules. They may show you legitimate issues that you can help with. You may persuade them to play it safer. In any case, you'll want to recheck their PCs often.

■ Leverage news reports about virus outbreaks. When you see one, send a short message to your users — say, six or eight lines — telling them that "CNN is reporting" or "the local newspaper has a story" about the virus. Remind them once again to be careful about e-mail attachments, downloaded files and unfamiliar Web sites. Give them a few details, but be sure to keep it brief. It's really just reinforcement, not a full explanation, and users have short attention spans.

■ Go hunting for the ways users find to circumvent your antivirus systems. Home computers that connect to company systems, Web mail, unauthorized modems and wireless hubs, and nonstandard Internet applications are the usual culprits. But don't limit yourself to that short list. Remember, users are creative — and they may think what they're doing is safe because you've never told them not to do it.

■ Finally, do a little social engineering of your own. Practice looking alarmed in a mirror, then trot that expression out when you discover dangerous user habits. Express concern about the work they'll lose, not just the safety of your systems. Say "We need to be careful," not just "Don't ever do that!" Tell them their ways around the firewall are clever, but very dangerous. Flatter them, cajole them, guilt them — but convince them.

If that sounds a little silly, well, maybe it is. But it's no sillier than waiting for Microsoft to save you from Sobig, Bugbear and Klez. ◗

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9:00am to 9:30am	**Industry Update** **Evaluating Your IT Sourcing Options** Bart Perkins, Managing Partner, Leverage Partners (an IT consultancy)
9:30am to 10:00am	**Business Case Study** Rick Hamilton, CTO, DFS Group Ltd.
10:00am to 10:30am	Refreshment Break
10:30am to 11:30am	**Outsourcing Strategies** **Leadership Strategies in Offshore Outsourcing** Moderator: Maryfran Johnson, Editor in Chief, Computerworld Panelists: ■ Marty Chuck, CIO, Agilent Technologies ■ Rick Hamilton, CTO, DFS Group Ltd. ■ Jerry McElhatton, Senior EVP of Global Technology and Operations, MasterCard International ■ Greg Schueman, Vice President and CTO, Mercury Insurance Group
11:30am to Noon	Open Forum

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VANCE BOVENBARGER

Learns that setting BPM priorities "is a challenge."

Tools FOR Tough Times

BPM **Customers say that business-process management software can pay for itself in a year or two by making better use of underperforming ERP systems. Page 27**

What went wrong with the business-process reengineering fad of the '90s? And will it come back?

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PeopleSoft Offers Refunds In Event of Oracle Takeover

Apps vendor seeks to keep customers from delaying purchases following rival's hostile bid

BY MARC L. SONGINI

PeopleSoft Inc. has begun promising to pay refunds to some new or upgrading customers if it's acquired and the products they purchased are discontinued, sources said last week.

And on June 9, the same day that Oracle Corp. launched its hostile bid to buy it, PeopleSoft sent a letter to a potential customer that included a contractual offer to pay the user twice the cost of its software licenses. According to the letter, which was obtained by *Computerworld*, the payment would be triggered should PeopleSoft be bought within a year and if within two years the new owner drops the purchased applications or sets plans to stop supporting them.

The refund strategy is seen as an attempt by Pleasanton, Calif.-based PeopleSoft to keep concerned users from delaying software purchases because of Oracle's hostile bid. It could also serve as a "poison pill" takeover deterrent.

The takeover battle intensified last week, as Oracle upped its offer to $6.3 billion, and PeopleSoft and J.D. Edwards & Co. amended their merger agreement in an effort to speed up that deal.

The identity of the user that received the June 9 letter was shielded from *Computerworld*. PeopleSoft declined to comment about the letter and said it doesn't publicly discuss customer contracts. But a spokes-

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IDS Criticisms Kindle Debate

Intrusion detection is more trouble than it's worth, Gartner says

BY JAIKUMAR VIJAYAN

A Gartner Inc. report that called intrusion-detection systems a failed technology that isn't cost-effective evoked fervent reactions last week from users, vendors and analysts on both sides of the argument.

Some concurred with Gartner's position, saying IDSs are difficult to manage and generate far more data than is useful.

"I couldn't agree more," said Eric Beasley, network administrator at Baker Hill Corp., an application service provider in Carmel, Ind., that replaced its IDS with a Web application firewall. "IDS did little to increase our overall security," he said. "All I got was information overload."

Others said that despite the problems, it's premature to completely write off IDS technology.

"I think that broadly describing IDS as a market failure because of product shortcomings is a bit alarmist," said Eric Goldreich, manager of technology at Latham & Watkins LLP, a law firm with 1,500 attorneys in Los Angeles. "The

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N/MCI Security Doubts Persist

Users, Navy officials and EDS's partners still raising concerns

NATIONAL SECURITY

BY DAN VERTON
NEW ORLEANS

The need for a more secure network infrastructure was one of the driving forces behind the U.S. Navy's quest to build the $6.9 billion Navy/Marine Corps Intranet. But with only a few months left before the majority of N/MCI seats are deployed, questions and concerns about security remain.

During the Navy/Marine Corps Intranet Industry Symposium here last week, officials from both the Navy and its prime contractor, Electronic Data Systems Corp., touted N/MCI as "the most secure network in the Department of

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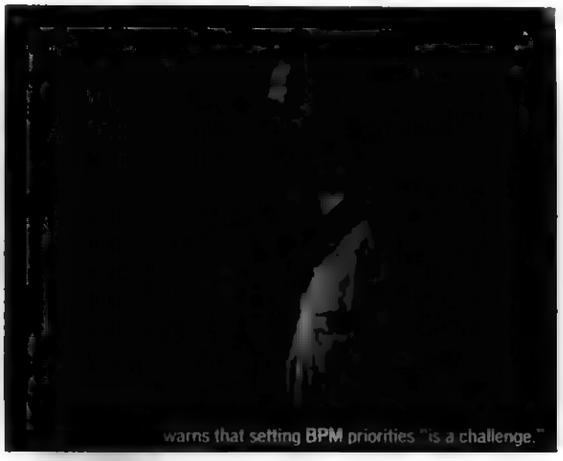

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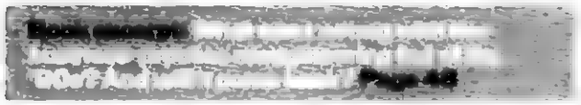
Tools FOR Tough Times

BPM **Customers say that business-process management software can pay for itself in a year or two by making better use of underperforming ERP systems. Page 27**



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KEY DEVELOPMENTS

ORACLE: raised its unsolicited offer for PeopleSoft to $6.3 billion in cash – a 24% increase over the original bid. It was rejected Friday.

PEOPLESOFT: began a tender offer for J.D. Edwards stock after both companies modified their merger deal.

UPDATED COVERAGE

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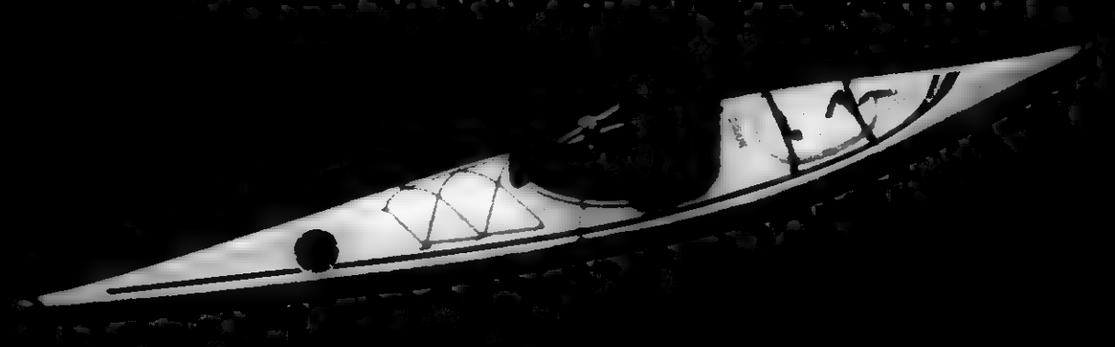
Brain triggers rush of endorphins to help prevent panic.



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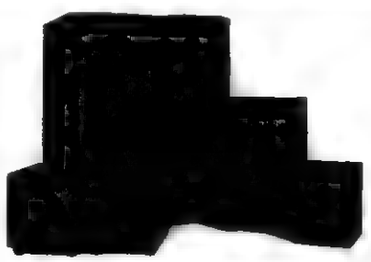

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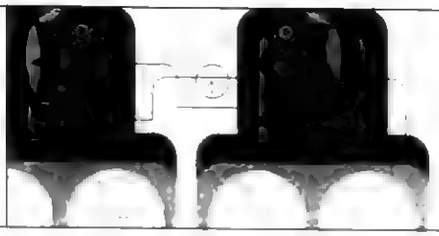

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MANAGEMENT: Yes, investments in privacy can pay off in the long run for companies in privacy-sensitive markets, writes columnist Jay Cline. He also provides a chart for figuring out if you engage in privacy-sensitive commerce. QuickLink 38236

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AT DEADLINE

Key3Media Emerges From Chapter 11

Key3Media Group Inc. in Los Angeles, producer of the Comdex and NetWorld+Interop trade shows, last week said it has emerged from Chapter 11 bankruptcy as a private company. The new company, to be called Media-Live International Inc., will relocate this summer to San Francisco. The company said it reduced its debt by 87% and related annual interest expenses by 91%.

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Runners of a new type of Trojan horse program were confirmed last week. The program, known variously as "Trojan 55808" and "Stumbler," targets computers running Linux and must be installed manually. Once installed, the Trojan horse runs quietly in the background and acts as a distributed port scanner, randomly searching the Internet for machines with valid IP addresses and open ports.

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Users applaud HP rollout but doubt that vision will become reality any time soon

BY MATT HAMBLEN
CHICAGO

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Attendees liked the message, but they're not holding their breaths.

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"Obviously we aren't there, but we're closer. And this [adaptive management ability] is more achievable than you think," said Laura Koetzle, an analyst at Forrester Research Inc. in Cambridge, Mass. Still, Koetzle predicted that it will be 10 to 15 years before such software is able to satisfy business and IT managers alike.

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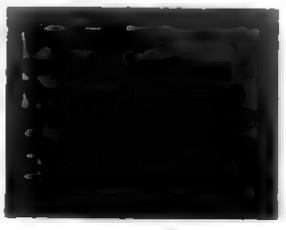

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Radio-frequency trial follows Wal-Mart's embrace of technology in retail industry

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RFID has to wait for "some killer apps" to become a reality before it can be widely used, said Deepak Shetty, an analyst at Frost & Sullivan Inc. in San Jose. Delta's test and Wal-Mart's embrace of the technology may be the catalysts it needs, he added.

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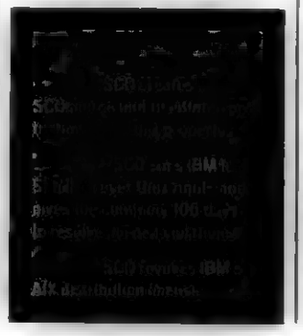

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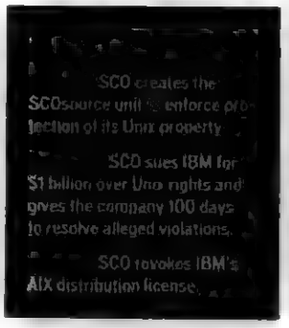

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BRIEFS

EDS Plans Cuts, Internal Changes

Electronic Data Systems Corp. said it will lay off 2% of its workers and restructure its IT outsourcing operations as part of a bid to revive its fortunes. About 2,800 of Plano, Texas-based EDS's 138,000 employees will be let go. EDS also said it plans to unify its various outsourcing sales, service and product delivery teams under a single global organization.

West Virginia Ends Microsoft Appeal

West Virginia's attorney general said the state is dropping its appeal of the antitrust settlement between Microsoft Corp. and the U.S. Department of Justice as part of a deal in which the company will pay up to $21 million in cash and product vouchers. The agreement leaves Massachusetts as the lone state opposing the settlement of the government's antitrust case against Microsoft.

Microsoft Stops Mac Browser Work

In other Microsoft news, the company said it will stop developing new versions of its Internet Explorer Web browser for Apple Computer Inc.'s Macintosh systems. Microsoft plans to continue upgrading the Macintosh versions of its Office and Virtual PC products. But it said that IE will be offered only within Windows and that Apple's Safari browser is sufficient to meet the needs of Macintosh users.

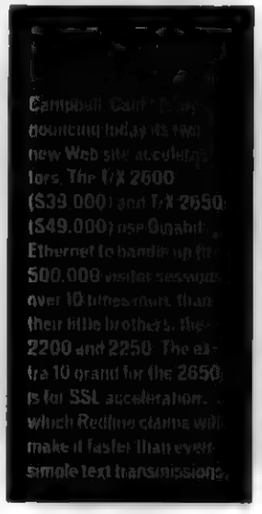
Short Takes

WORLDCOM INC. announced an IP virtual private network service that's designed to securely connect mobile and remote workers to corporate networks. . . . FUJITSU PC CORP. in Santa Clara, Calif., said it has signed a deal that lets SIEMENS AG resell its products in North America.

MARK HALL ■ ON THE MARK

Open-Source Management Is Achilles' Heel . . .

. . . for large-scale programming projects. That would be the opinion you'd expect to hear from the proprietary gang in Redmond, Wash., not from **open-source advocates and board stewards of Eclipse,** the open-source framework for application developers. But that's the case. The problem is that Eclipse lets programmers easily obtain and use any plug-in they fancy. That may be cool for the coder, but it's uncool for the corporate IT manager who wants to maintain a semblance of control over a project. "Which plug-in do you use? Which one do you standardize on?" asks George Paolini, a vice president at Borland Software Corp. in Scotts Valley, Calif. **Using Eclipse and freebie plug-ins** may sound like a cheap way to get a program out the door, but Tony de la Lama, another Borland VP, worries that, "The problem is not the cost — it's the TCO," especially for large-scale projects that demand effective oversight. Borland, which has a seat on the Eclipse board of stewards and ships its products to be Eclipse plug-ins, argues that users of open-source development tools need tight integration and management. Letting programmers grab whatever they think they need and add it to their coding arsenals is a **big mistake.** Even IBM, which launched the open-source Eclipse effort and pushes it harder than most companies, sees its limits. "I agree with the assertion that larger development projects and teams benefit from higher-value integration," says Bernie Spang, IBM's marketing director for WebSphere Studio. Spang recollects that a few IBM customers who use Eclipse plug-ins have asked for that kind of management tool. ■ Corporate developers wary of or **indifferent to the open-source bandwagon** next week can get their hands on Borland's Enterprise Studio for Java 6. It will include new versions of JBuilder and Optimizeit as well as beefed-up capabilities in the areas of design, development, testing, deployment and integration. And if you happen to work in the SAP AG world, Borland's real-time collaboration tool, Together, will ship in August as an SAP xApp. ■ As part of SAP's deal with MySQL AB in Uppsala, Sweden, to replace SAP's proprietary database with MySQL [QuickLink 38764], the two companies agreed **to give the SAP version an updated name.** The new moniker will be unveiled at LinuxWorld this August in San Francisco. ■ Tracy Wilk is suffering from déjà vu. The vice president for product management at CyberSource Corp. in Mountain View, Calif., claims that in the past six months, online retailers have been pressing his B2C payment-management software firm to deliver an international version of its application. "That talk had evaporated after the Internet bubble burst a few years ago," Wilk says. CyberSource boasts that **$1 of every $8 spent online in the U.S.** gets processed through its software. But given that Gartner Inc.'s researchers are forecasting that Europeans will surpass Americans as Internet spendthrifts in Q4 this year, U.S. retailers want a chance to take those **euros, pounds, kroner and whatever else can be lifted** from the virtual wallets of European citizens. So this Wednesday, CyberSource will announce its Global Payment Suite. The product handles multiple payment types popular in Europe, such as bank transfers and postal checks, which is vital to a region that uses credit cards for only 37% of its noncash purchases. The software can also perform dynamic currency conversion, which helps protect merchants from global currency fluctuations. ■ On Tuesday, Women in Technology International will recognize four women for their outstanding achievements in IT. WITI, a professional organization with headquarters in Encino, Calif., will induct four women into its Hall of Fame: Chieko Asakawa, who runs accessibility software R&D for the visually impaired at IBM's Tokyo research lab; Wanda Gass, a **digital signal processing wizard (um, make that sorceress)** for Texas Instruments Inc.; Kristina Johnson, an optics and display expert in Duke University's School of Engineering; and Shirley McCarty at Shamrock Consulting, a legend in the aerospace development community. Congrats, ladies.



Microsoft Releases Upgraded Mobile OS

BY BOB BREWIN

Microsoft Corp. today will officially unveil an upgraded version of its Pocket PC mobile operating system that's designed to provide users with improved support for accessing Wi-Fi wireless LANs.

Ed Suwanjindar, product manager for Microsoft's mobile computing division, said Pocket PC 2003 — which is being renamed Windows Mobile 2003 — includes a new network connection manager that can be used to set up WLAN access with "zero configuration."

The upgrade also has a revamped mobile information server that should resolve synchronization problems users experienced when trying to update their e-mail directories with earlier versions of the software, Suwanjindar said.

Michael Murphy, director of information systems support services at the Carlson Hotels division of Carlson Companies Inc. in Plymouth, Minn., said he has deployed 200 Pocket PC devices for use by business managers and his IT team. He described the task of setting up WLAN connections with older releases as "a challenge."

But Sam Bhavnani, an analyst at ARS Inc. in La Jolla, Calif., said that despite improvements in Pocket PC hardware and software, Microsoft rival Palm Inc. still offers buyers of handheld devices something they can't find in any Pocket PC model: a built-in keyboard that uses the traditional QWERTY design.

Dell Computer Corp. said it will wait until later this year to introduce new Pocket PC hardware. Hewlett-Packard Co. today plans to announce three Pocket PC models priced from $299 to $649, and Gateway Inc. in Poway, Calif., said it will release its first Pocket PC device in July, priced at about $300.

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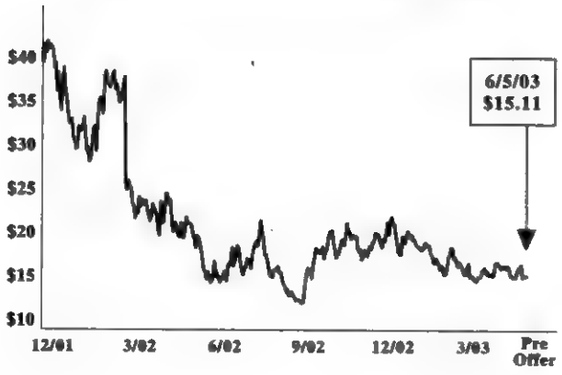
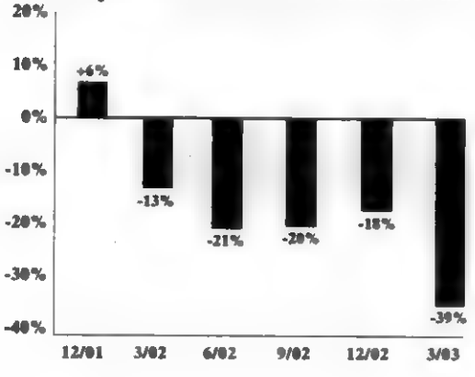


PeopleSoft New License Revenue Growth



No Wonder They Don't Want You to Vote

ORACLE

The solicitation and the offer to buy PeopleSoft's common stock is only made pursuant to the offer to purchase and related materials that Oracle Corporation and Pepper Acquisition Corp. filed on June 9, 2003. Stockholders should read the offer to purchase and related materials carefully because they contain important information, including the terms and conditions of the offer. Stockholders can obtain the offer to purchase and related materials free of the SEC's website at www.sec.gov, from Credit Suisse First Boston, LLC, the dealer manager for the offer, from Mackenzie Partners, the information agent for the offer, or from Oracle Corporation.

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BRIEFS

Open-Source Lab Hires Linus Torvalds

The Open Source Development Lab in Beaverton, Ore., said it has hired Linus Torvalds, the creator of Linux, as a full-time employee. Torvalds will be a fellow at the lab and "work exclusively on leading the development of Linux," the nonprofit, multivendor consortium announced. Torvalds previously was a fellow at Transmeta Corp., a microprocessor vendor in Santa Clara, Calif.

Hacker Leaks CERT Vulnerability Info

The CERT Coordination Center at Carnegie Mellon University in Pittsburgh was hit by another leak of confidential vulnerability information, following a flurry of such leaks in March. The latest incident involves a flaw in PDF readers for Unix systems, according to a report posted to a discussion list by a hacker using the name "hack4life." CERT officials wouldn't comment about the vulnerability.

SSA Global Buys E-Commerce Firm

Business applications vendor SSA Global Technologies Inc. said it has bought Ironside Technologies Inc., a Pleasanton, Calif.-based developer of e-commerce software. The deal came two weeks after Baan International BV said that as part of its buyout deal with its former parent, it will merge with Chicago-based SSA [QuickLink 39987].

Short Takes

NEC Corp.'s NEC SOLUTIONS (AMERICA) INC. unit in Sacramento, Calif., announced a set of IT services for midsize companies. . . . FRONTRANGE SOLUTIONS INC., a CRM software vendor in Colorado Springs, said it's looking for a new CEO following the resignation of top executive Patrick Bultema.

Senator's 'Extreme' Piracy Remedy Draws Criticism

Hatch later softens stance on destroying computers of unauthorized file-sharers

BY LINDA ROSENCRANCE

USERS LAST WEEK said Sen. Orrin Hatch (R-Utah) apparently failed to consider the corporate implications of his suggestion that cyberpirates should have their computers destroyed if they illegally download copyright-protected material like music and movies.

Destroying an individual's computer may not be feasible, and such an extreme remedy could pose problems for corporate users, said Pete Lindstrom, research director at Malvern, Pa.-based Spire Security LLC.

"The $64,000 question is, how do you address liability if [an employee] is illegally downloading something at work?" Lindstrom said. "The person with the deepest pockets most likely will be liable."

Lindstrom, along with an IT executive at a Maryland computer services company who asked not to be identified, said the issue might be moot, since most companies access the Internet through a series of firewalls to protect their assets.

Disaster in the Making

Other IT executives were more concerned about the prospect of legalizing such a penalty. "Depending what is on that PC, it could be very costly or even disastrous," said Mehdi Shahpar, systems manager at United Parcel Service Inc. in Mahwah, N.J.

"Those people that are downloading illegal material at work would cause a lot of problems for their companies if their machines were fried out," said Frank Webb, an IT manager at American International Group Inc., an insurance and financial services company in Jersey City, N.J.

Webb said the person doing the downloading, rather than the company that person works for, should be held responsible for his actions.

Hatch, chairman of the Senate Judiciary Committee, first brought up the idea at a June 17 hearing on copyright abuses. At the time, the committee heard from witnesses about the dangers of using peer-to-peer file-sharing services. Some users have inadvertently allowed access to their entire hard drives by other peer-to-peer users, exposing financial documents and medical data, the witnesses said.

After Hatch's proposal was criticized as "Draconian" by Sen. Patrick Leahy (D-Vt.), the ranking minority member of the Judiciary Committee, Hatch backed off a bit from his initial hard-line stance.

In a statement issued the next day, Hatch said he merely wants to push private industry to come up with solutions to unauthorized file-trading.

"I am very concerned about Internet piracy of personal and copyrighted materials, and I want to find effective solutions to these problems," Hatch said. "I do not favor extreme remedies — unless no moderate remedies can be found. I have asked interested industries to help us find those moderate remedies."

Hatch's office couldn't be reached for additional comment by deadline.

The IDG News Service contributed to this report.

> **"Depending what is on that PC, it could be very costly or even disastrous."**
>
> MEHDI SHAHPAR, SYSTEMS MANAGER, UPS

MORE THIS ISSUE
Columnist Frank Hayes calls Hatch's proposal a "bad idea." Page 62

CA Antivirus Software to Block Unwanted Downloads

Product to provide common network security interface

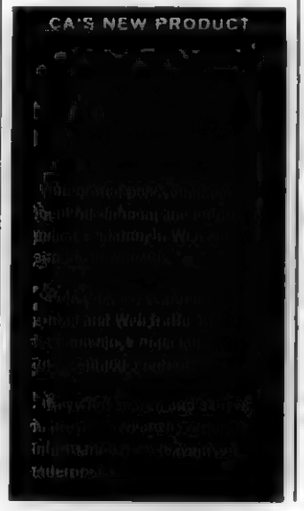
BY JAIKUMAR VIJAYAN

Computer Associates International Inc. is boosting its eTrust antivirus software with new antispam and monitoring technologies designed to enable companies to take measures such as blocking music-sharing applications and pornography from their networks.

CA last week announced plans to ship its eTrust Secure Content Management suite in October. The technology integrates functions that are typically available only as separate products, said Ron Moritz, a senior vice president at CA.

The idea is to give administrators a common interface for securing their networks against a broad range of threats stemming from viruses, spam and the nonsecure sharing of content, Moritz said.

A key feature of eTrust Secure Content Management is an integrated policy management feature that allows companies to set and enforce policies relating to the type of content that can be accessed, viewed or shared by users in an enterprise network. Another feature blocks users from sending confidential or sensitive information outside corporate networks.



The software also allows administrators to block access to certain Web sites or to prevent certain types of software — such as music-sharing applications — from being downloaded.

Such capabilities make the software attractive, said Dave Lydick, a network administrator at Sheetz Inc., a $1.2 billion convenience store chain with headquarters in Altoona, Pa. Sheetz uses CA's eTrust antivirus software and is considering testing the new features when they become available, Lydick said. Of key interest is the software's promised ability to weed out Kaaza peer-to-peer music-sharing programs from the company's networks, Lydick said.

At $55 per user, the technology is also fairly aggressively priced, said Brian Burke, an analyst at IDC in Framingham, Mass. CA's effort to integrate multiple functions into its antivirus software is similar to moves by other security products vendors, Burke said. For instance, Network Associates Inc. and Trend Micro Inc. are also moving to integrate similar antispam functions as well as message-filtering capabilities, he said.

Microsoft Entices Users to Upgrade Servers

Companies can move from standard to enterprise editions, pay only differential

BY CAROL BLIWA

Starting July 1, Microsoft Corp. will launch a promotional program that could benefit companies that want to upgrade from the standard to enterprise editions of its server software products.

Through the new Step-up License program, users who purchased Software Assurance or an Enterprise agreement for the standard edition of a Microsoft server product will be able to upgrade to the enterprise edition by paying only the price differential for the license plus Software Assurance. Under the existing system, customers must buy a new license when moving from the standard edition of a server product to the enterprise edition.

"I wish I would have heard this a month ago," said Steven Edwards, vice president and IT director at Solomon Cordwell Buenz & Associates Inc. "We just had to rebuy our licenses for [a Windows] server and for Exchange for clusters. It was expensive and painful."

Edwards said the Chicago architectural firm, which has 117 employees, wanted to run Exchange Server in a clustered environment so that if one messaging server goes down, a second will kick in within seconds. But the enterprise editions of Exchange and the Windows server operating system are required for clustering.

So the firm in late April spent $12,000 for two new Exchange and two new Windows server enterprise licenses, knowing that the purchase would render its old Software Assurance-protected Exchange Standard Edition licenses useless, Edwards said.

He said the unplanned expense also forced the firm to postpone purchasing Software Assurance on the new servers.

"If we added Software Assurance on top of that, it would have been another 50% of the [license] cost [over two years], and we were already over budget buying two of everything," he said.

Customers pay an annual fee of 25% of the volume licensing cost to get Software Assurance, which entitles them to all upgrades released during the contract time frame and some newly added free support and training options.

SOFTWARE LICENSING

Rebecca LaBrunerie, product manager of worldwide licensing and pricing at Microsoft, said the new Step-up program is intended to help customers in situations just like the one Solomon Cordwell Buenz faced.

"If the customer is off by a few weeks of when we announced that license program, I'm sure we will work with that customer to make sure that they can receive the benefits of this program," she said.

A vice president of IT procurement at a multinational media conglomerate, who asked not to be identified, said that if his company had access to the Step-up program sooner, it might have made different decisions last year when it purchased SQL Server Enterprise Edition CPU licenses for an IT project.

The cost differential between the standard and enterprise editions can be "huge," he added. He said that with his particular Select license agreement, the enterprise edition of SQL Server costs about $22,400 for a single processor license, plus three years of Software Assurance. The standard edition is about $5,600 for the license and three years of Software Assurance, he said.

Stepping Up

Microsoft's new Step-up License is available for these products:

- BizTalk Server
- Commerce Server
- Exchange Server
- Internet Security & Acceleration Server
- SQL Server
- Windows Server

The IT vice president said that when the new Step-up program takes effect, he will opt for the standard edition and pay the incremental cost for the enterprise edition license "only if we need it."

Joe Brenner, MIS manager at Sleepeck Printing Co. in Bellwood, Ill., said he likes the idea of the added flexibility.

So far, most of the company's servers run only single applications, so it hasn't seen a need for the additional features of the enterprise edition. "That may change in the future," he said.

The Step-up program is scheduled to be available only through September 2004. But Alvin Park, an analyst at Stamford, Conn.-based Gartner Inc., said he thinks that Microsoft should make the Step-up License permanent.

Park said Microsoft also should expand the Step-up License beyond server software to other products. He noted that the Step-up License essentially reinstitutes the Product Upgrade Program that Microsoft eliminated on Sept. 30, 2001.

"If customers tell us they want us to keep it permanently, we'll look at that," said LaBrunerie. She added that Microsoft will also consider extending the Step-up License to additional products.

Sybase CEO Decries SCO 'Garbage,' Oracle's Behavior

BY DON TENNANT

John Chen, CEO of Dublin, Calif.-based Sybase Inc., last week spoke with Computerworld about a range of controversial issues, including The SCO Group Inc.'s claims that Linux infringes its Unix copyrights and the security implications of offshore outsourcing. Excerpts follow:

Given that Sybase has such a strong presence in Linux shops, how concerned are you and your customers about SCO's claims?

I have had customers express concern about it. Two major customers of mine have already told me that they're going to slow down their rollouts on Linux and wait to see how this develops.

I think it's rather a shame. The Linux platform serves a segment of the market, and I hate to see this being challenged by a very established player. I think it's very unfortunate that this garbage is being thrown around. A small group of players just wants to protect the status quo.

Sybase and PeopleSoft Inc. have had a strong partnership for years. What's your take on Oracle Corp. CEO Larry Ellison's hostile takeover bid for PeopleSoft?

It certainly won't be good for Sybase, because Sybase and PeopleSoft have a Tier 1 relationship; we have an installed base of 400 to 500 customers out there, and we're trying to push into new areas like health care in China together.

Larry went public to say that [PeopleSoft CEO Craig] Conway had approached him a year ago. I don't know if it's true or not; I'm not in a position to comment on that. But the code of engagement between CEOs has certainly been violated. And I think that's a bad thing.

Earlier this month, you were elected to the board of directors of the U.S. Chamber of Commerce. What do you think the chamber's position on H-1B visas should be?

H-1B is not being fully utilized because we just don't have enough jobs in the U.S. So right now, H-1B is not the biggest threat. I'm a supporter of the H-1B visa because most of the H-1B visa holders are people we've trained in the U.S. I'd rather see the people we've trained come back to the U.S. and help boost our IT development and innovation.

The chamber probably takes the same line — let's create more jobs in the U.S., and if they need to be filled by foreign personnel, so be it. Ultimately, it helps the economy because it's innovation.

I think your readers should be more concerned about the whole outsourcing phenomenon. Because if you have so many foreigners creating code that is ultimately shipped back to the U.S., and if you have the U.S. government policy of buying off-the-shelf software, guess what's happening?

We may be unknowingly allowing backdoor traps in the code. Hackers could very well be putting in compromising code. We have to be careful, because more and more companies, by necessity, are building their code overseas.

The industry ought to come together and have some kind of standard, equivalent to an ISO standard, that we subject all of our development and code review to.

The problem with the industry is we can never agree on anything. But it's something we need to fix.

IN DEPTH

To read the full interview with Sybase's Chen, visit our Web site.

QuickLink 39291
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IT Execs Say Wireless Isn't Ready for Wide Adoption

CeBIT panelists recognize its potential but say lack of maturity still an obstacle

BY THOMAS HOFFMAN
NEW YORK

Wireless networks and technologies must become considerably more standardized and reliable before the National Association of Securities Dealers Inc. (NASD) will even consider porting key applications to mobile devices.

Martin Colburn, chief technology officer at Washington-based NASD, delivered that message at last week's CeBIT America 2003 conference here. Colburn said the wireless maturity problem has been exacerbated by the economic downturn in the telecommunications industry, resulting in an underinvestment in research and development for some next-generation wireless technologies.

Colburn was one of three CeBIT panelists who discussed the challenges surrounding business adoption of wireless systems.

NASD, which regulates the Nasdaq stock market, uses wireless handheld devices for e-mail and to distribute spreadsheet-based certification exams to its member firms. But Colburn said it likely will be at least two to three years before vendors offer industrial-strength systems that can run vital transactions.

No Economies of Scale

"When we look at total cost of ownership, we haven't seen the economies of scale and haven't seen the infrastructure there to [justify] making the investment," Colburn said.

Those issues haven't stopped Schneider National Inc. from using mobile technologies in its trucking and logistics businesses. The $2.8 billion transportation firm was ahead of the curve in 1988 when it implemented a two-way, geostationary satellite communications system to track its fleet of trucks. It was so far ahead, in fact, that Schneider was Qualcomm Inc.'s very first customer, said Paul Mueller, vice president of technology services at Green Bay, Wis.-based Schneider.

Mueller said the satellite system has helped Schneider provide its customers with better visibility of goods that are in transit. But, he added, the company has had a much harder time finding the right wireless system to help track and manage the 45,000 trailers hooked up to its trucks.

Schneider has looked at a plethora of wireless systems since 1995, including low-band satellite and cellular technologies. But each time it considered a particular technology, the vendors in question went belly-up, Mueller said.

Decision Soon

Nonetheless, Schneider expects to make a decision within the next few months on a trailer management system based on either satellite or multimode cellular access technologies. "The payback is clearly there," Mueller said. "It's just a matter of finding a technology that works for us."

Wireless Retail Inc. in Scottsdale, Ariz., sells wireless products and services through retailers, and CIO Chris McMahan said the company uses mobile technologies within its own operations to help business managers track sales.

> **"The payback is clearly there. It's just a matter of finding a technology that works for us."**
>
> **PAUL MUELLER,** VICE PRESIDENT OF TECHNOLOGY SERVICES, SCHNEIDER NATIONAL INC.

Each night, when all the stores that sell its products have closed, Wireless Retail uses a wireless system to send a snapshot of daily sales data to top executives, who receive the reports on their handheld devices and notebook PCs.

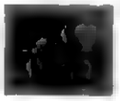
But even though wireless products are the company's lifeblood, McMahan acknowledged that Wireless Retail also faces challenges in adopting the technology more widely for business uses.

With handheld devices, "you can't send and receive e-mail easily or conduct transactions easily," he said. "I think we're still in the midst of the maturation of the market and of people becoming comfortable using them."

Securities Firms Keep IT Spending Conservative

BY LUCAS MEARIAN
NEW YORK

IT managers from Wall Street firms converged on the Securities Industry Association's (SIA) Technology Management Conference last week, many looking for better ways to make the most out of what they already have in place.



With IT budgets still constrained at many financial services firms, SIA President Marc Lackritz told conference attendees that the securities industry as a whole is no longer a bleeding-edge adopter of new technology. Most IT dollars are going toward business continuity, risk management and applications that help integrate and consolidate systems, Lackritz said.

Citing a prediction by Needham, Mass.-based TowerGroup that IT spending in the financial services industry will shrink from $23.1 billion in 2002 to $21.9 billion this year, Lackritz noted that IT executives who are investing in new projects are being careful to match them to specific business needs. "In that context, spending less may not be a bad thing," he said.

Lackritz's comments hit home with IT managers like Donald Haile, president of Fidelity Investment Systems Co., the technology division of Boston-based FMR Corp. Haile said he's trying to deal with the challenge of managing 14 mainframes, 1,500 network switches, 500-plus routers and an abundance of servers — 9,000 in three data centers.

Fidelity's IT team recently uncovered numerous redundancies in the company's core systems infrastructure and its desktop environment. Haile said he now plans to consolidate systems in order to pay for new applications that he hopes will help the IT unit boost the efficiency of its production processing operations.

One way Haile will try to reduce costs is by using Linux on blade servers that run some compute-intensive applications, a change that could lower the current server costs by at least 25%. But Haile added that he isn't ready to consider Linux for mission-critical data center applications, because the open-source operating system still needs to prove that it's robust enough.

Reducing Overhead

Amir Abouelnaga, a program manager at Northrop Grumman Corp.'s information services group, said he's exploring the possible use of technologies like XML as part of a planned data mining system that will be tied to a large number of databases containing information about the Herndon, Va.-based company's government contracts.

"We want to reduce overhead to administer contracts," Abouelnaga said, adding that he hopes Northrop Grumman workers will be able to pinpoint best practices by comparing different contracts. Currently, the various databases can't interoperate with one another, he said.

Dennis Mooradian, chairman and CEO of Minneapolis-based Wells Fargo Investments LLC, fired a volley of criticisms at IT managers during a speech at the conference and reminded attendees that technology "is not the business" of financial services firms.

Mooradian warned about the dangers of buying unproven technology. In addition, he said that he had never seen an IT project come in on time and on budget, and he recommended that, if anything, technology managers should pad estimated project costs instead of low-balling business executives. But he added that for many IT executives, it will continue to be difficult to "get money out of the CEO for projects" until the economy improves.

REGULATORY BURDENS

Requirements to archive messages and monitor customers for money laundering could lead to more IT outsourcing.

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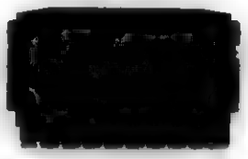

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Continued from page 1

PeopleSoft

man confirmed that PeopleSoft has initiated "a prudent response to Oracle's attempt to disrupt our business." He added that PeopleSoft is taking steps "to protect our customers' investments and our market position."

Jim Prevo, CIO at PeopleSoft user Green Mountain Coffee Roaster Inc. in Waterbury, Vt., said he has heard about such letters but hasn't seen one. Prevo described the refund provisions spelled out in the letter as "a good offer" for users.

"If I had any pending purchases with PeopleSoft, I'd move forward as a vote of confidence in the management team," Prevo said, noting that the promise of refunds would let users do so "without extraordinary financial risk."

PeopleSoft and J.D. Edwards users alike have said that they may put off software purchases until the buyout fracas is resolved [QuickLink 39178].

For example, Bruce Leidal, director of technology at Hayes Lemmerz International Inc. in Northville, Mich., last week said the uncertainties raised by Oracle's offer may affect a plan to consolidate the automotive parts maker's ERP systems.

Leidal said he sees potential benefits in PeopleSoft's plan to acquire J.D. Edwards because it would combine J.D. Edwards' manufacturing applications and PeopleSoft's human resources software. But now, he said, "maybe we ought to stand away from a selection with Oracle, PeopleSoft or J.D. Edwards." Hayes Lemmerz officials planned to meet with ERP market leader SAP AG last week, Leidal added.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif., said he's not convinced that the refund deals will persuade users to go ahead with purchases. He said license fees typically amount to only 10% to 15% of the total cost of ownership for business applications. "Everything [PeopleSoft CEO Craig Conway] does at this point can be measured by multiple yardsticks," said Greenbaum. The refund offer is at least in part meant to "thwart Oracle's efforts," he said, but its real purpose is to close deals, because PeopleSoft is desperate to make its numbers.

Oracle declined to comment about the refund offers. But it made clear that it plans to push ahead with the takeover bid, increasing its original $5.1 billion offer and filing a lawsuit against PeopleSoft, its board and J.D. Edwards. Oracle's suit is one of a flurry of legal actions involving the three vendors and a PeopleSoft user (see story, top right).

The initial purchase price that Oracle announced June 6 was widely viewed as a lowball bid. The new offer makes the proposed buyout "a viable deal," said Barton Goldenberg, a CRM software analyst at Bethesda, Md.-based consulting firm Information Systems Marketing Inc. However, he predicted that PeopleSoft stockholders will still reject it.

> **"With the raised price, it shows Oracle is in the game to win."**
>
> **VICTOR BURGESS**, VICE PRESIDENT AND GENERAL MANAGER OF ALLIANCES, AFFINA

In fact, PeopleSoft's board of directors on June 20 rejected the new offer and urged stockholders to do the same [QuickLink 39363].

Several Oracle users attending a CRM conference in Boston that was sponsored by the Digital Consulting Institute also said the higher offer gives more credence to Oracle's effort to buy PeopleSoft.

"There's a lot of talk that maybe [the takeover attempt] was just a tactic rather than a true, honest and earnest bid. With the raised price, it shows Oracle is in the game to win," said Victor Burgess, vice president and general manager of alliances at Affina, a company in Peoria, Ill., that provides customer service outsourcing. Affina uses Oracle's CRM modules and its Oracle9i application server software.

PeopleSoft and Denver-based J.D. Edwards changed their acquisition deal from an all-stock transaction to one that includes a cash payment of $863 million and a total value of $1.75 billion. That would eliminate the need for PeopleSoft's shareholders to vote on the proposed merger, which Oracle has said it would reassess if it buys PeopleSoft.

Reporter Patrick Thibodeau contributed to this story.

Connecticut Files Suit Against Oracle

Oracle Corp.'s attempt to buy PeopleSoft Inc. has begun to spawn a mushroom cloud of litigation – including an antitrust lawsuit filed against Oracle by the Connecticut state government, which is in the midst of a $100 million PeopleSoft project.

Connecticut Attorney General Richard Blumenthal filed the suit last week in U.S. District Court in Hartford, alleging that a takeover of PeopleSoft would violate state and federal antitrust laws and damage the state by causing "an enormous and expensive upheaval" of its ongoing project.

Blumenthal's action followed an announcement by Oracle that it's suing both PeopleSoft and J.D. Edwards & Co. in an attempt to stop the amended merger deal between those companies and remove a "poison pill" provision that PeopleSoft has in place to block unwanted takeovers.

PeopleSoft and J.D. Edwards previously filed separate suits against Oracle.

Connecticut's government in 2002 signed a five-year contract to convert its IT infrastructure to PeopleSoft's applications, and the new Core-CT system is due to begin its first phase of operation in July. Comptroller Nancy Wyman said in a statement that a takeover of PeopleSoft would cost the state much of what it has spent on the project and force it to buy new software from another vendor.

However, those concerns are based on an expectation that Oracle will discontinue PeopleSoft's products – something it insisted it doesn't plan to do. Oracle has said it wouldn't actively market PeopleSoft's applications to new users, but Oracle CEO Larry Ellison wrote in a letter to Connecticut officials that the software would still be sold and supported for existing customers.

Blumenthal said through a spokesman that he's willing to discuss the matter with Oracle. But, he added, "nothing we have learned so far has diminished our determination to pursue this antitrust enforcement action."

– *Marc L. Songini*

SAP Users Happy to Avoid Turmoil

ORLANDO

Some IT managers who use SAP AG's business applications said last week that they're breathing easy as they watch Oracle Corp. try to buy PeopleSoft Inc. in a takeover bid that has customers of these two vendors – and of J.D. Edwards & Co. – in temporary limbo.

"We're certainly not concerned anyone is going to come and take over [SAP] anytime soon as long as they can stay the course, and that's very good," said Gerard Rutter, vice president of information services at software vendor Adobe Systems Inc., an attendee at SAP's Sapphire '03 user conference here.

San Jose-based Adobe uses SAP's R/3 ERP applications and plans to deploy its CRM software to replace an existing installation from Siebel Systems Inc. Rutter said Adobe also is due to go live with PeopleSoft's quality management application within the next couple of months but added that he's not concerned about Oracle's bid for the Pleasanton, Calif.-based company.

"At the end of the day, if Oracle determined not to move forward with that [application], we would be OK because it's not the kind of thing we're going to change out in our business," Rutter said.

Patti Walker, CIO at Fender Musical Instruments Corp. in Scottsdale, Ariz., said the uncertainties surrounding PeopleSoft, Oracle and Denver-based J.D. Edwards make her feel even more comfortable about signing on to use SAP's applications.

Fender is slated to begin rolling out an SAP-based system in July as part of a plan to replace 20-year-old packaged applications that have been heavily customized.

Walker said Fender settled on SAP shortly before PeopleSoft announced a deal to acquire J.D. Edwards and Oracle responded by launching its unsolicited bid for PeopleSoft. "We made the choice earlier, when it was harder to decide" which business applications vendor to go with, she said.

Henning Kagermann, SAP's chairman and CEO, said during a press briefing that the company has no plans to join the buyout frenzy.

He added that even if Oracle does purchase PeopleSoft, "the combined forces are not more than half our market share, and the distance is large enough so that there is no need to adjust anything."

– *Marc L. Songini*

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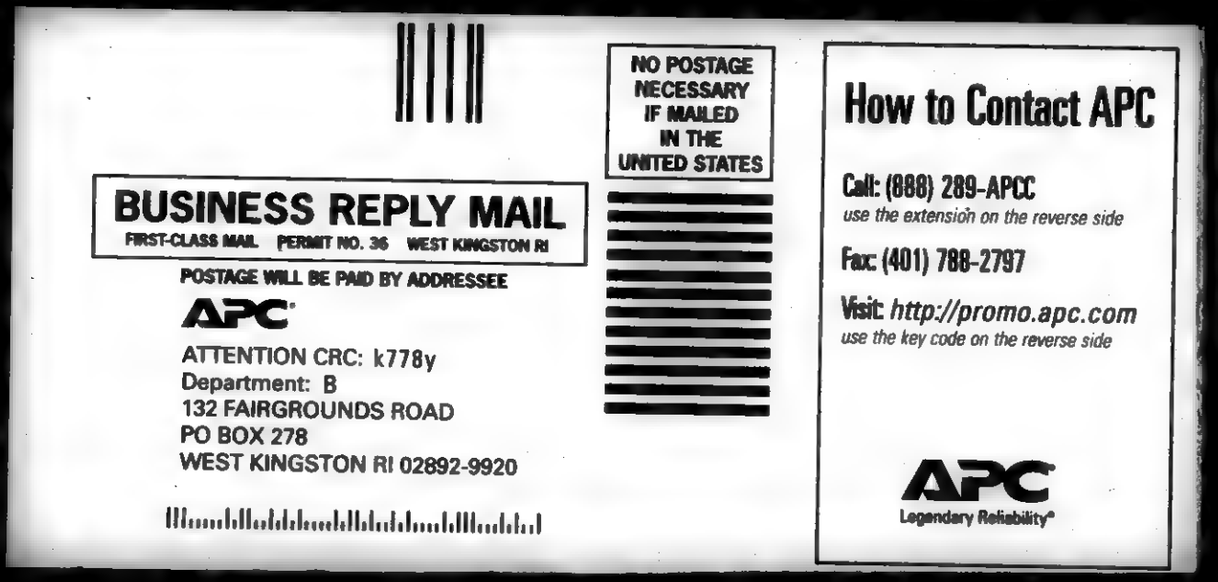

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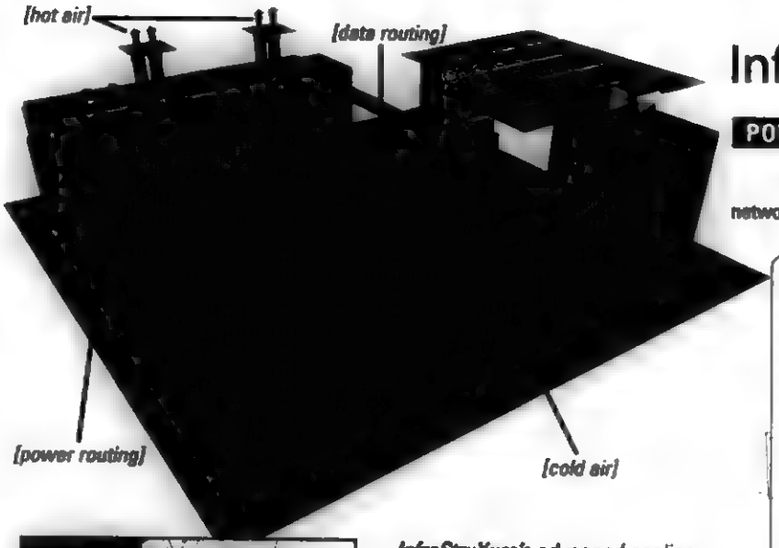

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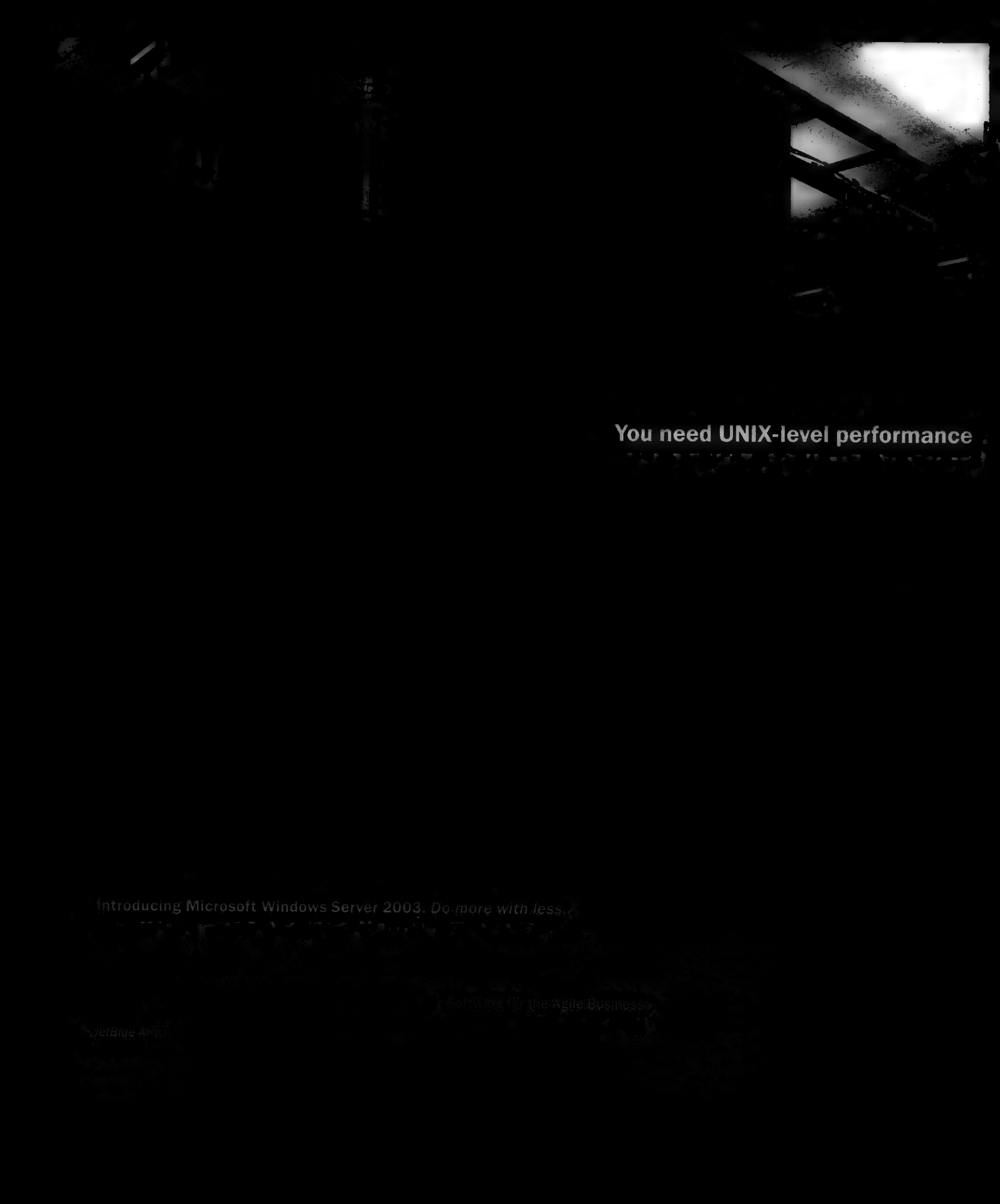
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Va. County's IT Governance Approach Helps Protect Budget

Spending to drop in new fiscal year, but work on key tech projects will continue

BY THOMAS HOFFMAN
FAIRFAX, VA

MANY STATE and local government IT departments face massive cutbacks because of the weak economy and declining tax revenue. But in Fairfax County, Va., $9 million is being set aside to continue a series of IT modernization projects in the fiscal year that starts July 1.

That's a 35% decrease from the amount earmarked for such projects two years ago, and the county's spending on IT operations has dropped by 10% as part of a belt-tightening by all departments. Nonetheless, top technology executives here said they were able to preserve the modernization budget line thanks in large part to the way the county manages its IT resources.

Fairfax County encourages both cooperation and competition among agencies that are in pursuit of IT project dollars. On the cooperation side, IT director Wanda Gibson and IT project portfolio manager David Bartee said they and other county executives look for common threads among project requests.

For instance, the Fairfax Department of Public Works and Environmental Services in the spring of 2002 proposed that a 25-year-old mainframe-based inspection-tracking system used to monitor permits for buildings, contractors, electricians and plumbers be replaced by a new one built around a Sun Solaris server and an Oracle database.

After receiving the request, a seven-member steering committee that makes strategic IT spending decisions saw an opportunity to expand the new system to agencies such as fire and rescue, planning and zoning, and health services.

"Having a single repository for project requests helps us to synchronize with other agencies on similar projects," said Stephen Garnier, who works in the county's Office of Building Code Services and is project manager for the inspection-tracking system. The first phase of the project, the rollout of a complaints management module, is due to be completed in late summer.

Garnier added, though, that the presence of the IT steering committee also forces agencies competing for funding to be "even more articulate" in communicating the expected benefits of projects.

Like many organizations, Fairfax County had highly decentralized IT spending and decision-making until the mid-1990s. The county's 55 agencies budgeted for and ran their own systems, a process that led county officials to recognize "that we needed to pull IT together," Gibson said.

In addition to creating the internal steering committee, in 1995 the county set up an IT advisory committee that includes private-sector executives and other external members (see box below).

That same year, Fairfax County merged its IT infrastructure and telecommunications groups into a centralized organization and created separate positions for a CIO and a director of IT. It also added an IT portfolio management position, the one now held by Bartee, years before many companies even considered taking that approach to evaluating their spending.

Fairfax County has "one of the best-run public-sector IT departments in the country," said David Banks, a Gartner Inc. analyst. "They have extremely sharp people, all the way from the data center on up to the top ranks."

Fairfax County's IT Governance Model

THE MODEL INCLUDES THE FOLLOWING COMPONENTS:

- An external IT advisory committee with 10 corporate executives and four other members who are appointed by different associations.
- An IT steering committee that's made up of the county's CIO, IT director, CFO and budget director, plus the county executive and two deputy county executives.
- Separate steering committees for individual IT projects, with an executive sponsor on each one.
- Monthly status reports on projects that detail how much money was spent, the IT resources that were utilized and any contractual issues.

Utility Computing Just Starting To Evolve, Sun IT Exec Says

BY CRAIG STEDMAN

*As vice president of IT operations at Sun Microsystems Inc., **Jay Littlepage** is in charge of the company's internal systems and the utility computing services it offers to corporate users. Littlepage last week spoke with* Computerworld *about utility computing from both the vendor's and users' viewpoints.*

How far along is utility computing in its development? It's not mature at all. A lot of [vendors] are trying to define utility computing as logical extensions of what they've already done. Sun is no different; we view this as a logical extension of network computing. And in large part, because the industry is in its infancy, all of us are right in the way we're defining it. In the long term, it's going to be up to customer choice.

How long do you think it will be before utility computing becomes a mainstream sort of thing? If you define "mainstream" as the majority of users looking at this as the primary way of purchasing IT, I think it's probably five years.

Have Sun and other vendors figured out how to price this yet? There's utility pricing now, but it's very coarse pricing. Our Sun Power Unit [usage measurement] is defined as 1GB of storage or a 1-GHz CPU. That's not necessarily going to be the right measurement, depending on what your particular business process is. I'm running a series of [pricing] pilot programs internally that are designed to be more reflective of the specific business processes we have. Those should lead to more refined and relevant metrics.

How long will it take to put those metrics in place? The pilots started in March. We're in the analysis stage now, and they're all designed to be completed by September. But this is a journey. We're going to learn a lot out of the four pilots, some of which will result in new utility computing products from Sun and some of which will result in new pricing models. And some are going to turn out to be really stupid ideas.

Is there going to be enough business for all the vendors that are targeting utility computing? Sure there is. This is going to be much more closely correlated with demand [for IT resources], and that's going to be great for the marketplace.

Great for users, or for vendors? Ultimately, both. It's definitely going to be great for customers, because they won't have to overbuy. But it will be great for vendors that are really in tune with the needs of their customers, too. You're going to have good long-term relationships. It's a much healthier cycle than just selling them a box.

Sun doesn't have the manpower or IT services track record that rivals like IBM and HP do. How are you going to compete against them in utility computing? We're not going to compete directly with them in the same way they're trying to address the market. Our strategy has always been to solve the needs of customers without throwing a lot of people at problems, and there's still very much of a belief [at Sun] that that's the right way to provide services. We'll also rely on partners to help us. We don't do business process re-engineering, but we have lots of friends that do.

Va. County's IT Governance Approach Helps Protect Budget

Spending to drop in new fiscal year, but work on key tech projects will continue

BY THOMAS HOFFMAN
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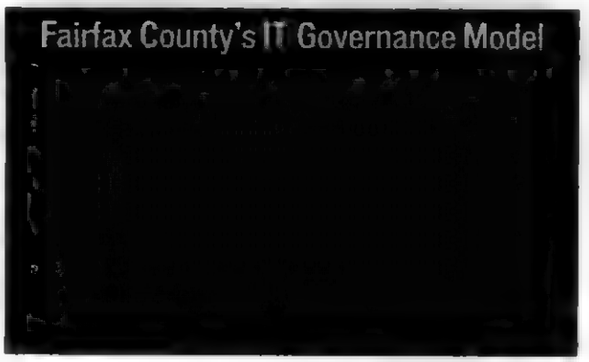

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Survey Shows Common IT Woes Persist

BY JULIA KING

It's déjà vu all over again at most companies when it comes to their track records in using IT to help achieve business goals.

Consider the following:

- At companies that aren't among the top 25% of technology users, three out of 10 IT projects fail on average.
- Less than 40% of IT managers say their staffs can react rapidly to changes in business goals or market conditions.
- Less than half of all companies bother to validate an IT project's business value after it has been completed.

Those are just a few of the findings from a survey of IT managers at about 2,000 companies, including more than 80% of the Fortune 1,000. The survey, which was conducted by The Hackett Group in Atlanta and is due to be released this week, rates the top 500 of those companies as "world-class" IT users. The rest of the pack is classified as "average."

"None of these results surprise me," said Bill Finefield, CIO at the Navy Exchange Service Command in Virginia Beach, Va. "Companies tend to build a great case for an IT project, and then they tend not to follow up to see if they achieved what they expected."

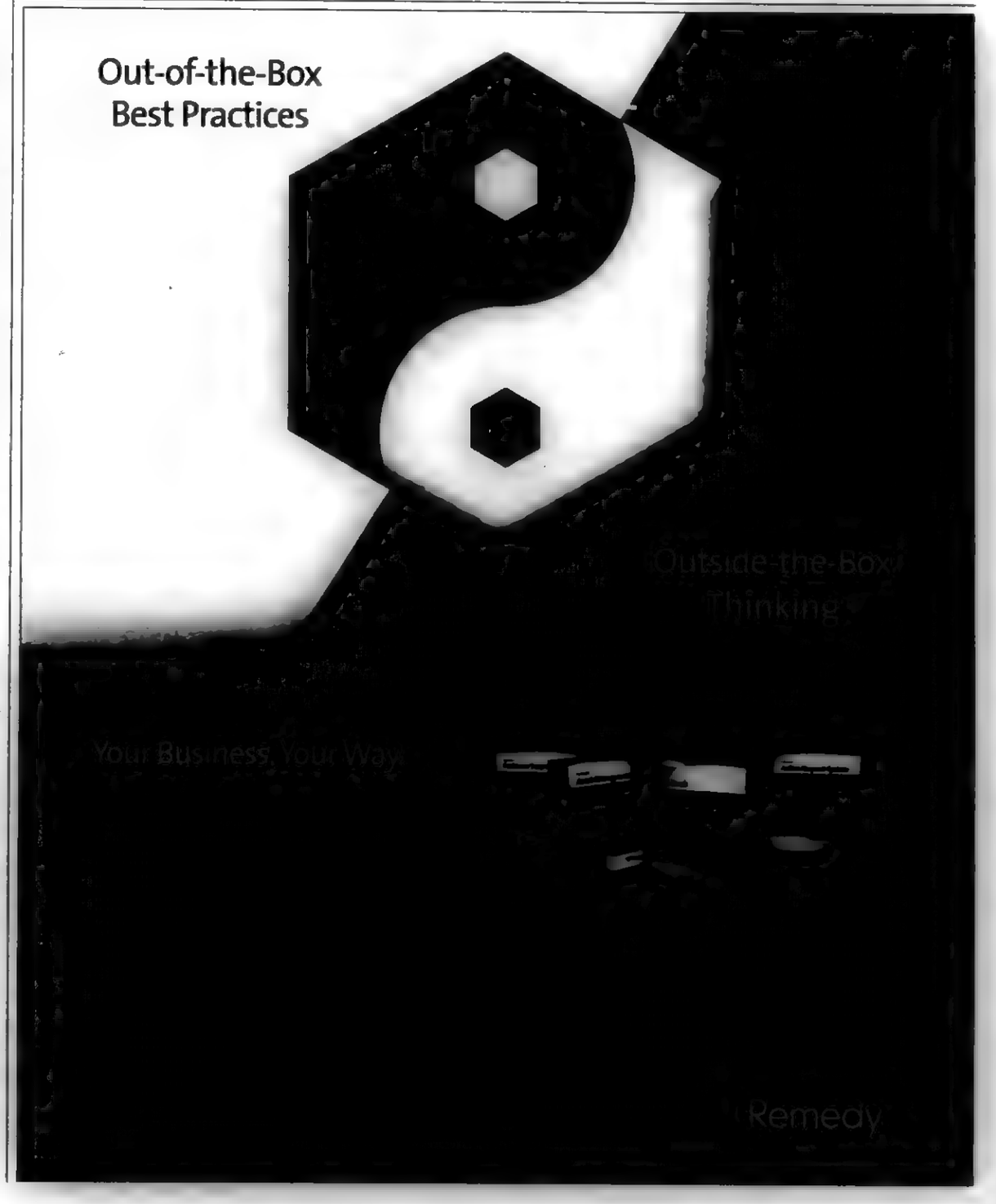
"There should be a very well-understood process around when and how IT is going to measure value," said Joyce Young, CIO at UOP LLC in Des Plaines, Ill. But equally important is how well IT communicates with business leaders, Young said. Many IT managers "don't have really strong relationships on the user side, and we have to say no a lot," she said. "Having a well-understood set of project priorities should help."

UOP, which develops process manufacturing technology for petroleum refiners and petrochemical companies, is implementing a portfolio management approach to tracking IT projects.

By far, the biggest factors separating world-class IT departments from the also-rans is their level of business alignment and the sophistication of their internal IT processes, according to Hackett analysts.

"Most IT organizations still look like a Rube Goldberg [machine]," said Allan Frank, a senior fellow at Hackett. "There's no underlying process model to them." For example, only 37% of the "average" companies have a formal IT program management office in place, he said.

Too many IT departments also lack a direct link to CEOs, Frank said. Hackett's survey found that less than one-third of CIOs report to their CEOs at businesses in the "average" category. At world-class companies, that figure is 42%.



Michele Hudnall is recognized as an authority in the business of IT operations, enterprise service management, management technologies and sourcing. Michele is ITIL-certified and holds a BBA in business management from James Madison University.

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A few minutes with Michele Hudnall, Senior Research Analyst, Meta Group

Service Desk Outsourcing

> What are the typical services delivered through a "Service Desk?" How is it different from a Help Desk?

I consider a Help Desk more of a dispatch center where employees take calls reactively as problems occur. They may have some limited capabilities to resolve problems, but Help Desk staff are generally limited to taking calls about some IT-related error and passing the information forward. In contrast, a full Service Desk receives calls from multiple methods (voice, electronic/web) and takes calls on a variety of things, such as telecom and service requests that go beyond the standard "how to" support, as well as IT-related problems. Service Desk staff are also more skilled and more empowered at problem resolution, so they can handle things on the first call more frequently.

> What are enterprises really looking for by outsourcing their Service Desk—cost saving or increased quality of service? Are their expectations typically met?

There are two facets here. The folks looking for only cost savings are generally outsourcing a Help Desk, not a Service Desk. Ironically, such companies don't usually realize the hard cost savings they want because they fail to manage the transition and monitor the outsourcer to make sure that costs remain flat or decline.

Conversely, companies that treat their Service Desks more strategically are interested in outsourcing as a method of tapping into the best practices of folks who do this for a living. They're interested in the soft savings to be realized by outsourcing like looking at the types of requests that are being made in order to prevent or eliminate such calls in the future, thus increasing productivity.

> What factors must be considered when comparing insourcing versus outsourcing Service Desk functions?

For companies considering outsourcing a Service Desk, it's critical that they benchmark their current level of service—as well as current costs—before they start an engagement. Otherwise, there's nothing to compare the outsourcer's service with. Other things to consider: The outsourcer's breadth of service offering, geographical coverage and experience level at delivering consistent, defined processes.

> When evaluating sourcing options, what are the key areas of tangible and intangible costs that must be considered?

Generally, the key indicator to consider is cost per call, because it encompasses a variety of costs, both tangible and intangible. By watching how costs per call trend over time and comparing them with Service Desk hiring patterns as well as desk activity, companies can draw a number of conclusions. For example, the biggest cost for any Help or Service Desk is people, and the challenge is to provide consistent services while keeping that cost flat. Consequently, many companies introduce automated technologies for routine services that increase efficiencies. This should be reflected in a lower cost per call.

"The Service Desk is helping the CIO make better choices."

> Service Desk is often viewed as a commodity service by the lines of business in an enterprise. Is the Service Desk actually strategic?

If a company's Service Desk is really a Help Desk, the perception is correct, but there are strategic uses of Service Desks as well. For example, if you take the wealth of data generated by a Service Desk and use it as a tool to better manage the IT organization and infrastructure, that's strategic. For example, a company who learns from their service desk data that operating problems occur as a result of an existing process, can benefit from learning what in that process should be re-engineered in that process to eliminate those concerns. The Service Desk is helping the CIO make better choices. It's strategic when you can take the data and use it to better manage the human resources in IT as well.

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Dumb Vendor Driving

IN CASE YOU HAVEN'T NOTICED, it's getting downright nasty on the information superhighway. We've got a pack of vendors careening all over the place, trying to force one another into the breakdown lane.

SCO, already tailgating Linux users and suing IBM, last week, revoked IBM's Unix license and attacked Linux icon Linus Torvalds. How's that for road rage? Microsoft, meanwhile, has ordered its crew to cut off Linux sales at any cost. Oracle is bearing down on PeopleSoft, giving rise to fears that it will crash that vendor's product line in a hostile takeover bid. In defensive maneuvers, PeopleSoft and J.D. Edwards each sued Oracle, which sued them right back, only to be sued in turn by the state of Connecticut. Rubbernecking on the sidelines are Sun, SAP and Sybase, all hoping to pick up any dazed and shaken users they find along the road.

When they haven't been ramming one another, vendors have been merging. In between trying to shake off Oracle's advances, PeopleSoft is attempting to buy J.D. Edwards. Palm bought Handspring, Mercury Interactive snapped up Kintana, Baan was sold to a group of investors, and Corel agreed to be acquired by Vector.

And just for good measure, vendors have been gunning for stricter license compliance.

Beat 'em or join 'em; it's all about new revenue streams: getting more of them, and ever more desperately driving rivals away from them.

Of course, this is what businesses do. It's called competition, and when it works, it can shake out markets, strengthen players and streamline technology choices. But out on the information superhighway, reckless displays of competitiveness and aggressive grabs for money could spook users into just pulling over and waiting things out. How many plans to buy technology from Linux suppliers, PeopleSoft or J.D. Edwards slid to the back burner this past week?

This ought to scare vendors, especially given two recent reports from Forrester Research and Meta Group that indicate that as many as 30% of North American companies plan to cut their IT spending to below their 2003 levels [QuickLink 39129].

This frenzied vendor pileup, and the ensuing marketing and legal battles, could backfire for the protagonists — specifically by adding more FUD into a market where users are already fumbling with ROI road maps and stymied by countless reasons *not* to buy. Oddly, this high-tech implosion is happening just when the stock market appears to be on a roll (relatively speaking) and we are seeing a glimmer of hope for a recovery.

Some mergers do make sense, but others are merely egocentric or financial exercises. Most are highly disruptive. Some will go down as abject failures. One thing is certain: The longer these merger battles and lawsuits rage on, the more the industry is likely to stagnate.

You'd think the 1990s would have made clear the dangers of obsessing too much over your rivals or specific technologies. There are plenty of examples where vendors spent so much time worrying about all the wrong stuff that they took wrong business turns. There was 3Com's obsession with Novell; Novell's (or substitute any vendor name here) obsession with Microsoft; Microsoft's obsession with market control; Oracle's obsession with anything it's not currently involved in. And the list goes on. Shouldn't user satisfaction be the No. 1 concern?

At this point, I have to ask: Do we really need more incentives to garage IT projects? Because the vendor community seems to be working overtime trying to create them. Even crash dummies are smarter than that.

PIMM FOX

Next Step In Affordable Security

AS MORE PEOPLE gain access to your IT infrastructure, there's growing demand to secure that access at a reasonable cost.

IP security — or IPsec — is a great security method for client/server situations. It was built to support packet exchange at the IP layer and is pretty common in virtual private networks. For IPsec to work, both the sending and receiving ends have to share a public key using management protocols that authenticate the sender while letting the receiver get a public key.

IPsec for VPNs makes sense, but what about for your intranet and the Internet?

The proliferation of Web-based technology means people can have access from home, on the road and from a variety of mobile devices. Most IT departments would be loathe to give everyone an IPsec client. They don't really want to start supporting and tweaking IPsec for everyone's machines.

Instead, there's a move to adopt SSL, the Secure Sockets Layer protocol, for transmitting documents via the Internet using public-key encryption. It provides the necessary level of security for basic functions such as Web-based e-mail, limited client/server applications (Microsoft's Exchange and Outlook, as well as Lotus Notes) and some intranet functions. And when combined with Nokia's new Secure Access System, the flexibility of SSL makes it possible to open up safe new ways of accessing corporate intranets and the Internet.

Consider four devices in which this type of security appliance can be effective in providing SSL protection: a company-issued laptop, a home machine, a handheld, and a public kiosk or public wireless network. Each can be managed to limit file upload and download capability, depending on the circumstances.

White Paper

Emerging Standards: Easing the Complexity of Managing Storage

Shelter from the Storm

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*Source: IDC's Worldwide Quarterly Server Tracker, February 2003. Based on revenue and shipment growth, CY2002, all OSs.

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Introducing the SNIA Storage Management Initiative

A letter from SNIA Board Chairperson Sheila Childs

While IT professionals understand the value that new storage technologies can contribute to ensuring the success of their business, they continue to struggle with issues of manageability, interoperability and cost that keep them from fully realizing that value. Out of necessity, the world of storage management is changing.

As the volume and value of data increase, so do the requirements to manage this data in a cost-effective way. IT professionals are no longer responsible merely for assuring the availability of enough capacity and the recovery of data from backup tapes. Administrators are now expected to enable access to information based on any number of factors — ranging from an application's need for data according to time-variable criteria, to remote replication to accommodate the repurposing of data, to recovery of an environment destroyed by severe circumstances. Storage hardware and software vendors are anxious to deliver value-added functionality to assist with these business objectives, but without tools to perform appropriate management of the storage infrastructure, customers are struggling with how to achieve their objectives.

As you'll see in the following pages, the Storage Networking Industry Association (SNIA) understands this problem and is addressing the needs of IT professionals with respect to the management of their storage environment. Good work is under way to deliver standards that will enable vendors to bring interoperable hardware and software products to market in ways that take advantage of lower-cost development practices. This will enable the development of better management tools focused on high-level functionality.

The Storage Management Initiative (SMI) detailed in this White Paper pulls together an extraordinary number of resources led by dedicated teams of engineers, product managers, marketing representatives and others, who are singularly focused on delivering a unified management interface for storage. As you read through these pages, you will see details of the SMI Specification (based on CIM/WBEM), you will learn about interoperability conformance test initiatives and you will read about strong education and support programs under way to deliver on this groundbreaking effort.

While change is difficult and success doesn't happen overnight, the efforts of the individuals and companies involved in the Storage Management Initiative are an almost certain guarantee of success. I hope these pages will generate for you the same level of excitement I feel when I envision the changes to come, as the SNIA SMI works toward the end result of interoperable, manageable storage networks delivered at a total cost of ownership that companies can live with.

We are pleased to present to you the SNIA Storage Management Initiative.

Warm Regards,

Sheila Childs
Chairperson, SNIA Board of Directors

Emerging Standards: Easing the Complexity of Managing Storage

Shelter from the Storm

The growth of information technology we are experiencing is a storm requiring IT end users and vendors alike to seek shelter in order to continue productive business ventures. The rapid rise of data storage brought on by business expansion and the growth of the Internet caused a need for storage services that was unimaginable in the early 1990s, when storage systems were directly connected to servers as "peripherals" and most eyes were focused on the need for more computing power.

The development of the storage area network to solve the explosive growth of data and the need to turn data into information through careful management have resulted in a technology that offers more efficient use of storage resources. Through a SAN, IT departments can offer shared connectivity between servers and their applications to multiple storage arrays, which makes for better utilization of resources through a superior access model.

While the storage network addresses the utilization problem, the interconnectivity of devices is limited by the ability of devices to interoperate with each other and, more importantly, to be managed efficiently. In today's world, each device requires its own management application, because until recently there has been limited cooperation between device vendors (all of which claim to be in the software management business) looking for a piece of the management marketplace.

The not-so-perfect storm

Today, system management consists of management "stovepipes" — processor-complex management, network management, database management, application management and storage management — that are minimally integrated or not integrated at all. IT departments must train administrators who are skilled in multiple independent management applications and, worse, in the interrelationships of these components.

Efficiently managing a multi-vendor storage network as an integrated fabric is a key concern for IT administrators and integrators alike. Today, the management of a multi-vendor storage network requires the use of a suite of uncoordinated applications from multiple vendors. And these applications are limited in the required functionality, distribution, security and reliability to ensure increased business efficiency.

Attempts to solve this interoperability problem through the private exchange of management application programming interfaces (APIs) have met with limited success for vendors and, moreover, have brought unpredictable results to customers trying to select management applications from multiple suppliers.

The SAN promises to make the use of storage resources more efficient, but ultimately, the high cost of management deters end users from aggressively embracing storage networking technology.

Users speak out

Ironically, in the rough seas of interoperable storage management

confusion, vendors have represented the SAN as a cloud in order to abstract the interconnectivity from the storage devices and servers the storage network served. Perhaps the cloud signaled bad weather ahead, or perhaps because of early attempts by end users to integrate SAN interconnectivity by themselves, SAN adoption rates have been commensurate with the ability of the SAN to address management issues.

"Users are voting with their requests for proposals [RFPs]," says John Webster, Senior Analyst and Founder of the Data Mobility Group. "IT administrators are now requiring standard interoperability among storage management applications as a solution to the management problem, and are doing so through the RFP process."

"Providing storage for the various business initiatives we support is an ongoing challenge, since typically we don't get much lead time on the requests for additional capacity," says Jerome Wendt, storage administrator for First Data Resources in Omaha. "Implementing a SAN to move the storage capacity more easily makes sense, yet the tools we have today to manage the complexity are lacking, causing us to proceed cautiously. With better device and applications integration, we could put more of our storage on the SAN."

The SNIA organizes storm relief

In mid-2002, the Storage Networking Industry Association (SNIA) launched the Storage Management Initiative (SMI) to create and foster the adoption of a highly functional open interface — a standard for the management of storage networks. The SMI includes activities in technical, educational, marketing, conference and interoperability groups within the SNIA. The SMI's goal is to deliver open storage network management interface technology in the form of a Storage Management Specification. SNIA members are developing this SMI Specification (SMI-S) based on CIM/WBEM technologies — the Common Information Model (CIM) and Web-Based Enterprise Management (WBEM) standards developed by the Distributed Management Task Force (DMTF). The SMI-S will standardize the communication between storage devices and management applications in the storage network.

SMI-S is the foundation for the development of products by SNIA member companies that offer end-user customers more efficient use of their storage resources through better interoperability of storage network components. This will simplify the complexity of storage management for customers and help them achieve service-level targets.

"Implementation of the Storage Management Initiative Specification as a unified management standard has the potential to radically change the way the world looks at managing computer storage technologies," says Sheila Childs, Chairperson, SNIA Board of Directors. "Storage hardware and software vendors will be able to focus more on the value-added functionality they'd like to deliver their customers, and customers will be able to recognize lower TCO derived from better interoperability and manageability of storage networks. The SNIA membership has come together in ways not seen before to deliver on both the short- and long-term goals established as part of the SMI. I believe that due to its significant resources and member commitment, the SNIA is uniquely positioned to execute on this very important initiative."

With the SMI clearly the number one priority for the SNIA in 2003, the association has received broad participation from member companies that have made major investments of resources, time and money. Development has been aggressive; the technical workgroups at SNIA presented Version 1.0 of SMI-S in April

for public review and are on schedule to make a final standard specification available to be implemented by vendors by the beginning of the third quarter of this year.

"The SNIA SMI-Specification will restructure the way the entire storage industry approaches storage management," says Roger Reich, who serves as Chairman of the SNIA SMI Committee. "Component developers will no longer have to 'push' their unique interface functionality at applications developers. Moreover, management application developers will no longer have to integrate incompatible feature-poor interfaces into their products. Instead, the industry will be better able to concentrate on developing higher order features that have maximum value addressing the management concerns for end users."

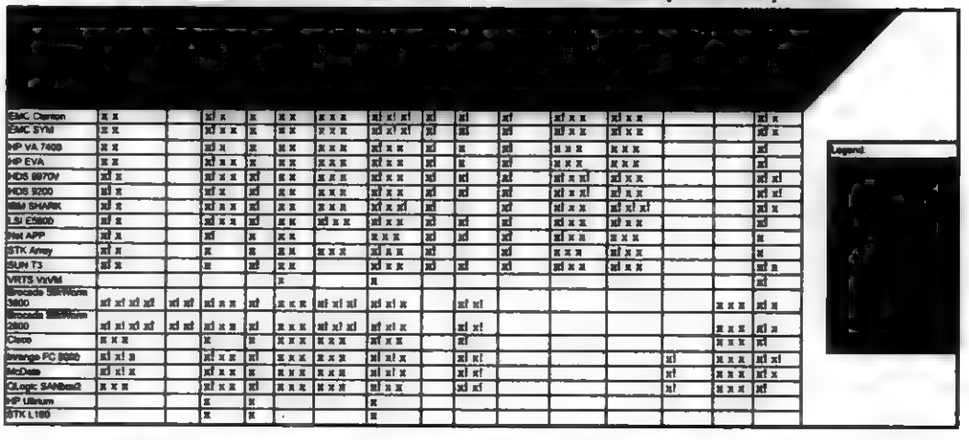
The SNIA goal for SMI-S is that all new storage networking products (arrays, switches, extenders, appliances, libraries, management software, etc.) from SNIA member companies that produce network storage clients and servers will use the SMI interface for management after 2005.

The SNIA is developing education and compliance testing programs as well as "plugfests" to assist SNIA members in creating products that conform to the specification. Through the Storage Management Forum (SMF), which is the outward facing organization coordinating all of the marketing activities for the SMI, a number of these activities are being delivered, such as collecting IT/end users' requirements and providing information to the public in support of members that use this standard in their products. In parallel with the specification development, additional important SMF-sponsored activities test and support the rich functionality of the SMI-S standardization effort.

ICTP. To avoid potential ambiguities that arise from writing to a specification, the Interoperability Conformance Testing Program (ICTP) provides SMI-S developers a verification program to validate efforts by storage vendors to develop products based on the specification standard. The ability of products to pass ICTP conformance testing will assure users that vendors are serious about management interoperability.

Figure 1

SNIA SMI-S V1.0 CIM-SAN-2 Tested Interoperability Matrix



Notes:
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Source: SNIA

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Figure 1.

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	AppIQ Solution Suite	Brocade WebTools	CA BrightStor SAN Manager	CA BrightStor Portal	Command Director	CreekPath Suite	EMC Control Center	EMC Visual SAN	Fujitsu Softek SANView	HP OpenView Storage Area Manager	Hitachi HiCommand	IBM Tivoli Storage Resource Manager	Inrange IVS/VPN Enterprise Manager	McData SANNavigator	Veritas SANPoint Control
EMC Clariion	✖ ✖		✖! ✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖' ✖!	✖!	✖!	✖!	✖! ✖ ✖	✖! ✖ ✖			✖! ✖
EMC SYM	✖ ✖		✖! ✖ ✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖' ✖!	✖!	✖!	✖!	✖! ✖ ✖	✖! ✖ ✖			✖! ✖
HP VA 7400	✖ ✖		✖! ✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖ ✖	✖!	✖	✖!	✖ ✖ ✖	✖ ✖ ✖			✖!
HP EVA	✖ ✖		✖! ✖ ✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖ ✖	✖!	✖	✖!	✖ ✖ ✖	✖ ✖ ✖			✖!
HDS 9970V	✖! ✖		✖! ✖ ✖	✖!	✖ ✖	✖ ✖ ✖	✖! ✖ ✖	✖!	✖!	✖!	✖! ✖ ✖'	✖! ✖ ✖			✖! ✖'
HDS 9200	✖! ✖		✖! ✖	✖!	✖ ✖	✖ ✖ ✖	✖! ✖ ✖	✖!	✖!	✖!	✖! ✖ ✖'	✖! ✖ ✖			✖! ✖'
IBM SHARK	✖! ✖		✖! ✖ ✖	✖!	✖ ✖	✖ ✖ ✖	✖! ✖ ✖!	✖!		✖!	✖! ✖ ✖	✖! ✖' ✖!			✖! ✖
LSI E5600	✖! ✖		✖! ✖ ✖	✖!	✖ ✖	✖! ✖ ✖	✖! ✖ ✖	✖!	✖!	✖!	✖! ✖ ✖	✖! ✖ ✖			✖!
Net APP	✖! ✖		✖!	✖	✖ ✖		✖ ✖ ✖	✖!	✖!	✖!	✖! ✖ ✖	✖ ✖ ✖			✖
STK Array	✖! ✖		✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖ ✖	✖!		✖!	✖ ✖ ✖	✖! ✖ ✖			✖
SUN T3	✖! ✖		✖	✖!	✖ ✖		✖! ✖ ✖	✖!	✖!	✖!	✖! ✖ ✖	✖! ✖ ✖			✖! ✖
VRTS VxVM					✖		✖								✖!
Brocade SilkWorm 3800	✖! ✖ ✖! ✖!	✖! ✖!	✖! ✖ ✖	✖!	✖ ✖	✖! ✖ ✖!	✖! ✖ ✖		✖! ✖					✖ ✖	✖! ✖
Brocade SilkWorm 2800	✖! ✖ ✖! ✖!	✖! ✖!	✖! ✖ ✖	✖!	✖ ✖	✖! ✖ ✖!	✖! ✖ ✖		✖! ✖					✖ ✖	✖! ✖
Cisco	✖ ✖ ✖		✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖ ✖		✖!					✖ ✖	✖!
Inrange FC 9000	✖! ✖' ✖		✖! ✖ ✖	✖!	✖ ✖	✖ ✖ ✖	✖! ✖' ✖		✖! ✖'				✖'	✖ ✖	✖! ✖'
McData	✖! ✖' ✖		✖! ✖ ✖	✖	✖ ✖	✖ ✖ ✖	✖! ✖ ✖		✖! ✖				✖'	✖ ✖	✖! ✖
QLogic SANbox2	✖ ✖ ✖		✖! ✖ ✖	✖!	✖ ✖	✖ ✖ ✖	✖! ✖ ✖		✖! ✖"				✖'	✖ ✖	✖!
HP Ultrium			✖	✖			✖								
STK L180			✖	✖			✖								

Legend
- a Switch
- a Fabric
- a Zoning
- a Zoning Config
- a Array
- a LUN Config
- a LUN Mask
- a SNIA Provider
- a LVM
- a Library
- a Tested

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Source: SNIA

The SNIA SMI Specification

SMI-S is the unifying factor between the objects that must be managed in a storage network and the tools that manage them. SMI-S is based on the Common Information Model (CIM) and Web-Based Enterprise Management (WBEM) standards. SMI-S provides the following new features:

- **A single management transport.** Within the WBEM architecture, the CIM-XML over HTTP protocol was selected for this transport in SMI-S.
- **A complete, unified and rigidly specified object model.** SMI-S defines "profiles" and "recipes" within the CIM that enable a management client to utilize a component vendor's implementation of the standard.
- **Consistent use of durable names.** As a storage network configuration evolves and is reconfigured, key resources like disk volumes must be uniquely and consistently identified over time.
- **Documented client implementation considerations.** SMI-S provides client developers information for traversing CIM classes within a device/subsystem and between devices/subsystems, so complex topologies can be mapped.
- **An automated discovery system.** SMI-S-compliant products, when introduced in a storage network, will automatically announce their presence and capabilities.
- **Resource locking.** Compliant management applications from multiple vendors can exist in the same storage network and share resources via a lock manager.

Opportunities created by SMI-S

In addition to simplifying development and testing, SMI-S creates additional usage modes for managing network storage, creating new opportunities for the storage and software industry segment:

- **Management application consistency.** By establishing a complete systems architecture for management, SMI-S provides for the ability to have multiple management applications running in the same storage network.
- **Accommodation of legacy systems.** Recognizing that full adoption will take multiple product generations, SMI-S has mechanisms for standards-based management of legacy devices. Devices and subsystems with proprietary interfaces can be integrated into an SMI-S network using software agents or CIM object managers.
- **Multi-layer resource management.** Often in large storage networks, similar services are provided at multiple levels. By instituting a common standard, SMI-S lets management applications intelligently combine these similar capabilities.
- **Policy-based management.** Because they must be applicable across entire classes of devices, SMI-S object models are higher-level abstractions than models developed for individual components. Common abstractions let developers implement policy-based management for entire storage networks.
- **Interconnect independence.** The interface specifies a protocol stack consisting of CIM-XML (object descriptions and management actions) over HTTP (session), over TCP (transport), and over IP (interconnect). The ubiquity of the lower layers of this stack makes it possible to manage components using in-band communications, out-of-band communications or both.
- **Seamless integration.** SMI-S includes procedures for device discovery, installation and initialization, making feasible the dynamic construction of large heterogeneous storage networks.
- **Secure centralized administration.** The WBEM transport specified by SMI-S provides for encryption and authentication.
- **Flexible administration authority.** The CIM on which SMI-S is based is designed for future addition of Access Control Lists, which will allow assignment of management privileges to individuals or groups that require them.

CIM SAN. The CIM SAN 2 Developers Demonstration is a six-month "laboratory" program that brings storage device manufacturers and application management vendors together in a series of face to face plugfests to test the implementation of the SMI-S interface in a real world SAN fabric (Figure 1). The CIM WBEM managed CIM SAN is the first permanent, "open" multi-vendor development and demonstration environment for accelerating the implementation of SMI-S into products. CIM SAN is a broad program designed to:

- Ease the implementation of SMI-S in vendor products
- Reduce multi-vendor integration costs (a large multi-vendor storage network is maintained at the SNIA Technology Center and available over the Internet for management application developers)
- Build seamless interoperability between products
- Provide recognition to companies that contribute to the SMI
- Forward the development of the CIM WBEM based SMI-S

The SNIA SMI-S

SMI-S is intended to be the unifying factor between the objects that must be managed in a storage network and the tools used to manage them. The goal of the Storage Management Initiative is to move the storage industry to universal adoption of SMI-S so that ultimately, all storage network components will be implemented with native self-describing interfaces.

With all components presenting a common interface, implementing management functionality will become simpler, less costly and more robust for companies that are developing SAN management and storage resource management applications. Additionally, stable management interfaces will encourage direct management of network storage resources by applications such as file systems and database managers.

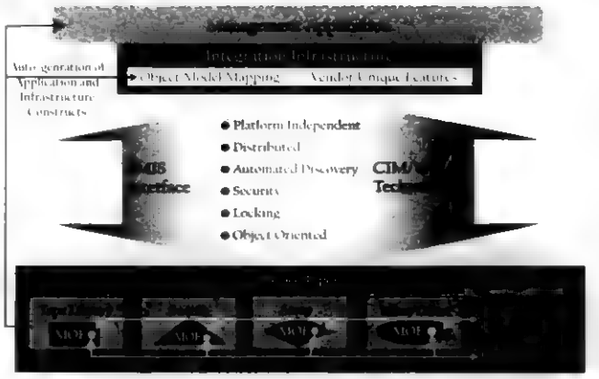
Clearing skies for storage management applications

When broadly adopted, SMI-S will solve storage management problems by replacing today's multiple disparate managed object models, protocols and transports with common models for each object class and a common protocol for management interactions. Management application developers will be able to support devices from multiple vendors quickly and reliably because they "look alike." Development and testing costs will drop, time to market will be shorter, end user satisfaction will increase, and ultimately, profitability will rise.

Figure 2 illustrates the management application environment enabled by the SMI-S using CIM WBEM technology. As the figure suggests, the SMI-S management application environment consists of a single object oriented model for each type of component in a storage network. These models define common attributes and behavior for standard features. Management actions are communicated using a single management protocol and transport that

Figure 2.

The SMI-S management application environment



Source: SNIA

CIM-SAN. The CIM-SAN-2 Developers Demonstration is a six-month "laboratory" program that brings storage device manufacturers and application management vendors together in a series of face-to-face plugfests to test the implementation of the SMI-S interface in a real-world SAN fabric (Figure 1). The CIM/WBEM-managed CIM-SAN is the first permanent, "open" multi-vendor development and demonstration environment for accelerating the implementation of SMI-S into products. CIM-SAN is a broad program designed to:

- Ease the implementation of SMI-S in vendor products.
- Reduce multi-vendor integration costs (a large multi-vendor storage network is maintained at the SNIA Technology Center and available over the Internet for management application developers).
- Build seamless interoperability between products.
- Provide recognition to companies that contribute to the SMI.
- Forward the development of the CIM/WBEM-based SMI-S.

The SNIA SMI-S

SMI-S is intended to be the unifying factor between the objects that must be managed in a storage network and the tools used to manage them. The goal of the Storage Management Initiative is to move the storage industry to universal adoption of SMI-S so that ultimately, all storage network components will be implemented with native self-describing interfaces.

With all components presenting a common interface, implementing management functionality will become simpler, less costly and more robust for companies that are developing SAN management and storage resource management applications. Additionally, stable management interfaces will encourage direct management of network storage resources by applications such as file systems and database managers.

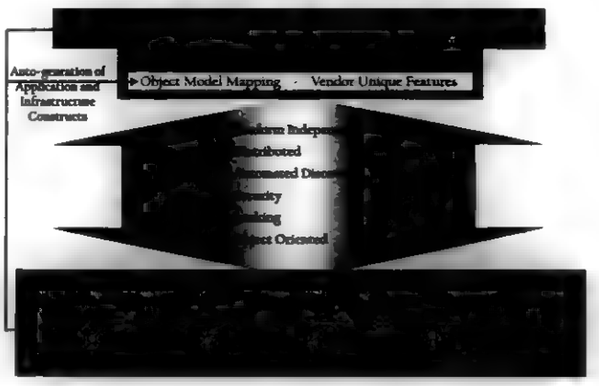
Clearing skies for storage management applications

When broadly adopted, SMI-S will solve storage management problems by replacing today's multiple disparate managed object models, protocols and transports with common models for each object class and a common protocol for management interactions. Management application developers will be able to support devices from multiple vendors quickly and reliably because they "look alike." Development and testing costs will drop; time to market will be shorter; end-user satisfaction will increase; and ultimately, profitability will rise.

Figure 2 illustrates the management application environment enabled by the SMI-S using CIM/WBEM technology. As the figure suggests, the SMI-S management application environment consists of a single object-oriented model for each type of component in a storage network. These models define common attributes and behavior for standard features. Management actions are communicated using a single management protocol and transport that

Figure 2.

The SMI-S management application environment



Source: SNIA

can be carried on any of several interconnects. Included are a uniform set of discovery, security and durable naming services. To enable multiple management applications to coexist in a network, SMI-S includes a lock manager that can be used to prevent applications' actions from interfering with each other.

The models and protocols that make up the SMI-S environment are platform-independent, which means applications can be developed for any platform, and enabling applications running on different platforms can interoperate. CIM/WBEM technology uses a powerful human- and machine-readable language called the managed object format (MOF) to precisely specify object models. Compilers can be developed to read MOF files and automatically generate data type definitions, interface stubs and GUI constructs to be inserted into management applications.

SMI-S object models are extensible. This enables easy addition of new devices and functionality to the models and allows vendor-unique extensions for added-value functionality.

A trusted solution

The result of this effort by SNIA member companies will be the development of products that offer customers more efficient use of their storage resources through better interoperability. This will ease the complexity of storage management for end users and their customers and will help them achieve service-level targets.

Figure 3 shows the results of a recent storage management requirements survey of Fortune 1000 companies by InfoPro.

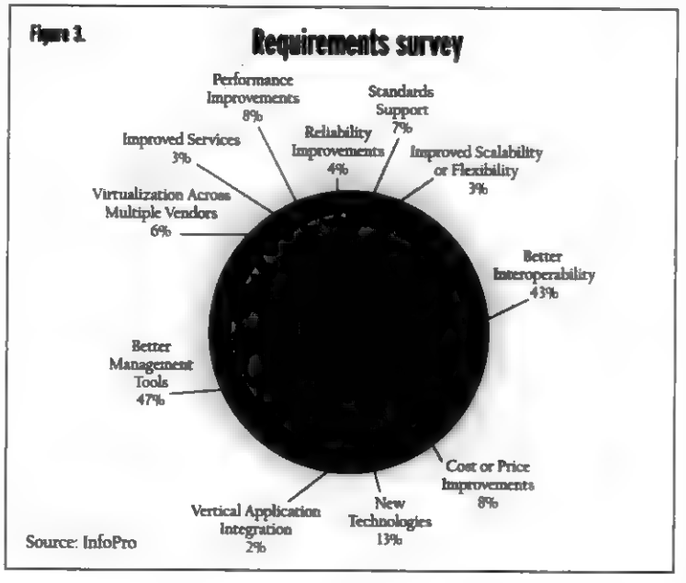
Interoperability is a key concern of end users and integrators alike. IT shops want to treat storage networks as integration backbones that insulate them from vendor lock-in.

Clearly, interoperability among storage network components supplied by multiple vendors is a key concern of end users and integrators. Users want to treat storage networks as multi-vendor integration backbones that insulate them from vendor lock-in, supplier failure and unreasonable pricing practices.

SMI-S supplies what customers need: a foundation for management interoperability, high value and cost savings. The specification delivers the ability for any conforming devices in the storage network to be discovered and controlled regardless of manufacturer. Applications utilizing SMI-S will manage a larger pool of devices supplied by virtually all industry leaders.

The results of this endeavor offer the ability to control the accelerating costs of storage management by reducing the need to have separate management products for each device in the SAN. Interoperability

Figure 3.



will change the focus of day-to-day operations from struggling with issues of device connectivity to focusing on higher order management, such as policy-based productivity.

Accelerating the pace of SMI-S development

Critics of "the standards approach" to solving storage interface problems point to the slow pace at which most standards organizations move and the ambiguity that is sometimes created when developing a specification standard. The early SNIA effort — applying CIM/WBEM technology to storage — may have fallen subject to this criticism, but with SMI, the SNIA is changing the face of the storage industry.

One factor contributing to the intensity of the SMI-S development effort is the CIM-SAN demonstration. The aggressive CIM-SAN development demonstration has evolved from a once-a-year event held at Storage Networking World in the late '90s to a reference architecture that is installed at the SNIA Technology Center and is driven by four face-to-face plugfests held during the first six months of 2003, including the public demonstration that takes place at Storage Networking World Conferences.

CIM-SAN-2 is a heterogeneous multi-million-dollar SAN fabric of devices supplied by industry vendors consisting of products that are instrumented using the latest code fragments (profiles) of the specification under development. Storage management vendors bring applications (clients) that consume CIM/WBEM providers. Lessons learned are then immediately funneled into the specification development process.

CIM-SAN-1 was held at the October 2002 Storage Networking World following two plugfests in August and September at which vendors demonstrated the ability to report on array and switch configurations, and to report on tape library and media information.

At the April 2003 Storage Networking World conference, vendors showed the next stage of development, which included all CIM-SAN-1 functionality, plus the active management functions associated with the following:

- Indications: a way for management applications to become aware of changes in the operating state of devices, such as problems with a component, temperature changes, alarms, and so forth.
- Array-volume creation: the creation of logical volumes in an array and making it available to a host.
- Array LUN masking: controlling the visibility of logical volumes to hosts (a form of security).
- Array snapshot and mirror control: creating, splitting and synchronizing snapshots and mirrors.
- Fabric topology and zoning discovery: discovering the path between hosts, switches and arrays, as well as reporting on and configuring zones.

Conclusion: A promising forecast for storage management

With a common interface, the management of network storage will become simpler and less costly. Ultimately, faced with reduced costs for management, end users will be able to adopt storage networking technology faster and build larger, more powerful solutions to address their business needs.

The storm is not over, but storage vendors are working together to address the storage device and management interoperability problem with a common standard. The SNIA SMI-S is a forecast that calmer weather is ahead, and that no matter how hard the wind blows, end users will have the tools to master their growth with confidence that storage infrastructure concerns can become subordinate to running a profitable business. That is good news in times in which clear skies are sometimes hard to predict.◆

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For example, upload capability could be restricted to machines that have current virus controls installed. Different levels of access for each location for a single user can be defined and automatically set using SSL. The security appliance, sitting behind the firewall, is rules-based, so different user groups can be configured for access. In addition, it's possible to ratchet up from 64-bit encryption to 128-bit, depending on the sensitivity of the documents or pages. Data isn't cached on the browser, so all the data remains within your security fortress. And there's a fairly easy interface with LDAP directories, making it possible to overlay access rules on top of existing rights and permissions.

Sure, IPsec is still necessary for power users accessing multiple platforms. But consider that, with no client to deploy and no VPN, SSL costs less, and because you're using standards-based technology, maintenance headaches are reduced. I'd say SSL looks good enough to complement IPsec. It's one answer to securing access at a reasonable cost.

MICHAEL GARTENBERG

Microsoft Can't Stifle Linux

CREATING an atmosphere that fosters competition is part of Microsoft's culture. Indeed, the company has long championed an us-vs.-them mentality that serves to deflect attention from its often dominant position in the marketplace while keeping internal energy high and preventing complacency.

Competitors that Microsoft has identified and rallied successfully against include AOL, Apple, IBM, Lotus, Borland, Novell, 3Com and, of course, Netscape. Recently, CEO Steve Ballmer, in a 5,600-word "leaked" memo, positioned Linux as Microsoft's enemy du jour. Is Linux really a threat to Microsoft? And how should business users react to the news that Microsoft paid SCO to settle what could have been a potential lawsuit over Linux intellectual property?

In the four main areas that concern business users — handhelds and embedded computing, desktops, low- and midrange servers, and high-end servers — Microsoft is under no immediate threat from Linux.

Microsoft controls the desktop and faces no challenges in that market.

While Microsoft isn't dominant in the handheld market, it has more to fear from Palm and Symbian than it does from Linux.

On the high end, both Microsoft and Linux face competition from traditional Unix systems. Linux is a threat to Microsoft only in the low- and midrange server market, where the technology is proven and more easily substitutable. But this alone doesn't represent enough of a threat to warrant the attention Microsoft has given Linux.

The SCO claims, however, cast a shadow over the entire open-source model of licensing software, and this model of free software, adopted by business users, is what Microsoft fears far more than Linux. Microsoft has long maintained that the GNU General Public License model is flawed, and so commercial software licenses are the best way to deliver software that offers the most customer benefit.

By settling with SCO, Microsoft deals with a former adversary and heads off another potential lawsuit. At the same time, even if not intentionally, Microsoft helps to further the fear, uncertainly and doubt that surrounds open-source software and Linux in particular.

Business users, however, need to carefully look at the events. Microsoft hasn't publicly stated that SCO's claims are valid, and SCO has yet to prove in court its claims regarding ownership of the Unix code that might be contained in Linux. Those claims are being challenged by Novell and others. The ensuing uncertainty over who owns the code has resulted in FUD about the future of the open-source operating system and an opportunity for Microsoft to extol the virtues of its license models. Business users need to be cautious about strategic Linux adoption from a legal perspective, but they shouldn't allow the legal actions to hamper longer-range technology architecture issues.

The bottom line for the industry and users is that Linux will coexist with Windows for many businesses. The value proposition of using Linux as a low-end Web or e-mail server, as well as for other traditional tasks such as file and print serving, is too alluring for many IT organizations. Likewise, the dominance of Windows at the desktop isn't likely to change. Once again, IT shops will find that they are best served by ignoring the hype and FUD on both sides. Instead, pursue a proper suitability-to-task model.

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site www.computerworld.com/columns

READERS' LETTERS

Who's to Blame

THE IT MEGAPROJECTS that crashed and burned during the 1990s often weren't proposed by IT departments and were accepted by them only with the greatest reluctance ["Credibility Challenged," QuickLink 38473]. Not untypically, a vendor or consultant would make a proposal for an IT project to someone one or two levels above IT who lacked the experience to properly evaluate the proposal. If the head of IT expressed reservations, he was simply told to shut up. A top manager who permits himself to become mesmerized by the prospect of becoming known as a patron of the technological arts and who is thereby induced to sponsor ill-conceived and badly managed IT projects is the person who should be searching for ways to repair his damaged credibility.

Loy W. Fitz
Boston, loyfitz@yahoo.com

Linux Will Prevail

IN HER EDITORIAL "Shields Up, Linux" [QuickLink 38649], Patricia Keefe said the real question is what the Linux camp will do. Well, in the unlikely event that SCO's lawsuit has any substance, I can see the Linux developer community's response already. Before the case can even reach trial, they will scour every line of Linux code and replace the offending ones with new implementations of the public specifications that are not bound by any intellectual property claims. Whatever happens, Linux will end up the winner.

Robert Honora
Port-of-Spain, Trinidad and Tobago, robert@digi-data.com

Misguided Move

I BELIEVE SCO'S MOVE is a misguided attempt on the part of its management to twist IBM's arm until it unwillingly makes a buyout offer – and I believe that they have grossly miscalculated ["Users Outraged as SCO Stakes Linux Legal Claim," QuickLink 38614]. The U.S. government once took on IBM in a legal duel that had to be abandoned – because the U.S. government ran out of money before IBM did! Does anyone really believe that SCO would be a more formidable foe than the U.S. government? I would also add, having been a Unix kernel programmer since 1973, that SCO's claim that Linux is genetically derived from Unix is not defensible. SCO will have its day in court, but it will be a short day.

Ahmad Khan
Vice president of engineering, Linuxcare Inc., San Francisco

Extinct Possibility

SOFTWARE DEVELOPMENT in the U.S. extinct by mid-2006? So predicts Jon C. Plot in the May 19 issue of *Computerworld* ["The Next Chapter," QuickLink 38055]. This revelation comes just in time. I just received my renewal notice for your magazine. It looks like I won't have to renew. That's a good thing, because I will need the money. With 10.2 million people out of work over the next three years, it will be nearly impossible to find a job.

James Bell
Charlotte, N.C.

Legislative Worries

THANKS TO PATRICIA KEEFE for yet another interesting editorial ["IT Superheroes," QuickLink 38949]. However, besides HIPAA, a discussion of legislation affecting and controlling IT operations should also include UCITA, DMCA, Super DMCA, NETAct, Title 17 of the U.S. Code and Sarbanes-Oxley. I know: Lots to cover and little space.

We at the International Association of Information Technology Asset Managers have found that the vast majority of IT personnel react to legislation in a distressingly head-in-the-ground manner, although management trusts IT to be aware of these issues and to act upon them. Only through the constant prodding of writers such as Keefe will we begin to move forward in educating the IT community regarding the need to pay attention to legislation and act to protect the enterprise.

Alan Plastow
President, IAITAM, Akron, Ohio, plastow@iaitam.org

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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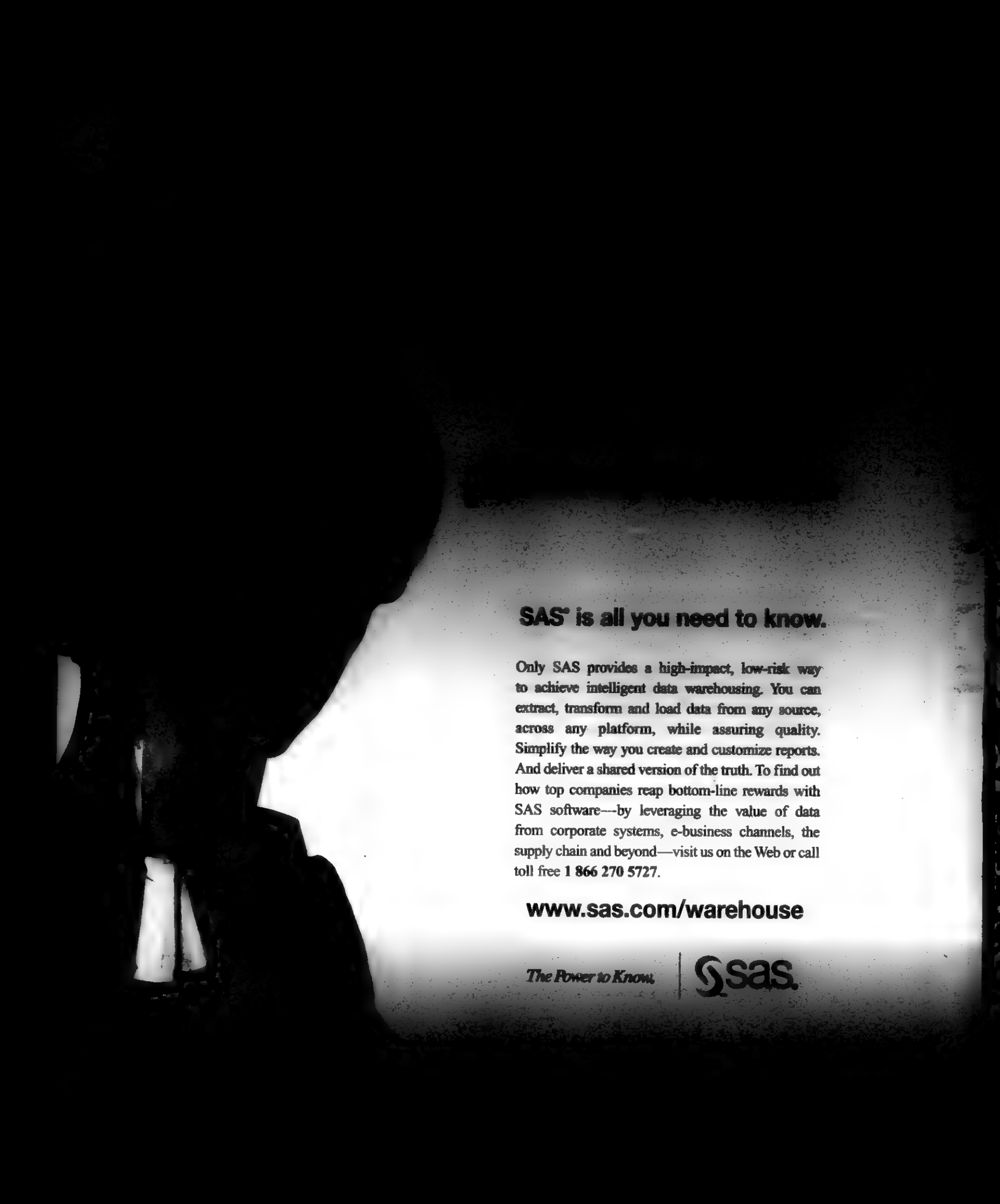
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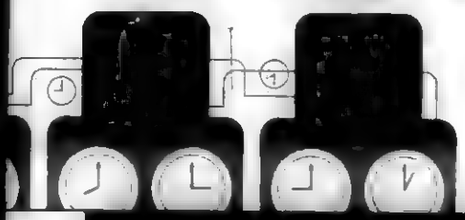
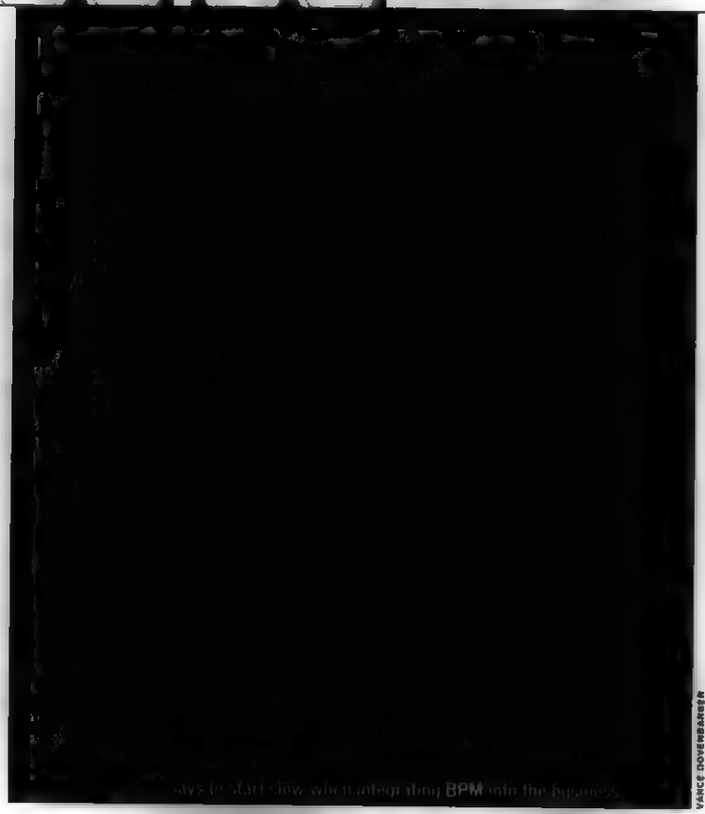


The Right Skills At the Right Time
Workforce management software combines the science of predicting call center volume and the art of scheduling staffers with the right skills for the times they'll be needed the most. **Page 36**

SECURITY MANAGER'S JOURNAL
IT Security Confronts New Legal Liabilities
New privacy laws and security threats prompt Mathias Thurman to double-check his company's liability policy, hoping to save himself from headaches later. **Page 38**

OPINION
Coping With Infoglut
Companies are being buried in unstructured data, mostly from the Internet. There's an urgent need for technologies that can help manage and use that data, says Tommy Peterson. **Page 40**



VANCE DOVENBARGER

Tools FOR Tough Times

Business-process management software aims to make better use of underperforming enterprise systems. By Robert L. Scheier

HERE'S GOOD NEWS for CIOs looking to do more with less. Business-process management (BPM) software can pay for itself within a year or two by linking expensive legacy applications to new, more streamlined workflows, customers say.

With BPM, "you can get to the point where you can see, on a second-by-second basis, what's happening in your business and where in the business are the holdups and where process improvement [is needed]," says Dean Pipes, an integration architect at The Toro Co. in Bloomington, Minn. The yard equipment manufacturer uses a BPM system based on Vitria Technology Inc.'s BusinessWare to pool its purchases from vendors to negotiate volume discounts.

Shippers are turning to BPM "to lower costs and to leverage the investment they've made in their ERP systems," says Ted Barnicoat, CIO at trucking company Trimac Corp. in Calgary, Alberta. He expects a return on his $500,000 BPM investment within two years through reduced paperwork and additional business from customers who find Trimac's BPM-based ordering system easier to use than those of competitors.

BPM requires a flexible application architecture that can accommodate new applications as needs change. It also requires a tool with the right mix of modeling, code-generation, workflow and monitoring capabilities. Veterans recommend that companies start slowly, allowing enough time to understand existing workflows and train workers to use BPM systems.

BPM is "friendlier" than implementations of other major software packages such as ERP, says analyst Eric Austvold at Boston-based AMR Research Inc. If a business process needs to be changed after it's deployed, he says, "you don't have to go back to a huge IT organization to rewrite a whole bunch of code. It's usually minor tweaks to the process model."

BPM

BPM Basics

BPM software allows customers to graphically map business processes, such as issuing or collecting a bill; transform that visual map into an application or set of applications; and manage the electronic workflow to monitor that the work gets done and allow changes to the workflow. The software is offered by a variety of vendors, ranging from makers of traditional enterprise application integration software to business application suppliers and "pure-play" BPM vendors.

Reston, Va.-based NII Holdings (formerly Nextel International) two years ago began to integrate applications such as finance and billing to eliminate the costly and error-prone practice of entering data multiple times. The wireless communications company chose Plano, Texas-based Fuego Inc.'s namesake BPM package based on the

Sample BPM Vendors

VENDOR	PRODUCT	WEB SITE
Aprisо Corp. Long Beach, Calif.	**FlexNet** – Provides very detailed process information for industrial/manufacturing customers, company says.	www.aprisо.com
Fuego Inc. Plano, Texas	**Fuego** – Has about 30 production customers; requires fewer services to implement than competitors' products, company claims.	www.fuego.com
HandySoft Corp. Vienna, Va.	**BizFlow Version 8** – Latest enhancements include support for IBM DB2 and integrated adapters for SAP, J.D. Edwards, PeopleSoft and Ariba products.	www.handysoft.com
IBM Armonk, N.Y.	**WebSphere Business Integration** – Most recent update aims to make modeling easier; includes new integration, monitoring capabilities.	www.ibm.com
Lombardi Software Inc. Austin	**TeamWorks** – Most recent upgrade includes improved Web services support; company received $13 million in funding in February.	www.lombardisoftware.com
Microsoft Corp. Redmond, Wash.	**BizTalk Server 2002** – More modeling and business-process automation being added to core integration capabilities.	www.microsoft.com
Pegasystems Inc. Cambridge, Mass.	**PegaRules Process Commander** – Built on a business rules engine, product provides process and practice rules in an integrated package, according to company.	www.pega.com
Staffware PLC Maidenhead, England	**Staffware Process Suite** – Latest version includes greater support for Web services.	www.staffware.com
Unisys Corp. Blue Bell, Pa.	**Business Blueprinting** – Designed to help industries in various vertical markets develop high-level business-process models.	www.unisys.com
Vitria Technology Inc. Sunnyvale, Calif.	**BusinessWare** – Standards-based integration platform supports BPM, business analysis and monitoring, and other functions, says Vitria.	www.vitria.com

strength of its business-process modeling and its connectivity to legacy applications, says Jorge Perez, vice president of IT and CIO at NII.

As for Trimac, it chose Vitria's BusinessWare over Microsoft Corp.'s BizTalk Server because of Sunnyvale, Calif.-based Vitria's expertise with the chemical industry's version of XML, says Barnicoat. Ironically, customer use of the older electronic data interchange (EDI) format grew instead, and Trimac plans to use Vitria to handle all of its EDI transactions.

Like other customers, Pipes says simple application integration is becoming a commodity in the BPM world. The actual reason Toro chose Vitria was for its business-process automation, reporting and workflow capabilities.

A New Way of Thinking

Thinking first about the business and not about technology can be a challenge. When Perez started to improve a payments collection process in Brazil, users immediately began talking about problems with the current collections application. After training users in business-process modeling, Perez had them map the collections process on charts that soon covered all four walls of a room. Next, they identified gaps and used Fuego to model an improved workflow that has led to a "dramatic" improvement in the process, he says.

NII also used Fuego in Mexico to improve the process of establishing service for new customers, reducing the rate of "churn" (customers switching to other carriers) "very substantially," Perez says.

"Getting managers across the divisions to agree on what information is important at what point is a challenge, because each business has a different set of criteria by which they rate their success," Pipes explains. For example, he says, "in winter, we want to know about snow throwers, and in summer, we want to know about lawn care products."

Veterans also recommend starting with relatively straightforward, quick-payback projects until IT and business managers get used to BPM. Toro first used BusinessWare to integrate and automate workflow between its Ariba procurement system and its SAP R/3 ERP system, says Pipes. It now automates the process by which stores buy spare parts from Toro. Pipes plans to tackle the biggest and most important work — integration with the distributors who buy finished products from Toro — only after completely understanding how to improve that process.

Trimac's BPM project, which began in 2001, linked its dispatch systems with its customers' order entry systems to improve customer service. Barnicoat estimates that the BPM system will pay for itself within two years. It not only saves customers about $20 per order in handling charges, but it also allows Trimac to spend less time resolving invoice questions, has reduced its accounts receivable and has resulted in more business from customers using the system. The BPM system even allows Trimac to run a virtual shipping desk to accept customer orders and arrange for shipment.

Integration and Training

Integration may not be a showstopper for BPM projects, but it can be a headache. It took Perez's staff about a year and a half of working with vendors to build links to legacy systems that allow Fuego to use the business logic (such as rules for credit checks) built into those applications. Perez also had to increase server capacity by 50% to give users the appropriate response time.

Because different users might need different types of information, some form of data warehouse is often necessary for BPM, says Pipes. "You can't expect all of your information to be available" from legacy systems in the form and at the time required by the improved workflow, he adds.

Although Trimac struggled a bit integrating Vitria with its EDI transaction flow, "what took us a heck of a lot longer was changing our dispatch system to accept electronic transactions," says Barnicoat. Dispatchers used to receiving orders by phone and fax needed visual and audio alarms to alert them to new orders arriving electronically, Barnicoat says. Developers had to include different alarms to tell dispatchers about the last-minute shipping changes common in the trucking industry and to redesign screens so the dispatchers could find the changes easily.

Intensive coaching is vital — as are reassurances that the BPM project isn't simply a way to cut jobs, says John Antaki, managing partner at Matrix5 Consulting LLC, a Houston-based consulting firm. If what end users see "is a lot of consultants running around, they get very insecure," he says.

Before extending a BPM system to customers or suppliers, Barnicoat suggests signing a contract governing issues such as testing, how to handle system crashes and notification of software upgrades that could crash a partner's system.

Once users see how BPM can improve the business, they often demand more detailed and more timely information, says Pipes. One way to avoid endless additional requests is to "define success from the get-go," says Antaki. For example, a BPM project Antaki worked on at Shell Oil Co. had a goal of reducing the cost of the monthly financial close by at least 10%.

But the need to keep tweaking is also good news, says Pipes. "If you try to hit 100%, you limit the best part of the process, which is that it can feed back on itself and improve itself."

Scheier is a freelance writer in Boylston, Mass. He can be reached at rscheier@charter.net.

CLOSER LOOK

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GETTING STARTED...

Adopting IT Portfolio Management is easier than you might think – and the returns come quickly

Portfolio Management is a hot topic. But for many IT organizations, it's hard to know how to start. With hundreds of projects to manage and resources already stretched, where will the capacity come from to implement a new layer of management? And besides, we already use Project Management – isn't this just the same thing with a fancy dashboard on the front?

While the terms Portfolio Management and Project Management are often used in the same sentence, these two disciplines differ significantly – and make very different contributions to the IT organization. Simply put, Project Management is tactical, focused on completing IT projects on time and within budget. Portfolio Management is strategic – deciding which investments to pursue in the first place.

Project Management has long been accepted as essential in any IT organization. As IT evolves from merely "supporting the business" to "being the business," and with increasing pressure on resources, the need to align IT activities with corporate objectives grows. As a result, IT Portfolio Management is now undergoing the same widespread acceptance.

"Within three months of implementing Project Office™ from Pacific Edge we were seeing results. Our managers and supervisors were able to easily see reports for milestones and resource planning at different views and for the first time we could look forward, anticipate deadlines, and look at projects from a higher level."

: Jim Parker
Energy Northwest

IT PORTFOLIO MANAGEMENT STEP BY STEP

So how does one go about implementing IT Portfolio Management? Ask any CIO who's using the technique and the answer would seem to be "it hardly matters, as long as you *do* start." The welcome news is that a pragmatic, phased approach is not only possible, but actually preferable – provided the solution chosen is flexible enough to allow for changes along the way.

The following are the key phases in IT Portfolio Management:

- **Build the IT Asset Portfolio**

First, build a picture of the organization's IT assets and projects – both existing and potential – using consistent metrics and descriptions, and in a standardized format so they can be easily compared.

For many organizations, merely creating the inventory of IT projects delivers bottom-line benefits itself. It is not uncommon to discover numerous projects duplicating efforts, or attacking related problems without exploiting the potential for synergy. Significant savings almost always result.

At the same time, an IT Project Office is established to manage all projects – intake and triage – at a portfolio level. With the portfolio in place, individual investments can be grouped into three classes (as defined

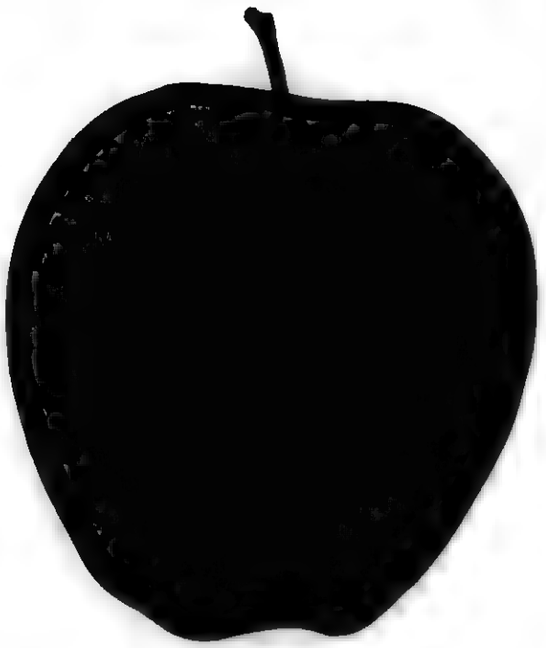
CONTINUES ON NEXT PAGE

ONLINE POLL

How do your plans and progress in adopting IT Portfolio Management compare to your peers?

How do you decide

And can you be certain you're making the right choices



Project A.

Three out of four organizations are wasting at least part of their IT budget because they don't know which initiatives matter.* They're doing things that have little real value to the business. Duplicating efforts across different teams. Spending time and money on initiatives selected by guesswork, incomplete data or politics.

With **IT Portfolio Management solutions** from Pacific Edge – a proven mix of technology, processes and services – you can be sure you're making the right choices. Our unique solution helps you make informed, objective comparisons. And smarter, better decisions.

CONTINUED FROM PREVIOUS PAGE

by Louis Boyle, Senior Vice President of Executive Directions at META Group, Inc.*):

Run-the-business investments involve keeping the business operational. Spending in this category provides mission- and business-critical services for the front office (sales order entry, customer service) and the back office (payroll, accounting, HR).

Grow-the-business investments cover expanding the organization's scope of products and services. Investments here might include upgrading software, adding incremental capacity, or developing staff member skills though additional training and other efforts.

Transform-the-business investments involve project-based spending that creates new IT services to broaden an enterprise's reach to enter new, untapped markets. Sample transform investments include new business ventures, mergers and acquisitions, new products, new geographies, major new business initiatives that typically require adding new application packages and business process outsourcing.

"CIOs that embrace IT portfolio management have exemplary records of continuous IT efficiency improvement, with some enterprises able to reduce costs by up to 30%."

: META Group, Inc.

- **Getting the Right Mix**

This Run/Grow/Transform division must of course take into account the maturity of the IT organization and its openness to risk. What one company might consider a "grow the business" project could be classed as a "run the business" project by another. A well designed Portfolio Management solution is flexible enough to accommodate such variations, and to support changes in category definitions as the organization evolves and matures.

Similarly, determining the appropriate mix of "run," "grow" and "transform" investments is a business decision that each enterprise makes for itself, and which will be constantly changing in response to business strategies and market forces. Typical portfolio mixes* are:

- Run: 65%-85%
- Grow: 10%-25%
- Transform: 5%-10%

However, setting a portfolio mix that's appropriate for the organization, and managing toward it, is more important than worrying about precise percentage allocations.

RESULTS COME QUICKLY

Since IT Portfolio Management is best implemented step-by-step, it does not create a new burden for already stretched IT resources. In many cases, the funding and resources freed up in the inventory phase alone

which one to choose?

to quickly impact your bottom line?

In about 45 days we'll help you select and prioritize the IT investments that align with your corporate goals, and offer maximum business benefit.

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One customer saved $8.7 million using IT Portfolio Management.

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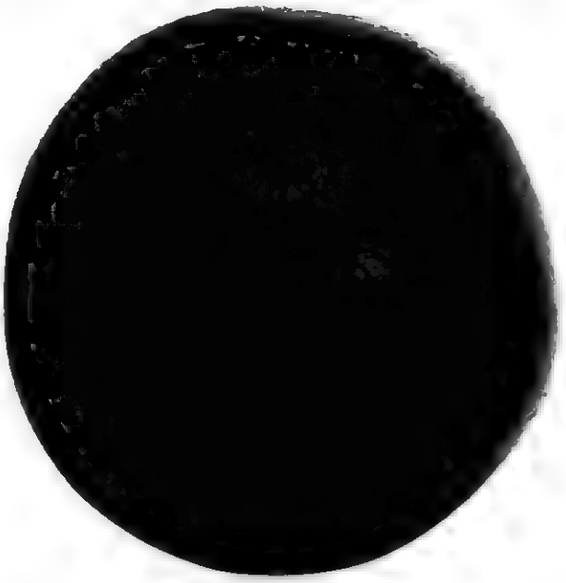

Project B.

pacificedge SOFTWARE

Portfolio Management for Smarter Business™

*AMR Research: "As much as 75% of IT organizations have little visibility of their entire project portfolio and have, at best, chaotic and non-repeatable processes in place."

deliver significant savings – creating new room for growth.

And the results come quickly. A large oilfield services company saved $8.7 million dollars by eliminating investment duplication, and improving the way projects are managed – within nine months of implementing a Portfolio Management solution from Pacific Edge Software.

Another convert to IT Portfolio Management – and also a Pacific Edge customer – Ohio-based Mercy Health Partners, cut IT costs by $4 million. And that's just for starters. James Albin, VP and CIO says that IT Portfolio Management has enabled Mercy Health to effectively utilize limited resources, better manage customer expectations, and manage high quality projects.

It's experiences like these that explain the opinion with which we began: "you just have to get started."

*Source: META Group, Inc., *Portfolio Management for CIOs*

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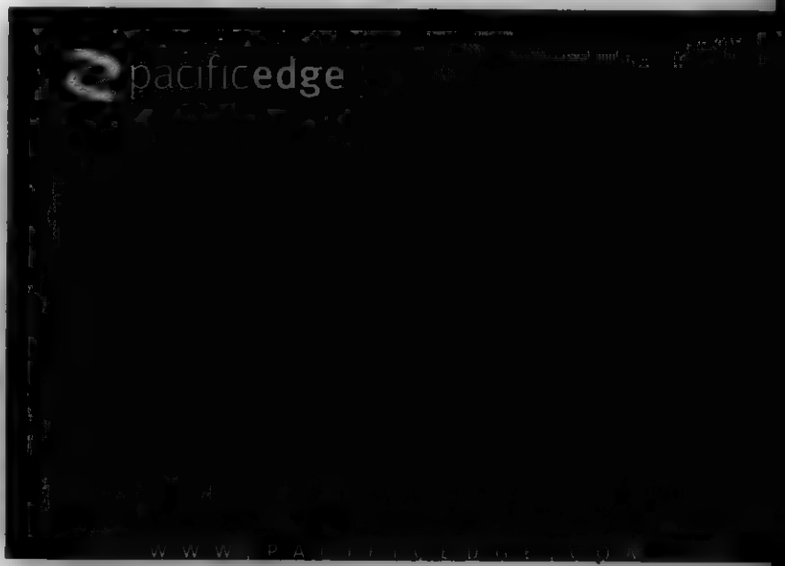

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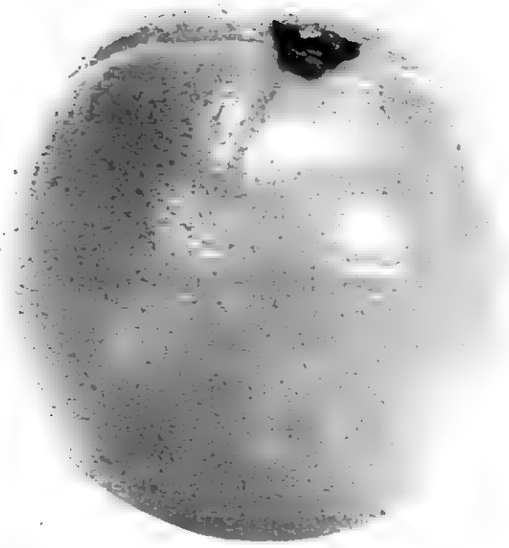

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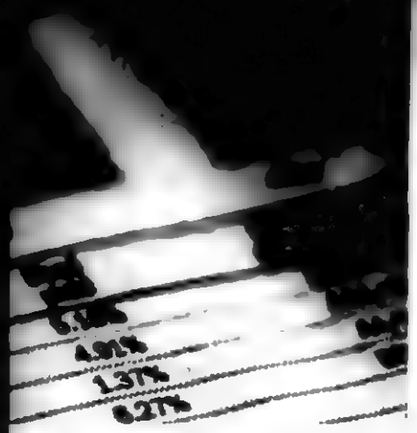
For more information on IT Portfolio Management and its relevance to senior management, visit WWW.PACIFICEDGE.COM/WEBCAST for complimentary Webcasts with industry analysts and subject matter experts.



RUSSELL/MELLON ANALYTICAL SERVICES

Russell/Mellon Takes Control of their IT Portfolio

Russell/Mellon Analytical Services, a leading global provider of performance measurement services, realized the need for improved insight and control of its rapidly expanding IT activities. The company established a Project Management Office and utilized Pacific Edge Software to implement formal project management administration processes and develop a comprehensive Enterprise Portfolio Management solution.

SITUATION

When Tammy Reuter was hired as Manager of Strategic Initiatives in 2001, Russell/Mellon had recently been formed through the merger of the data divisions of long-established Frank Russell Company and Mellon Financial Corporation. The new company had seen its IT budget grow dramatically in three years, and Reuter was charged with establishing a Project Management Office to improve control and oversight of some 100 to 135 projects active at any one time.

The IT department had been managing this large portfolio of projects using a combination of spreadsheets to inventory the project portfolio and a Microsoft Access database for time reporting. This approach was hard to scale, had very limited ability for effective forecasting. The process also did not include an concise method to track the capitalization of software development.

SOLUTION

Reuter and the senior management team realized that with the growth of the project portfolio that a more robust solution was essential to help more effectively manage IT spending and to allow effective planning and decision-making based on business drivers. She selected Pacific Edge to provide a complete Enterprise Portfolio Management solution.

Russell/Mellon decided to take a phased approach to implementation. The first task was to identify which were the 'real' projects, and get them into one database. This was made much simpler by the preformatted template that was provided by Pacific Edge, which Reuter easily adapted to the company's specific needs.

The process also helped Russell/Mellon identify how incomplete their existing project data was, so the next step was to gather the missing information. With that in place, Reuter and the senior management team could start actively managing their portfolio of projects.

Before the establishment of the Project Management Office, Russell/Mellon lacked a formal process for initiating projects. Reuter created a project request template, scheduled regular meetings with the CEO, CFO and directors to review requests based on the business case for each initiative. More recently, a formal Investment Decision Council has been established, comprised of representatives from sales, clients services, operations, project management and product management. This team ranks new initiatives across all product lines based on their contribution to corporate business objectives vs. cost and, makes a final recommendation to senior management. This prioritization process, and allocation of resources and budget is done quarterly for a six-month rolling timeframe.

"We're light-years ahead. The combination of the tool, the management group and the processes have been instrumental in helping to align projects with where we are going as a company. As we have become more comfortable with the processes, we have continuously improved them, so we now are in a better position to make more sophisticated assessments of the rewards, costs and risks of each initiative. The Pacific Edge solution has helped us in this evolution, adapting to our needs and supporting us."

: Tammy Reuter
Manager of Strategic Initiatives

RESULTS

Enterprise Portfolio Management has helped Russell/Mellon enhance control of its IT project portfolio. With an accurate picture of how initiatives relate to business priorities, decisions can be made based on corporate needs, and the department is in a better position to prioritize its efforts – or turn away misaligned initiatives

Some of the specific benefits Russell/Mellon has experienced through the implementation of Pacific Edge's solution include:

Cost evaluation: Enterprise Portfolio Management has helped Russell/Mellon significantly manage a recent evaluation of its IT spending. It is now much clearer how much is being spent and what it is being spent on. And Russell/Mellon is now going further: tying travel dollars to specific projects.

Improved management information: Enterprise Portfolio Management helps Russell/Mellon management monitor how product development, IT, and project management activities are tied to meeting the development needs of the company.

Increased internal communication: Having more complete data on projects has helped facilitate more timely and accurate communication between product development, project management, IT and Senior Management on development priorities and status. This helps them focus on doing development work that is better tied to our company strategy, which pleases both internal customers and management.

And with improved communication comes increased understanding of the importance of planning. The Project Management Office and the processes it has implemented involve the business directors in the decision-making process. "Now, even when a project gets turned down, people understand why. So they are more accepting," says Reuter.

The Pacific Edge Enterprise Portfolio Management solution has helped Russell/Mellon transform the way it manages its IT efforts. And the company plans to continue extending the benefits. Soon, Product Managers, Projects Managers and Resource Managers will start managing project data, allocating resources, forecasting tasks and entering data themselves using Pacific Edge Software solutions. Further down the line, Russell/Mellon intends to use the system to gather additional strategic information to help in the analysis of achieved benefits from IT and product profitability. "We've come a long way in a short time," says Reuter, "and Enterprise Portfolio Management can help take us much farther."

Digital Rights Management

DEFINITION

Digital rights management (DRM) refers to the control and protection of digital intellectual property (content), including documents, images, video and audio. DRM limits what a user can do with that content even when he has possession of it.

BY RUSSELL KAY

PROTECTING valuable information from misuse, theft or misappropriation is a minefield of conflicting opinions, expectations, laws and technologies.

As new storage and distribution channels become available — DVD and peer-to-peer file-sharing networks, for instance — traditional rules and physical limitations no longer apply. To see why digital rights management (DRM) is so contentious, let's examine the three words individually.

Digital

When information was entirely analog in nature, distribution and publishing required physical vehicles: printing it on paper, recording it in vinyl grooves or on magnetic tape, and exposing it on photographic film or paper.

Producing these vehicles is relatively expensive. While people could always make analog duplicates, doing so was generally complex, slow and expensive, and resulted in degraded quality. These technical and economic limitations protected publishers against unauthorized distribution. If you wanted a second copy, it was simplest and often cheapest just to buy another.

Digital technology changed everything. Today, most information, from newspaper stories to motion pictures, is available in digital form. It's quick and simple to make absolutely perfect copies of digital data. Such copying costs virtually nothing and doesn't alter the original or make it unavailable.

Digital theft made its first widescale appearance in software in the 1970s, as the fledgling Micro-Soft Corp. found that people were making paper-tape copies of its Basic program without paying for it. Software piracy is still a problem, and Microsoft is one of the more active players fighting it.

QUICK STUDY

For digital information, the Internet eliminates the need to sell and move physical objects, such as books or magazines, floppy disks, cassette tapes or CDs. With high-speed networks and widely accessible broadband, we can send digital content anywhere in the world almost instantaneously and at virtually no cost.

Rights

Copyright, patent and trade secret laws give certain privileges to the holders of such rights, letting them share, sell or withhold information for a period of time. Tradition and legislation define what users can do with information they buy. For example, if I buy a book or a music recording, I can read or listen to it, pass it along to a friend, make a copy or use the original in another machine (such as a car player). I can buy a used book or CD at a reduced price. A library can lend its books to thousands.

There are rights I don't have. I can't make changes and sell the revised work as my own. I can't make and sell unmodified copies. I can't incorporate pieces of such works in something I produce without permission. I can't charge people admission to watch my DVDs.

Digital content creates rights that didn't exist for analog products. For example, I can buy an aerial photograph of a particular location, or I can buy a satellite photograph in digital form. That satellite image is limited in the size of the smallest detail it can show, but it's packaged with another image I can view at higher resolution, if I'm willing to pay a little more.

Management

We can enforce policies far more Draconian and restrictive than previously possible. If I buy an e-book, for example, I might find these limitations: I can only read it on a single machine; I can't make backup copies; I can't lend it to a friend; I can only read the book a certain number of times, or within a specific time interval, before it expires; and I can't print it out.

In the wake of Napster and declining music CD sales, several publishers have launched commercial online music distribution services. For a monthly fee, you can download and listen to a certain number of songs from their catalogs. But there's often a catch: Miss a monthly payment and you can't listen to any of the songs you previously paid for and downloaded. Or maybe you can only listen to a song for a designated period of time. You can't burn the song to a CD or copy it to a handheld MP3 player. None of these restrictions apply if you just buy the physical CD.

Microsoft has included DRM technology in its new Windows Server 2003, Office 2003 productivity suite and an add-on for Internet Explorer. This will let users designate who can open a Word document or Outlook e-mail message and whether they can print, copy or forward it. ◗

Kay is a Computerworld contributing writer in Worcester, Mass. Contact him at russkay@charter.net.

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LANGUAGE AND LINKS

For more information about XRML, the language of DRM and links to online resources, visit our Web site:

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Tape
Disk
SAN
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Software

Workforce management mixes science and art to meet the needs of today's multimedia contact centers. By Kym Gilhooley

HOW DO YOU STAY on schedule when you run 23 call centers across the U.S. and handle 40 million contacts from 6.3 million customers annually? Just ask Cox Communications Inc., the country's fourth-largest cable services provider, whose 4,000 contact center agents serve customers not only by phone, but also across a range of channels, including e-mail, chat, Web collaboration and self-service. To handle the complex job of getting the right mix of skills in the right seats at the right time, Cox relies on a workforce management suite from San Jose-based Aspect Communications Corp.

"There's an art and science to workforce management. It's about predicting call volumes and then scheduling the appropriate staff at the right times to handle those customer contacts effectively," says Denny Campbell, resource operations manager at Cox's largest call center, which is in San Diego. The Atlanta-based company's challenge is one faced by contact centers everywhere as they struggle to maximize their most costly resource — people.

According to Gartner Inc., 71% of call center costs are personnel-related. Managers must make sure they have the right agents available to ensure optimal service levels, and they must do so without over- or understaffing. Furthermore, they must increasingly schedule agents across a range of real-time and deferred contact channels, because customers demand multichannel access. They must also retain these agents in a time when call center turnover is at an alarming high, with some estimates placing it 35% annually.

Enter workforce management technology. Though not new on the scene, workforce management is generating keen interest, as contact centers recognize that delivering premium customer service depends largely on the employees delivering it. Workforce management suites typically comprise forecasting, scheduling, budgeting and reporting modules, though vendors are increasingly moving toward what analysts are dubbing "workforce optimization" by integrating components such as performance monitoring, analytics, training and incentive programs.

By utilizing forecasting techniques, contact centers can schedule optimal service levels based on agent availability and skills. Through integration with automatic call distributor (ACD) systems and multimedia contact channels, the technology routes customers to the appropriate agents, no matter how they made contact with the organization. And by enabling agents to input their own schedule preferences, managers can increase employee morale and retention rates. All this means higher productivity and, ultimately, improved customer satisfaction, according to proponents.

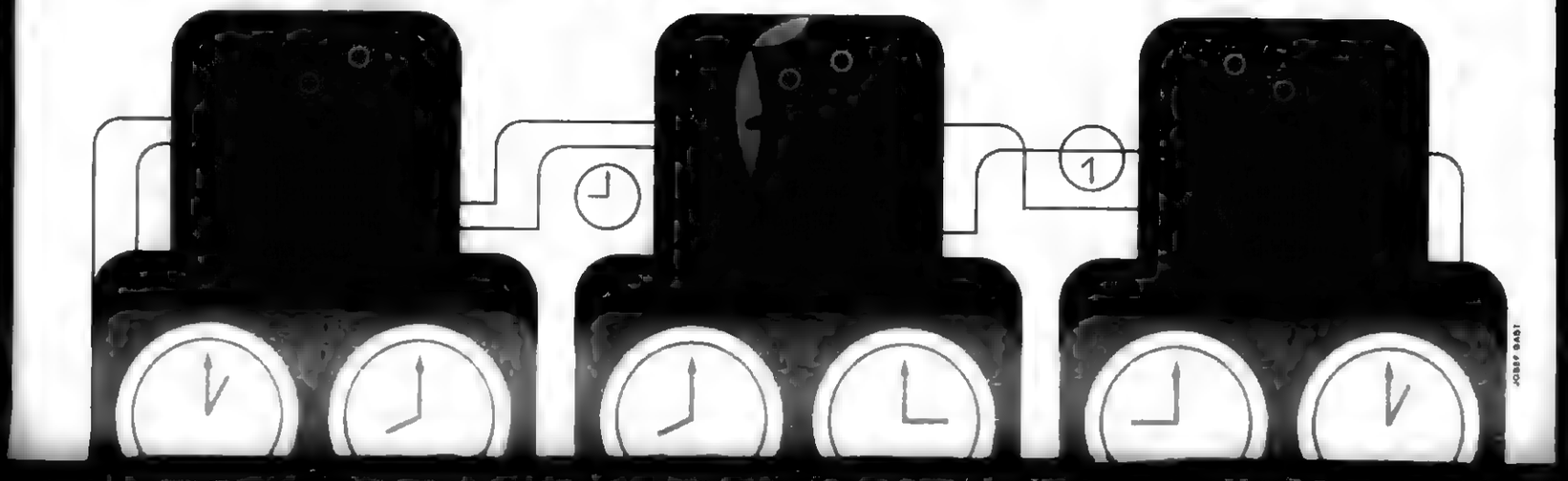
Fast ROI

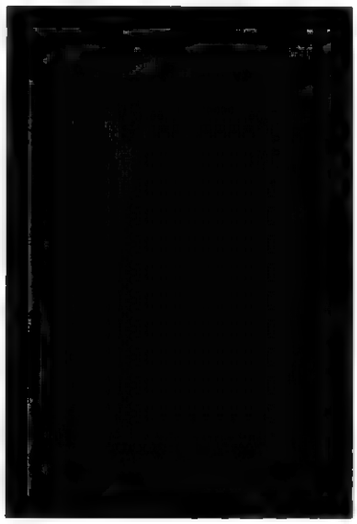
Another argument for workforce management technologies is that, unlike some other types of customer-related software, workforce management systems are producing a fairly quick returns on investments for companies that have implemented them, says Wendy Close, CRM research director at Stamford, Conn.-based Gartner.

Respondents to a recent survey by Gartner cited the following improvements following workforce management implementations: a 45%-90% reduction in scheduling times, a 10%-13% increase in service levels, a 10%-13% decrease in payroll costs and a 3% decrease in call abandonment rates. In addition, 87% said deployment had lowered their personnel costs, and 98% said it had improved efficiency.

"Many companies with call centers have all the components of CRM in place, but workforce management is

THE RIGHT SKILLS AT THE RIGHT TIME





where the rubber meets the road. It's a no-brainer," says Close. "The place to draw the line in the sand is if you've got multimedia support channels and more than 100 agents with a range of skill sets."

Although workforce management technologies are often overlooked at budget time, they can have the biggest impact in the shortest amount of time in the call center, according to Joanie Rufo, research director at AMR Research Inc. in Boston. Also, many workforce management suites provide key integration with call management applications and can easily be incorporated into a larger customer-service infrastructure, she says.

But companies won't realize this ROI without overcoming a number of challenges, chiefly cultural ones, says Rufo. Schedulers are initially reluctant to trust forecasts and may create redundant systems. Conversely, they may end up adhering too strictly to automated schedules and not be flexible enough to meet employee needs.

On the technology side, workforce management offerings have enjoyed solid integration with ACD systems for some time, but integration with other channels has been slower in coming.

Moving to Multimedia

Los Angeles-based PeopleSupport Inc. saw the lack of multimedia integration firsthand when it searched for a workforce management suite in early 2000, says CIO Abby Hossein. Founded in 1998 to deliver outsourced online customer care services, primarily to dot-coms, PeopleSupport signed up early Internet stars such as eToys Inc. and Real.com, whose business models relied on driving support from more expensive phone-based channels to less expensive real-time and deferred channels. It also set up offshore call center operations in the Philippines.

PeopleSupport grew quickly, and it became apparent that its spreadsheet-based scheduling and forecasting approach wouldn't be able to handle the complexities of scheduling more than 1,000 agents as it was forced to add more phone-based support across multiple time zones, says Hossein.

"When we started to look at workforce management, we looked at traditional players, but at the time, they had primarily integration with voice, not with Web collaboration or e-mail tools," says Hossein. The company chose CenterForce Technologies Inc.'s system, which was integrated with an e-mail package, and partnered with Bethesda, Md.-based CenterForce to build a solution that encompassed voice and chat.

"We wanted an enterprise solution for centralized forecasting, planning and scheduling," Hossein says. PeopleSupport now has that, and its workforce management suite runs on a Windows 2000 server in Los Angeles.

Manual Methods Fall Short

An inability to meet forecasting and scheduling needs using manual methods likewise led Timberline Software Corp. to purchase workforce management software. The breadth of the product line at the supplier of financial and operations software for the construction and real estate industries required that technical personnel support numerous applications, and customer service was suffering as a result.

"We weren't delivering the levels of service we needed to customers, and we had to re-engineer that," says Mark Brannan, operations director at the company, which in 1999 deployed workforce products from Blue Pumpkin Software Inc. in Sunnyvale, Calif.

"Our support reps had to know all our applications, and what that ended up doing was establishing a limited amount of expertise on all applications," he says. "We wanted to add skills-based routing to get customers to the proper person."

Routing calls to the representatives with the proper skills created unforeseen forecasting and scheduling complexities at Beaverton, Ore.-based Timberline, making it impossible to do scheduling manually.

"In the past, we could use simple calculations — we based [schedules] on one big block of calls and one block of agents," says Brannan. With the new service model, the company forecasts and schedules for 12 to 20 different queues, depending on customer needs, agent availability and skill levels.

The software also enables Timberline to plan for product rollouts and determine future hiring plans, among other things. "By implementing Blue Pumpkin with the skills-based environment, we found that our hiring plan for the upcoming year [2000] was too aggressive and that we needed to hire 30 fewer people than we initially thought," says Brannan. That discovery saved $1.4 million that year, he says.

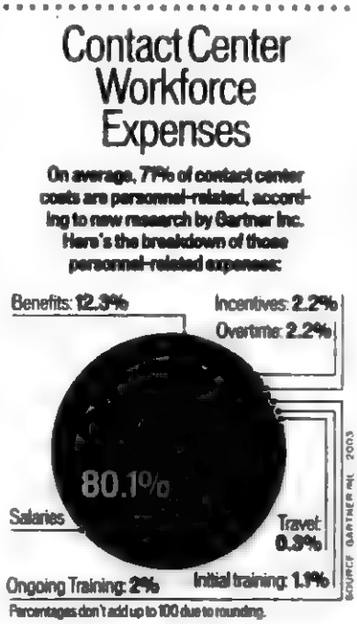
Indeed, the ability to identify hiring parameters and budgeting needs through forecasting is one of the biggest benefits of workforce management software, say users. "A critical output [of workforce management] is knowing when to hire new classes and when they need to hit the floor," says Cox's Campbell. "With a long-range forecast, we can look at seasonality and customer-base growth and predict hiring."

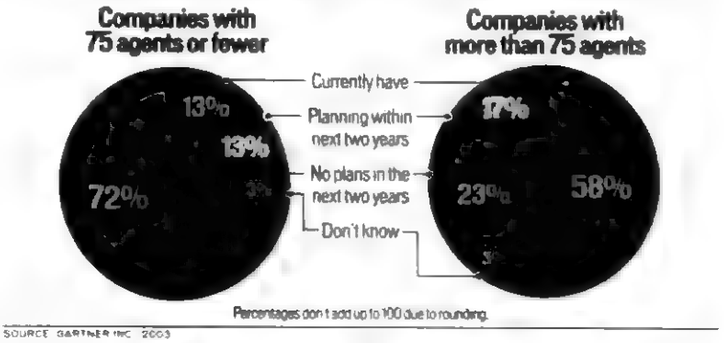
As with any technology, workforce management software presents certain challenges that can hinder success. Cultural issues often pose the biggest hurdles, says users.

"With this tool, it requires an entire staff to buy in, a discipline that often does not exist in call centers," says PeopleSupport's Hossein. "If anyone thinks that buying this tool and installing it is going to solve their problem, they're wrong. You need a workforce management team committed to enforcing policies and procedures and ensuring that agents adhere to breaks and other activities."

Accurate forecasting is another issue, says Gartner's Close. "There can be a lot of complexity in collecting historical data for forecasting. You might be forecasting for multiple sites and multiple skill sets. And for contact centers, you're not just forecasting call volume, but [also] e-mail, Web chat and even walk-ins," she says.

Schedule forecasting can mean the difference between keeping and losing customers, says Hossein. But for his company, it was a risk that had to be taken. "Because we're in the contact center and CRM business, workforce management means the difference between making money and losing it," he says. "We must constantly balance workforce efficiency with high service levels."





Gilhooley is a freelance writer in Falmouth, Maine. You can reach her at kymg@maine.rr.com.

BIG BROTHER OR BIG HELPER?

Workforce management leads to Big Brother concerns, but the technology can also help workers. Read more:

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"With this tool, it requires an entire staff to buy in, a discipline that often does not exist in call centers," says PeopleSupport's Hossein. "If anyone thinks that buying this tool and installing it is going to solve their problem, they're wrong. You need a workforce management team committed to enforcing policies and procedures and ensuring that agents adhere to breaks and other activities."

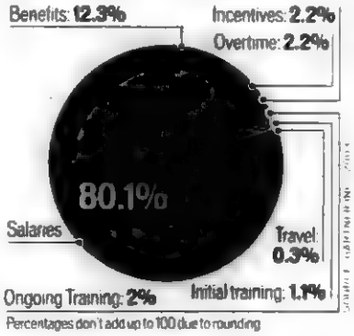
Accurate forecasting is another issue, says Gartner's Close. "There can be a lot of complexity in collecting historical data for forecasting. You might be forecasting for multiple sites and multiple skill sets. And for contact centers, you're not just forecasting call volume, but [also] e-mail, Web chat and even walk-ins," she says.

Schedule forecasting can mean the difference between keeping and losing customers, says Hossein. But for his company, it was a risk that had to be taken. "Because we're in the contact center and CRM business, workforce management means the difference between making money and losing it," he says. "We must constantly balance workforce efficiency with high service levels."

Gilhooley is a freelance writer in Falmouth, Maine. You can reach her at kymg@maine.rr.com.

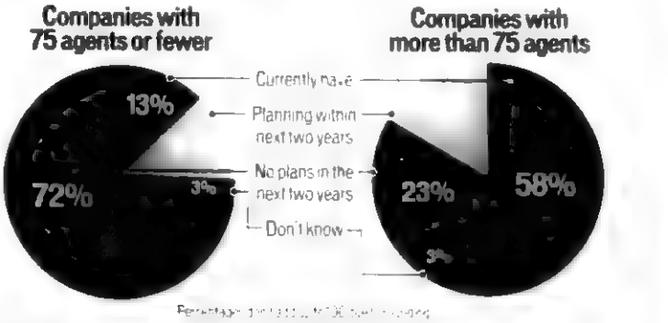
Contact Center Workforce Expenses

On average, 71% of contact center costs are personnel-related, according to new research by Gartner Inc. Here's the breakdown of those personnel-related expenses:



Percentages don't add up to 100 due to rounding

Workforce Management Software Adoption



Percentages don't add up to 100 due to rounding

BIG BROTHER OR BIG HELPER?

Workforce management leads to Big Brother concerns, but the technology can also help workers. Read more

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IT Security Confronts New Legal Liabilities

Upcoming legislation and changing threats prompt our cautious security manager to double-check the corporate liability policy. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

WORD of upcoming security-related legislation and a recent security incident at my company have prompted me to investigate cyberinsurance. I had to review how well my organization is positioned to deal with a lawsuit or the need to file a claim as a result of a cybersecurity incident.

Like many security professionals, I have been so focused on keeping up with the fast-changing IT security landscape that I haven't thought much about how those changes affect potential insurance-related issues at my company.

For example, in California, Senate Bill 1386 will become law next month. It will require companies to disclose to consumers any event in which data pertaining to them was possibly compromised as a result of a security breach. Under SB 1386, not only California companies will be required to notify customers of security breaches; any company that *does business* in California will have to disclose security breaches to California customers. So if your business is located in Boston or New York and you have customers in California, you will have to comply with this law.

Possible Loopholes

I'm told that there are several loopholes in this bill that give us some flexibility and protection. For example, the law will apply to instances when a customer's data is "reasonably believed" to have been compromised. In my experience, any time that phrase is used, there is room for interpretation. The term *reasonable* seems to take on different interpretations depending on whom you talk to. Even so, defending interpretations favorable to our company in court could require an army of lawyers and lots of time and money.

Another loophole involves a possible exception if the stolen customer data was stored in encrypted form. My company keeps all of its customer data in an encrypted Oracle database.

Of course, the bill doesn't specify the type of encryption. It could be weak or strong. So the question becomes this: If a hacker is able to compromise a data store and decrypt the data, does that require disclosure? And how do you know whether the hacker did in fact decrypt it?

There's also a provision that says a company doesn't have to disclose a breach if a law enforcement investigation or inquiry is under way. Such investigations can last for years.

Besides situations involving the new California law, there are other instances when we might want to file an insurance claim.

Recently, an employee, prior to leaving the company, created several new accounts on a huge, publicly accessible FTP server that serviced some 400 user accounts. He also configured one of the accounts to have administrative privileges and then created a trust relationship between the FTP server and another server. The latter had direct access to a database server housing customer credit card data. By simply logging into the FTP server, he could have accessed the database server and copied the sensitive data.

Fortunately, we discovered the breach shortly after the employee left during a routine audit that included a review of administrative privileges. Our investigation showed that no customer data had been compromised, but the incident gave us enough of a scare to take a new look into the issue of cyberinsurance.

"Defending . . . our company in court could require an army of lawyers and lots of time and money."

No Publicity, Please

Even if we could catch the perpetrator, my company, like others, would be disinclined to try to prosecute and recover damages. I had wanted my company to take legal action against the former employee, but management didn't want the publicity that would have resulted. And even if we had prosecuted, it would have been hard to prove that this individual actually conducted the unauthorized activity. Yes, his account was used, but we would have had to show that he performed the keystrokes to gain unauthorized access to the backdoor accounts.

When a user has administrative-level privileges on a system, he has the ability to make my life miserable. In this case, he could have deleted the entire database, causing significant downtime and serious monetary losses.

In fact, had he done so, we would have lost a lot of revenue during the time it would have taken to rebuild or restore the data. Our e-commerce site generates more than $1 billion per year in online transactions. We do replicate the site to minimize downtime, but this trusted administrator could have taken down both sites if he wanted to. Depending on the extent of the damage, it could have taken our IT team more than six hours to resolve the problem. That could add up to a potential seven-figure loss. To recoup losses in such situations, it might be prudent to be able to file an insurance claim.

I made some inquiries to our legal department and, fortunately, we do have a cybersecurity clause in our policy that covers loss as a result of dishonest or criminal acts by our employees. In this scenario, even though the employee was terminated before accessing our infrastructure, the fact that he was an employee when he created a back door into our system meant we would have been covered. Now we just have to worry about the potential saboteurs we don't employ.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

Security Blackshaft

UnityOne Blocks P2P Programs

Fortinet Bolsters Firewall Appliance

BRIEFS

Western Digital Issues SATA Drives

Western Digital Corp. announced a new line of Serial Advanced Technology Attachment (SATA) hard drives with capacities up to 250GB and 8MB buffers. The 7,200-rpm Caviar Special Edition drives feature new SecureConnect SATA cables, which are stronger than first-generation SATA cables, according to the Lake Forest, Calif.-based company. The drives, available in sizes of 120, 160, 200 and 250GB, are shipping this month. They are backed by three-year warranties.

Wireless MAN Standard Selected

The standards group Worldwide Interoperability Microwave Access Inc. (WiMAX) has selected a version of orthogonal frequency-division multiplexing (OFDM), 256-OFDM, as its standard modulation scheme for metropolitan-area networks (MAN).

The new standard has 256 narrow-band channels, compared with 64 in OFDM-based 802.11g wireless LAN systems, said Mohammad Shakouri, vice president of business development at Alvarion Ltd. in Tel Aviv and a board member of San Diego-based WiMAX.

Shakouri said WiMAX selected 256-OFDM as a standard because it's very resistant to multipart signals – essential in a MAN – and is the same modulation scheme tapped by the European Telecommunications Standards Institute for use in Hiperman fixed wireless systems in Europe.

Parasoft Unveils Java Tools Package

Parasoft Corp. in Monrovia, Calif., announced general availability of its package of automated tools, services and best practices to prevent errors in Java applications. Parasoft Jtest Solution is available for the Linux, Windows and Solaris operating systems. Pricing starts at $50,000.

TOMMY PETERSON

Coping With Infoglut

THE INTERNET HAS BURIED companies under a mudslide of unstructured data. One of the most pressing problems facing IT is how to turn all that data that won't fit into rows and columns into useful information. And while the amount of unstructured data is growing exponentially, the tools for dealing with it haven't kept pace.

The magnitude of the deluge is staggering. Approximately 85% of all digital business information exists only as unstructured data, according to research by Merrill Lynch. Most of that comes from the increasing use of the Web as an internal and external business channel.

The majority of unstructured data consists of text documents. Some of those, such as memos, letters, marketing materials and research documentation, have presented a storage and retrieval problem in business since before there was digital media. And now, in addition to those documents, there are e-mail messages, customer queries and responses from sales and support representatives generated by CRM applications, user group postings and chat messages, as well as images, movies and Web pages with their hyperlinked information.

E-mail alone has burgeoned; market research firm IDC predicts that there will be more than 60 billion messages sent annually by 2006. And besides the business imperative to take control of the organization's knowledge base, federal regulatory initiatives increase the pressure on companies to both archive e-mail and develop a way to research the content of the messages.

The other 15% of all business information — the structured data that generally resides neatly in spreadsheets and databases — is being sliced, diced, massaged and squeezed for every bit of business intelligence it will yield. Technologies to address unstructured data can't match the functionality of these real-time analytics for structured data, and users have been slow to adopt them. Tim Berners-Lee, the Web's primary architect, has famously observed that most of the information on the Web is designed for human consumption and resists being organized or analyzed by any automated process.

What do companies lose by not having the means to use unstructured data? Employees' time for one thing — recent studies indicate that information workers spend as much as a quarter of their time just finding and gathering job-related information. Nuanced information about trends and customer attitudes for another.

Vendors recognize both the challenge and the opportunity presented by unstructured data. When recently asked what the next big thing in business intelligence and data warehousing would be, Don Hatcher, SAS Institute's vice president of technology strategy, answered emphatically, "Unstructured [data], without a doubt. We're working on it, and I'm sure the other [competing] companies are, too."

SAS will try to make unstructured data a part of its customers' "predictive process," Hatcher said. The company is also "engaging thought leaders in the space" as it maps its route into the unstructured market. Of course, SAS and the other business-intelligence and analytics vendors haven't exactly discovered a new frontier.

Search has been the traditional way to manage and mine unstructured data, especially text-based documents. The most fruitful techniques go well beyond the simple keyword queries most of us type into Google or Yahoo several times a day. Full-text searches, which began as a tool for the intelligence and library communities, have been around for decades — for almost as long as there have been digital documents.

Search technology companies are refining their products by adding natural-language search capability; stemming, which removes common suffixes; and spelling correction. They're also using metadata fields to narrow and focus searches by adding context to individual queries.

Vendors such as Verity, Autonomy, Stratify and Inxight offer software that automates the classification process and maintains taxonomies, as well as discovery systems that generate metadata from documents and allow users to dig through the hierarchical layers. The big content management vendors are making the direct link to business intelligence when they describe their search and classification offerings as "content intelligence."

The big surprise, given the volume of unstructured data piling up in every modern company, is corporate IT's lack of urgent interest in the problem. Data warehousing and business-intelligence projects are generally surviving the lousy economy more successfully than most technology initiatives. That's because companies have been won over to the notion that the more they can learn from the data in their various databases and other structured repositories, the better off they'll be in good times and in bad.

But those companies have yet to be convinced that they have the same need to exploit unstructured data. Some foot-dragging is understandable. Resources are in short supply. Catchphrases like *content intelligence* stir memories of the knowledge management hype that fizzled so miserably.

But the problem is only getting bigger, and the technologies that help us manage unstructured data and turn it into information are going to become increasingly important. If you don't believe it, go check your e-mail in-box.

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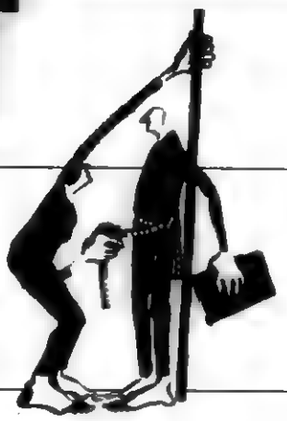
BOOK EXCERPT

Reengineering Revisited

IT-driven process reengineering was all the rage in the 1990s and fell out of favor. Will it come back? This excerpt from the book *What's the Big Idea?* explains all. **Page 48**

Outsourcers: Do They Measure Up?

An increasing number of IT outsourcing customers are using benchmarking and baselining tests to keep costs from escalating out of control. **Page 52**



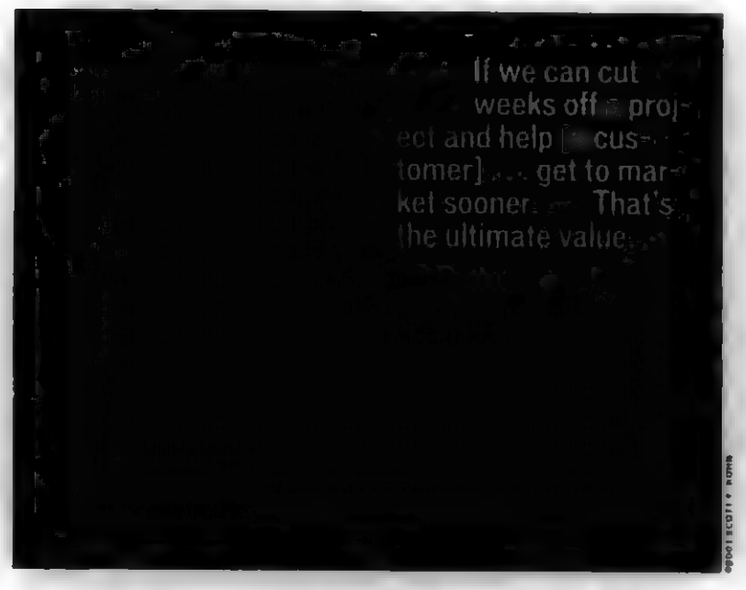
OPINION

Big Benefits From 'Microdeliverables'

Columnist Paul Glen says the key to keeping projects on schedule is to require "microdeliverables" from each person, every week. **Page 54**

SMARTER BY THE HOUR

Time is big money at Intec Engineering, which posted a first-year ROI of 133% with a knowledge-sharing system. By Kathleen Melymuka



IT'S HARD TO PLACE a value on knowledge management systems. Their ability to generate income is often measured indirectly; their links to cost savings frequently seem tenuous. The return on investment is hard to quantify. Too often, the case for implementing a system to leverage intellectual capital and expertise rests mainly on intuition: It seems like a good idea.

CASE STUDY

But intuition wasn't nearly enough to sell executives at Intec Engineering Partnership Ltd., a company whose dedication to thrift is exceeded only by its passion for sharing knowledge.

Intec is based in Houston and has offices in Argentina, Chile, Bolivia, England, the Netherlands, Malaysia and Australia. The privately held, $80 million engineering and project management company serves the international oil and gas industry. Its 500-plus employees specialize in marine pipelines, terminals and facilities. Clients include BP PLC, Exxon Mobil Corp. and ChevronTexaco Corp.

CIO Fran Steele says Intec's culture is "extremely collaborative," having grown from four partners in one room sharing knowledge using 3-by-5 cards indexed by keywords. "It's a culture of sharing information, with a strong bias against bureaucracy and anything that might constrain creativity," she says.

During 2002, as Intec grew through expansion and international acquisitions, it was becoming more difficult to keep track of and access information. Intec wasn't alone. According to KPMG International, six out of 10 employees say difficulty in accessing undocumented knowledge — such as the know-how people carry around in their heads and information that may be in documents scattered across a company — is a major problem. Framingham, Mass.-based IDC estimates that the average Fortune 500 company will spend $64 million on redundant efforts this year.

Early last year, a group of Intec engineers, later dubbed the Learning Team, volunteered to work on the problem of how to better capture lessons learned and share knowledge among Intec engineers. They diagramed how they solved engineering problems and envisioned an ideal process: An engineer with a question would go to a knowledge database that would either provide an answer or refer him to an expert. All new knowledge would be automatically captured and stored in the database.

The Learning Team decided that any technology to assist this process had to integrate existing knowledge resources, automatically find experts, capture results for reuse, facilitate the identification of best practices and provide a quick and easy user interface. Administration had to be minimal. "I wanted something that would not cost any more time of the people asking questions and answering," says Willem Timmermans, president and CEO of Intec. And ROI had to be clear from the start.

The Learning Team shopped around and selected software from AskMe

Continued on page 44

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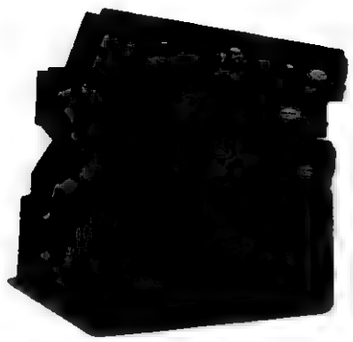

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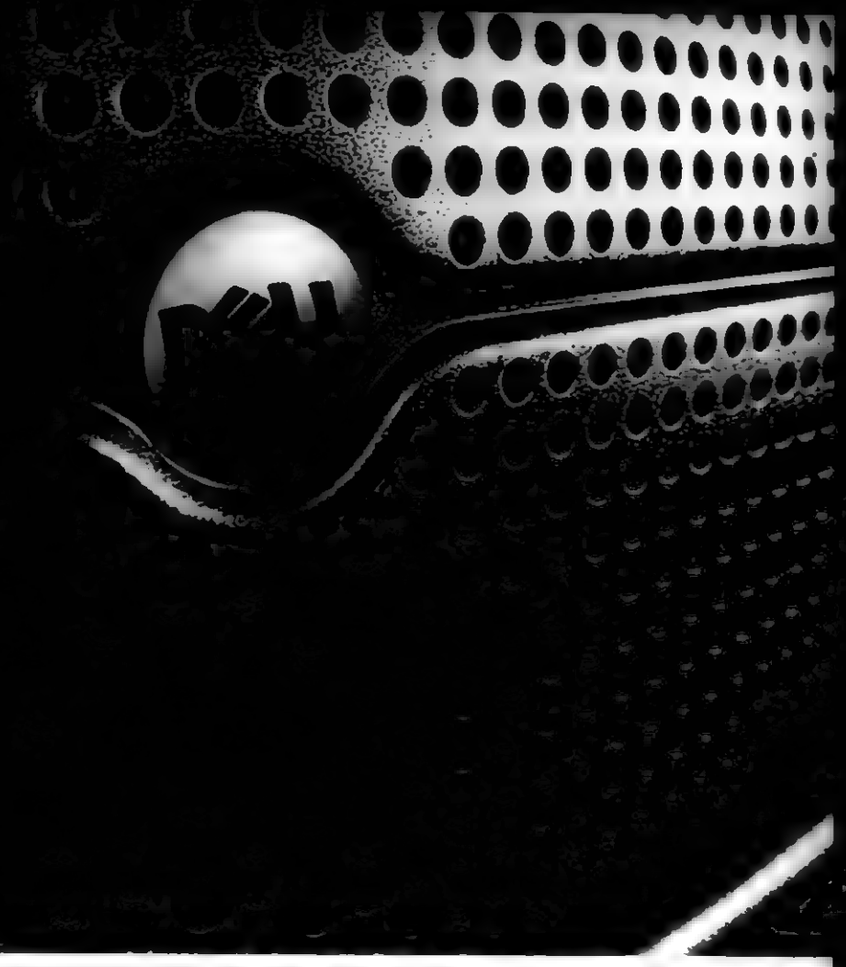

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Continued from page 41

Corp. in Bellevue, Wash., as the product most likely to facilitate Intec's problem-solving model. AskMe agreed to customize a three-month, large-scale pilot of the system for 250 engineers.

The actual cost of Intec's system is proprietary, but Dan Wright, vice president of field operations at AskMe, says the average pilot includes 750 users at a cost of more than $100,000. The application starts at $375 per seat, with volume discounts beginning at 500 seats. There is also an 18% annual maintenance fee.

AskMe integrated its Web-based software and search engine with information repositories including 75,000 technical documents, Intec's existing skills and certification databases, and Lightweight Directory Access Protocol files of individuals' names, titles, locations, e-mail addresses and photos.

ROI Metrics

The Learning Team and AskMe developed a set of metrics that would be used to determine whether Intec would purchase the AskMe software after the pilot. The metrics included amount of activity on the system (visits, unique visitors, expert profiles viewed, questions asked, unique questions asked, answers given and average response time, for example), kinds of knowledge captured (such as questions answered, technical documents and best practices), system performance and, most important, user feedback and ROI.

The team agreed that qualitatively, knowledge management is about sharing knowledge, but quantitatively, it's about saving time. So ROI would be about time saved and putting a value on it (see box above).

The pilot, called AskIntec, began in May 2002. Three months later, it had exceeded all the performance and user metrics, and ROI calculations projected an annual return of 133%.

After nearly a year, the system is paying off almost exactly as projected. "Our numbers were pretty spot-on, but they're going up," Steele says, noting that the company estimates payback of 50% more next year as nonengineering employees are added and the system becomes embedded in the culture.

Actual savings are higher than the ROI figures indicate, she adds. An answered question, for example, often turns out to be worth much more than the Learning Team's estimate of saving 30 minutes, as senior project engineer David Raby demonstrated while working in Perth, Australia. Raby had an esoteric question about deep-water pipelines. Before AskIntec, getting an answer would have required accessing the library in Houston, ordering materials and having them sent through the mail. "I might have got the wrong stuff or needed additional stuff, and it could go back and forth for weeks," he says. "And I still wouldn't necessarily have the information I was looking for." Using AskIntec, he got 10 answers in a day, saving about three weeks' worth of effort, he says.

David Myers, a charter member of the Learning Team who is now Intec's knowledge-sharing manager, is working to sharpen the system's ROI metrics. A current upgrade will include an ROI engine that will ask users to estimate time saved on the spot rather than using formulas.

There are those who question measuring time saved as an approach to ROI. "If I could save every worker 15 minutes, I could say I'm saving millions, but does that time really go back to something productive?" asks Mike Gotta, an analyst at Meta Group Inc. It's better to measure improvement in outcomes such as a decrease in defects or a quicker turnaround, he says.

More Than Numbers

Process metrics are difficult to implement at Intec because each engagement is unique, but the company is looking at process results anecdotally. "Some of the return on information is not quantified just by how quickly you can do something, but by the fact that you can do it at all," Steele says.

For example, during an engagement last year in Beijing, senior project manager Julio Daneri found that Chinese pipeline codes specified certain design parameters that his client didn't want to use. Daneri used AskIntec to query colleagues on cases where companies had successfully circumvented national specifications. Quick replies from engineers on three continents enabled him to build a case for using different specifications, without which his client wouldn't have been able to compete for the project.

The system is also improving Intec's sales process. Timmermans recounts that a prospective customer in Australia was skeptical about the local office's ability to draw on Intec's expertise all over the world. Intec invited him to pose a difficult question, which the Intec engineer put into the system. "The next morning they had four very relevant answers," Timmermans recalls. "We dazzled the client."

In the end, customers profit from Intec's knowledge management investment, Steele says, explaining that a typical oil facility can produce millions of dollars per day in revenue. "If we can cut weeks off a project and help them get their facility ready earlier, they can get to market sooner and get that revenue earlier," she says. "That's the ultimate value."

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@yahoo.com.*

TIME IS MONEY

Intec's approach to calculating ROI began with defining and placing a value on the likely products of the knowledge system. The Learning Team defined four AskIntec products and assigned them values in terms of the engineer hours each would save. The value the team assigned to an engineer's time was a very conservative $50 per hour. (High-level engineers bill at more than $100 per hour.)

TIME SAVINGS:
Intec estimated that these knowledge "products," when added to the knowledge-sharing database and then used repeatedly, would save engineers the following amounts of time:

- **Questions answered:** One half-hour, or $25
- **FAQs with answers:** Five hours, or $250
- **Technical documents:** 10 hours, or $500
- **Best practices:** 50 hours, or $2,500

THE RESULTS:
After the pilot, the Learning Team did the math. (Actual results are confidential. These figures are illustrative.)

- 150 questions answered x $25 = $3,750
- 25 FAQs x $250 = $6,250
- 40 technical documents x $500 = $20,000
- 4 best practices x $2,500 = $10,000

TOTAL PILOT ROI: $40,000

To estimate annual ROI, the team multiplied the three-month pilot's total value by five rather than four. That was to compensate for the gradual growth in use of the system and to account for the fact that only engineers were included in the pilot. (The system will be expanded to all employees.)

ANNUAL ROI = $40,000 x 5, or $200,000

How AskIntec Works

An Intec engineer is faced with a difficult engineering problem. Here's what he does:

Calls up one of eight category home pages such as Pipeline, Subsea or Project Management.

Initiates a keyword search. The system presents relevant documents (headlines with short summaries will drill down to full text), Web links and answers to previous, related questions.

If the answer still eludes him, the engineer can do one of the following:

Post a general question on the category home page. Any engineer who accesses the page can respond.

Click on Experts. Names and photos of all Intec engineers with relevant expertise in their profiles appear on the screen.

Write a detailed question with text and attachments as needed and send the message to as many experts as he likes.

Answers to questions are handled in the following ways:

Subject-matter experts respond to queries they receive.

Engineers can peruse subject-matter home pages and respond to questions posted there.

All Q&As are automatically incorporated into the knowledge base.

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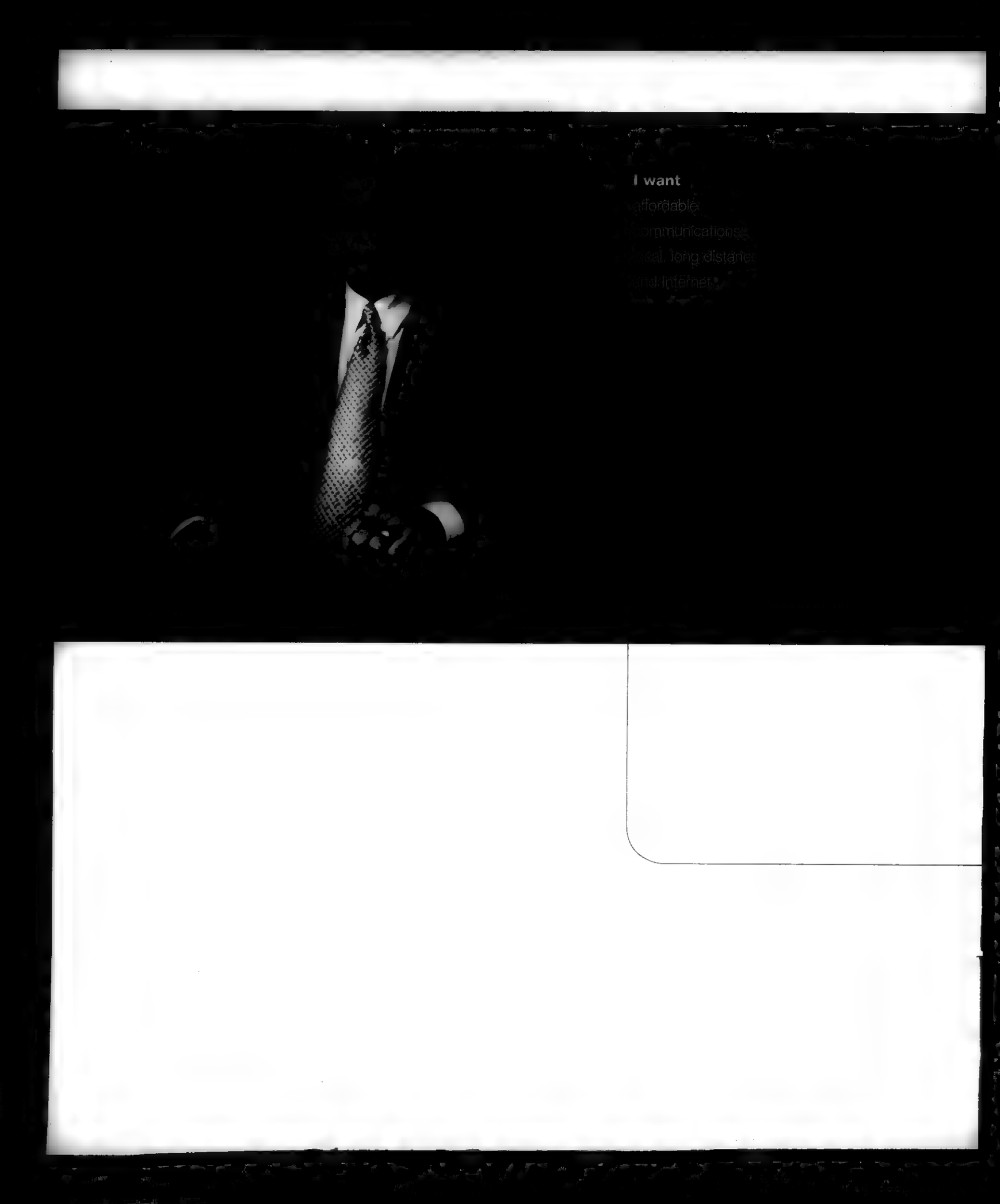
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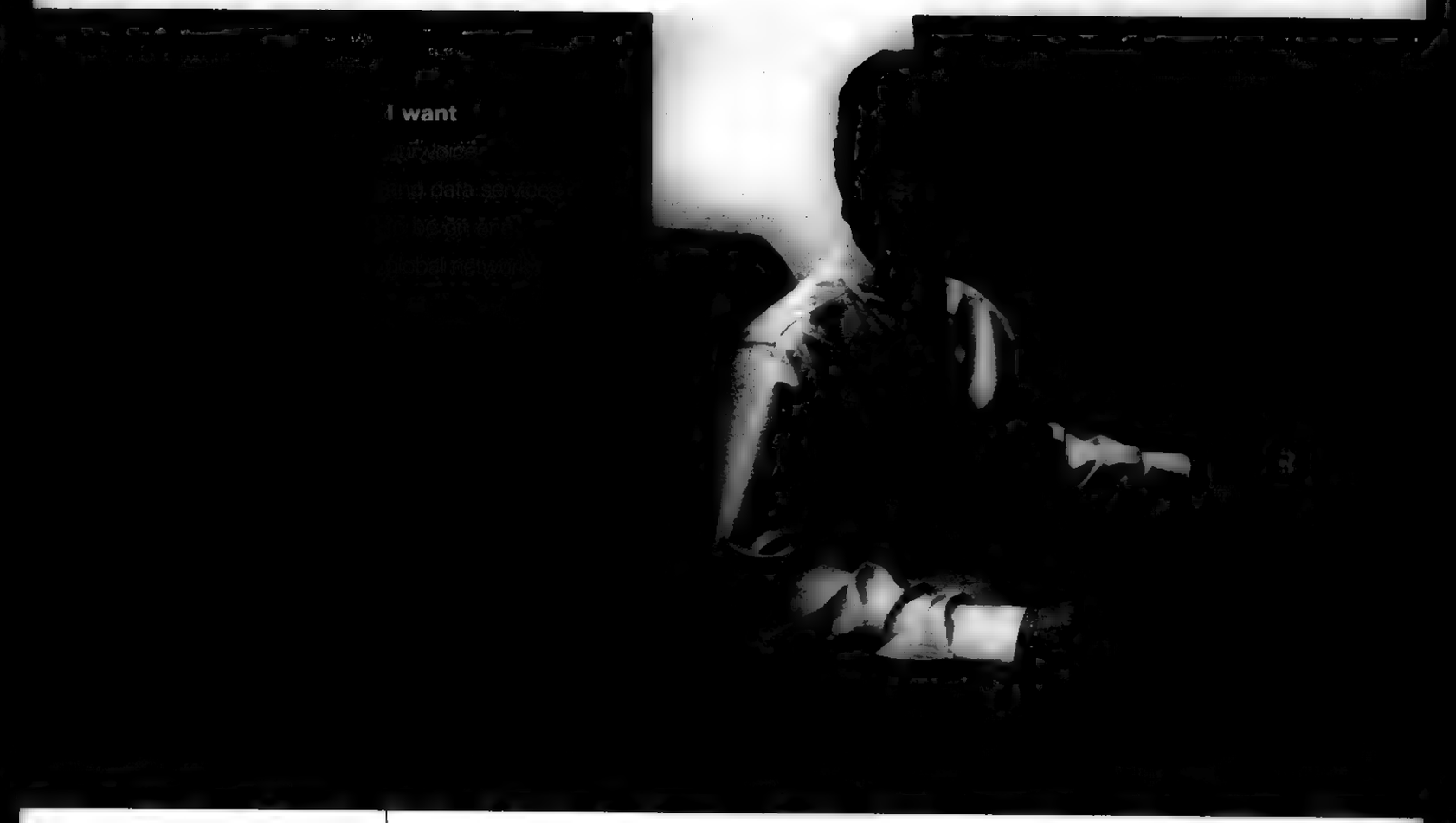

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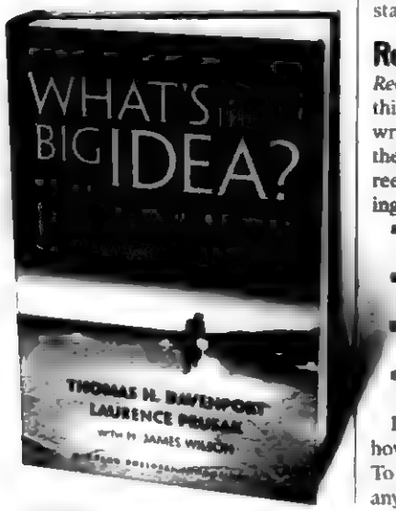
Reengineering REVISITED

What went wrong with the business-process reengineering fad. And will it come back? By Thomas H. Davenport and Laurence Prusak, with H. James Wilson



AT ITS HEIGHT, business-process reengineering was one of the biggest business ideas ever. Business historians of the future will characterize the 1990s as the decade of reengineering. Described in more than 25 books, featured in articles in every major business publication, discussed at hundreds of conferences, reengineering penetrated every continent, with the possible exception of Antarctica.

Reengineering became a money machine for several of its constituents: the gurus who propounded the idea (at least a couple of them!), the consulting firms that offered reengineering services to their clients, and the software vendors who managed to convince firms that their wares were critical to successful reengineering. Unfortunately, the idea didn't enrich those who were most responsible for its birth and continued life within organizations: the faithful practitioners. These individuals played their customary heroic roles on the reengineering stage, but others got all the credit.

BOOK EXCERPT

Reengineering Defined

Reengineering today means different things to different people. In the early writings on reengineering, however, there was substantial consensus that reengineering incorporated the following ideas:

- Radical redesign and improvement of work.
- Attacking broad, cross-functional business processes.
- "Stretch" goals of order-of-magnitude improvement.
- The use of IT as an enabler of new ways of working.

In the general business audience, however, other meanings proliferated. To some, *reengineering* came to mean any attempt to change how work is done — even incremental change of very small processes. To others, it became a code word for downsizing. The latter meaning wasn't really fair, since none of the original literature on reengineering had stressed that objective. It was a somewhat cynical adoption of the word by senior executives (and their communications staffs) that brought this meaning into being.

We still remember the first time the reengineering-as-downsizing notion appeared in the press. In 1995, Pacific Bell announced that it was cutting 10,000 employees. Because of "reengineering," it didn't need them anymore, the press release said. We were conducting some research at Pac Bell at the time, and we knew that although the company was doing some reengineering, it certainly wasn't far enough along for anyone to know how many people (if any) would be freed up. Shortly thereafter, Apple Computer Inc. announced a similar reduction using the "R word." We were also familiar enough with that company to know that it wasn't true reengineering.

What happened to the term *reengineering* is typical of the proliferation of meanings that accompanies any successful new business idea. Consultants, middle and senior managers, and vendors had lots of incentives to jump on the reengineering bandwagon. Experts in continuous improvement, systems analysis, industrial engineering and cycle-time reduction all suddenly became experts in reengineering. We once heard a staffer from the California legislature say that reengineering was "any project I want to get funded."

Of course, saying that all these diverse activities were forms of reengineering raised expectations for the concept and no doubt hastened its demise. The late adopters of the term dropped it rapidly as soon as it became unpopular.

Where did reengineering go astray? Like any other business idea, reengineering had to be bought by companies and sold by business gurus. The failure of reengineering can be attributed to both parties.

Guru Shortcomings

A key factor in the rise of reengineering was Michael Hammer's 1990 *Harvard Business Review* article on reengineering ("Don't Automate, Obliterate") and the subsequent book Hammer coauthored with Jim Champy, *Reengineering the Corporation*. These two sources made reengineering look both appealing and easy. But in late 1996, a front-page *Wall Street Journal* article featured a confession by Hammer: "Dr. Hammer points out a flaw: He and the other leaders of the $4.7 billion re-engineering industry forgot about people. 'I wasn't smart enough about that,' he says. 'I was reflecting my engineering background and was insufficiently appreciative of the human dimension. I've learned that's critical.' "

Hammer's earlier rhetoric certainly neglected the human element, with phrases such as, "In reengineering, we carry the wounded and shoot the stragglers," and, "It's basically taking an ax and a machine gun to your existing organization." This rhetoric not only made employees fear for their livelihoods; it also raised expectations of managers for revolutionary changes that couldn't be delivered.

There is little doubt that the Hammer and Champy version of reengineering was guilty of overblown rhetoric. (Most of this rhetoric comes either from Hammer or from ghostwriters; Champy is more genial and mild-mannered.) Both in Hammer's 1990 *Harvard Business Review* article and in Hammer and Champy's 1993 book, the claims were extravagant and unsupported by fact. The book cover suggests, for example, that "everything you thought you knew about business is wrong," and highly simplistic arguments are made throughout.

The greatest shortcoming of the Hammer and Champy reengineering work is not that it neglects people or that it employs overblown rhetoric, but that it fails to acknowledge how difficult, time-consuming and expensive it is to reengineer. They implied that one could reengineer an entire corporation in as little as a year. We aren't suggesting that Hammer and Champy intentionally misled anyone; they're both

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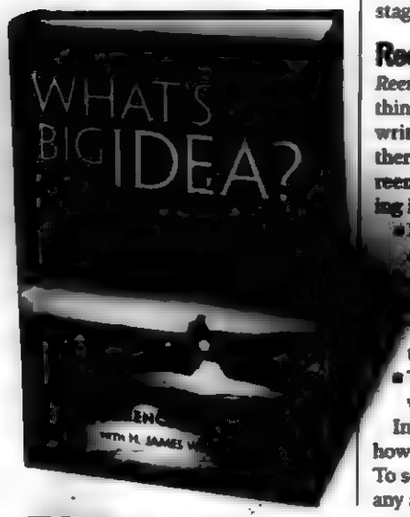

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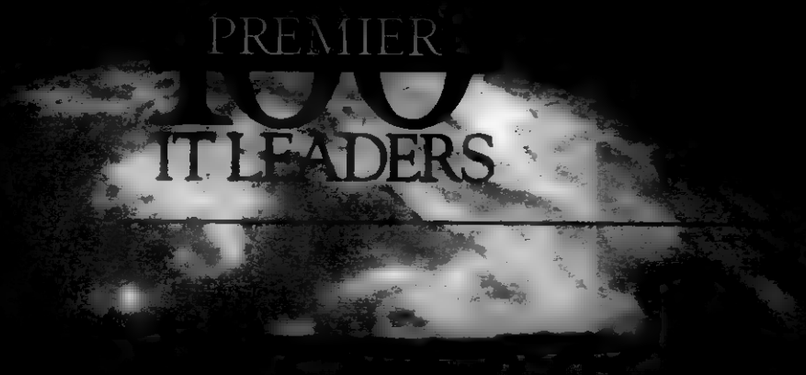

Is Reengineering Coming Back?

When reengineering first appeared in articles and books, the U.S. economy was in recession. Now times are tough again, and reengineering is offering itself for another run.

Michael Hammer's 2001 book, *The Agenda*, is mostly a restatement of some of the key ideas behind reengineering – customer focus, process management, radical change – albeit with a more subdued tone this time. Companies are clearly interested in cutting costs. Can reengineering overcome its own real problems and its dubious reputation to truly provide value to organizations? And how will it deal with IT this time around?

One attribute of the new reengineering is that it may not be called "reengineering." Abandoning that term, with all its baggage, may be the easiest way to signal a new intent. Jim Champy has obviously been wrestling with this issue. His latest book originally used the term *e-engineering*, but the name was later changed to *x-engineering*, signifying a cross-organizational focus. Maybe it will be called Six Sigma (or one step beyond, Seven Sigma) or even something as simple as "process redesign."

Whatever the name, the next version of reengineering should still be focused on processes but shouldn't be restricted to the back-office processes. A lot of the value and innovation in organizations today comes from knowledge workers and knowledge work processes, which went largely untouched in the last round of reengineering. These processes – marketing, new product development, strategic planning and even management – ought to go under the microscope this time.

Much of the buzz about reengineering's return is around the redesign of business-to-business processes. A chapter of Hammer's new book, for example, is devoted to this topic, and all of Champy's is. We agree that the long-term trend is to create stronger and more automated linkages between suppliers and customers. But companies have been burned before on the difficulty of building such linkages. Remember all the talk in the business-to-business exchange world about how companies in entire industries would integrate their processes and systems so that customers could shop and do deals with any exchange participant? It didn't happen, and now many exchanges are history.

Not only was implementation costly and slow, but succeeding at the standards would lead to the commoditization of their products and competition based only on price. As we learned with internal reengineering, it's much easier to design new processes than to implement them.

The new version of reengineering will also have a more diverse set of technologies (beyond ERP). Today an enterprise system can address customer service and sales, product development and analytical processes that weren't even thought of in the early 1990s. Other new tools will vary by the process you're seeking to transform but include Web services and marketing automation.

As new tools proliferate, they will be difficult to integrate. The goal of cross-functional, cross-business-unit and cross-organizational integration will continue to be elusive and will undoubtedly inspire a large number of consulting projects.

Since we now know that the big, one-time swing at process change is less likely to succeed than a continuous process improvement approach, we hope that the new reengineering will combine the incremental, continuous approaches of total quality management or Six Sigma with the power of IT.

– Thomas H. Davenport and Laurence Prusak, with H. James Wilson

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honorable men. This unfounded optimism was, however, a major factor in the rapid rise and fall of reengineering. Inspired by the book, managers initiated projects with high expectations of rapid success. But when they encountered difficulties and slipping project deadlines, many became disenchanted and dropped their projects.

Implementation Problems

The gurus of reengineering made some mistakes, but then so did many of the practitioners. First of all, many managers reinforced the numerous errors made by the gurus. They focused too much on process and not enough on practice — and didn't involve the people who did the work. Just as some irresponsible writers and consultants generated exaggerated rhetoric and repackaged ideas in reengineering, so did companies.

Corporate communications departments teamed with senior executives to create reengineering programs with names like Advantage 2000, Program 10X and, perhaps most unfortunately, Project Infinity. They predicted radical improvements well before they were achieved. In some cases, they argued for funding by calling their projects "reengineering." The worst offense, of course, was to lay off people and dignify the act as reengineering.

But there were several other, more subtle problems with how companies implemented reengineering. One is that executives turned too much of their initiatives over to outside firms — both consultants and vendors of enterprise software (such as ERP systems). The software vendors supplied a relatively easy way to automate a broad range of business processes in an integrated fashion.

Not surprisingly, the managers of reengineering projects flocked to the enterprise software vendors such as SAP AG, Oracle Corp. and PeopleSoft Inc. and wrapped up their reengineering and ERP projects into one integrated change program. But these companies probably relied too heavily on the software as the way to implement reengineering. While the packages were built around best practices, they were generic rather than specific to a particular company's needs. Because it was difficult to modify these systems, most firms ended up with the same processes and information support as every other firm in their industry. Reengineered processes were supposed to yield competitive advantage, but this was impossible with heavy reliance on an enterprise software package.

Also, many corporate reengineers took on too much change at once. Encouraged by the rhetoric of some gurus, they tried to change multiple processes, information systems, organizational structure and sometimes even business strategy all at once. Such all-encompassing change in a short time frame is difficult, if not impossible. One observer noted that it was akin to pilots attempting to change all the engines in a jet airplane at once while flying through the sky. It may be possible, but the risk of failure is great.

The Good Stuff

Despite the problems with the reengineering movement, you might ask, does it have any ideas worth keeping? You bet.

In fact, almost all the ideas within reengineering have substantial merit when used in moderation. Certainly, firms should sometimes address broad, cross-functional processes. And from time to time, they need a serious kick in the pants.

Sometimes it's better to throw a broken process away altogether and start from scratch than to improve it incrementally. And IT can no doubt be a powerful enabler and reshaper of processes.

The key is to also remember that reengineering involves risk. Any time an organization needs radical change to deliver the results it needs, it's more likely to fail or to come up short.

Like baseball players who swing for the fences or soccer stars who take kicks from midfield, they'll miss their goal most of the time. But sometimes, desperate moves are called for.

LESSONS LEARNED

- **Don't forget that any change must be implemented by people. If their desires and behaviors aren't front and center in any new business approach, it will have a tough time succeeding.**
- **Don't seize upon the most radical, hype-laden description of the new business idea. Sure, it can help to get your colleagues in the executive suite excited about a new initiative, but the expectations may be raised higher than what you can achieve.**
- **When a new idea comes along, don't forget about the old ideas. Reengineering should augment rather than replace other management ideas. No single business idea is all-encompassing or all-powerful.**
- **Radical change is inherently riskier than incremental change. Still, sometimes the risk of radical change is preferable to alternative fates – like going out of business!**
- **Revolutionary and violent rhetoric is a bad sign in writing and speaking about a new business idea. Ask yourself why the authors have to work so hard to get your attention.**

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MORE EXCERPTS

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OUTSOURCERS: DO THEY MEASURE UP?

Companies are using benchmarking or baselining tests to make sure they're not paying too much to outside contractors.

BY THOMAS HOFFMAN

BILLY MELLON

INFORMATION IS POWER, and that's especially true in IT outsourcing deals. So a growing number of IT executives are demanding that contracts include clauses that enable them to compare the contractor's costs and service levels with industry benchmarks a few years into the contract.

A bank, for example, might invoke its benchmarking clause three years into a data center outsourcing deal to make sure that the vendor is providing mainframe CPU cycles at a reasonable cost.

The benchmarks might also compare the amount of downtime the bank is experiencing to industry averages, the size and duration of the batch processing runs, and other measurements to gauge the efficiency of the service provider.

If the benchmarking tests reveal that the outsourcer is charging considerably higher costs for its services compared with industry averages or is failing to meet other service-level agreements, the bank has several options. It could elect to renegotiate its contract with the outsourcer, invoke the financial penalties in the contract, bring the function back in-house or bid it out to other vendors.

"If we're going to sign long-term agreements with our supplier partners, we certainly have been asking for benchmarking tests to be implemented into the contracts so at points in time we can test the marketplace," says Cathy Brune, chief technology officer at Allstate Insurance Co. in Northbrook, Ill.

One benefit is that if there's a sudden drop in market prices for a particular IT function, such as help desk support, "we're not saddled with contracts where we're being charged too much," Brune says. In addition, benchmarking agreements make her more comfortable in signing longer-term outsourcing deals. That way, "we're not in constant churn or constantly reworking contracts," she adds.

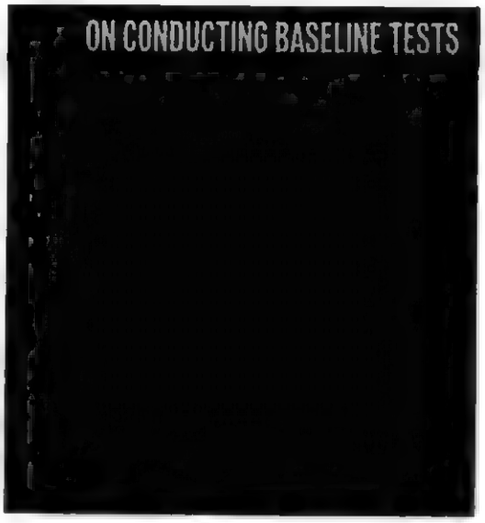
Brune's not alone. The Hackett Group, an Atlanta-based IT advisory service that has a database of nearly 2,000 benchmark participants, estimates that it has seen a 25% to 33% increase in the number of benchmarking clauses written into outsourcing contracts over the past year, says director Scott Holland. "It's on the tip of everyone's tongue," says Holland.

The outsourcing contractors don't like benchmarking clauses, though they often feel forced to accept them. The problem is that an outsourcing contract is typically front-loaded, meaning the price is low in the first two years to give customers the upfront cost savings they're seeking, but then climbs in the third and fourth years so the contractor can make a profit.

Outsourcing vendors complain that benchmarking is unfair to them because the tests single out a period where they've built in a short-term "uplift" in prices to cover their costs, says Rod Hall, vice president of consulting at Compass North America in Chicago. Moreover, the tests don't adequately examine costs and service levels over the lifetime of a contract, he adds.

A new wrinkle is the emergence of *baselining* services. Whereas benchmarking takes a snapshot of service metrics, baselining compares the *average* costs and service levels through the life of a contract.

Baselining can also be used to compare the year-over-year costs and the efficiency of an internal IT department.



Vendors obviously see baselining as the fairer approach. And some customers like baselining because it gives them a better idea of the average costs they're paying over the life of a contract and how those compare with peer and vendor averages.

So if a vendor's costs and service levels are in line with industry averages, most customers would be content with that rather than going through the expense and headaches of negotiating a new contract. With baselining tests, says Hall, "a customer can determine from start to finish if this is a reasonable contract or not."

The Offshore Component

Interest in baselining has also heated up as more companies have started to send software development and maintenance work offshore to take advantage of lower labor rates.

But companies aren't simply using baselining services for cost comparisons, says Michael Mah, a senior consultant at the Cutter Consortium and a partner at QSM Associates Inc. in Pittsfield, Mass. The metrics can also be used to keep an eye on offshore practices.

Because of the abundance of low-cost programmers overseas, some offshore providers that get paid based on the number of programmers they use will try to place extra bodies on a project to pump up their revenues, according to Mah.

"But if you double the labor, you won't double your productivity, and sometimes you end up introducing more software errors and running into higher costs" to fix them, he says.

That's why it's important for outsourcing customers to examine various metrics, including the cost per function point to produce or support code, the amount of functionality being delivered over a period of time, and the productivity of programmers and development teams, says Mah. The trick, he says, is knowing which metrics are really important.

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BRIEFS

Auto-ID Technology Could Save Billions

Auto-ID, a technology that tags and tracks inventory and equipment, could save manufacturers and retailers billions of dollars each year, according to research this month from Accenture Ltd. Auto-ID is a combination of electronic product codes and radio frequency identification that Accenture said can improve production operations, asset use, forecasting and inventory by pinpointing the location and status of products as they move through the manufacturing and retail value chain. Standards are the key to enabling interoperability among multiple vendors, said Accenture.

PNC Bank Taps Scales as New CIO

William Scales, an IT executive with more than 20 years' experience in the banking and financial services industry, has gone to work at PNC Bank in Pittsburgh as the CIO of its Treasury Management division. In this newly created role, Scales will be responsible for the technology-related strategy and systems that support PNC Bank's customized business services and cash management technology. He previously held executive positions at Principal Capital and Wachovia Corp.

AMR Forecasts ERP Software Market

According to predictions from AMR Research Inc. published by eWeek Inc. last week, a merger between PeopleSoft Inc. and J.D. Edwards & Co. would give the two companies a combined 14% of worldwide enterprise software sales for 2003. Oracle Corp., with 13% market share, would become the third-largest vendor in terms of revenues. SAP AG would retain market leadership with 30%. Best Software Inc. would maintain 4%.

PAUL GLEN

Big Benefits From 'Microdeliverables'

TOO OFTEN, failing projects surprise us. How many times have you thought a project was going along fine only to discover when the delivery deadline drew near that everyone on the team was two months behind schedule? In situations like that, you wonder, "How could I have missed that this project was running two months late? What planet was I on where it appeared to be on time?"

Given that approximately three-quarters of all technical projects fail to meet their schedules, budgets or feature-set goals, you'd think we would be better at spotting groups that are "off the rails." The reality is that it's not easy to determine when a project is in trouble, and problems that seem obvious in hindsight are murky at the time that they occur.

Monitoring project progress is an important part of a leader's role. Knowing when and how to intervene in failing projects is critical to the overall health of any technology organization. Whether the intervention is to cancel a hopeless effort or to correct team skill or resource imbalances, managers need to spot difficulties early in order to disasters.

Of course, projects don't slip two months in one day. They fall behind a little every day, and the slippage accumulates until we notice it. So the question is, How can you notice the problems and fix them when they're molehills rather than mountains?

Most project methodologies call for monitoring task completion rates, counting hours expended and tracking the budget to check on the health of a project. Unfortunately, I find that these methods are inadequate to gauge real progress. Estimating task completion is notoriously subjective. The last 10% always seems to take 80% of the time. The number of hours expended has nothing to do with progress; effort rarely equals results. And although it's important to know how much of your budget has been spent, any positive correlation between the percentage of budget expended and percentage of project completed is generally coincidental.

The best method that I've found is to use what I call "microdeliverables." Most projects are planned with a series of tasks that lead to major deliverables: the documents, deployments or code that the tasks create. But these deliverables are usually the result of many people's work over a period of weeks or even months.

Microdeliverables are much smaller, individual efforts. When you plan for microdeliverables, each person on a project has responsibility for some physical product every few days. Then you can gauge the health of the project by checking whether the microdeliverables are done or not. You don't have to wait for months until a big deadline looms to check the health of a project.

When planning for and using microdeliverables, there are a few simple rules to follow:

1. Never let anyone go longer than a week without owing a microdeliverable. Any time a person goes longer than a week without a deliverable, he goes into a black hole of unknown progress. You can't really gauge how he's doing, and you're more likely to be surprised.

2. Microdeliverables are either done or not done. When measuring progress, there are only two states for microdeliverables. They're either 100% complete, or they're 0% complete. Progress is marked only by final approval of the item. Otherwise, you get into the subjective world of guessing how close to done things are, which is inevitably inaccurate.

3. Progress isn't measured in effort, but in microdeliverables. The only meaningful measure of progress is whether microdeliverables are done on time or not. If they're coming in late, the project is late. If they're on time, the project is on time.

4. A microdeliverable is the responsibility of only one person. If the deliverable is owned by more than one person, it becomes a problem to figure out where the real difficulties lie.

Using these simple rules, you can begin to identify project problems quickly and accurately and avoid the surprises that are otherwise all too common.

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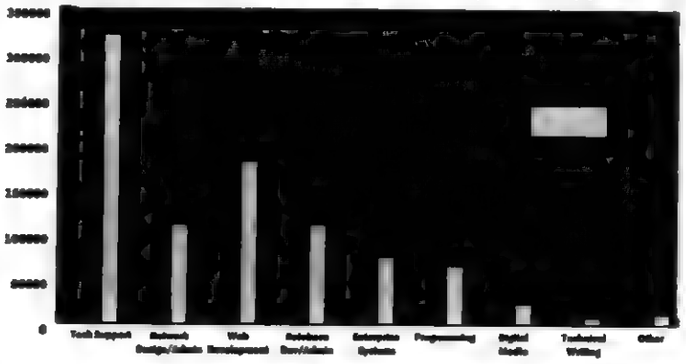
IT Careers: Top Jobs in IT

Fully nine of every 10 information technology professionals works for a non-IT company, marking a significant shift of IT workers from software development and consulting firms to more traditional business operations – manufacturing, health care, financial services and the like.



It's a much different picture than in the year 2000 when the hot jobs were found within the IT industry. Today, the more stable situation lies with non-IT companies. And the jobs to target are those in the areas of database management and administration, security and technical support.

According to the ITAA workforce development study released in May, more than 10 million people work as IT professionals. The report indicates that IT companies are more likely to use off-shore IT resources for projects, and non-IT companies are more likely to stick to hiring plans, to keep jobs at home and are likely to follow corporate-wide compensation plans. The report also found that downsizing has slowed, with hiring slightly outweighing layoffs for the past two quarters.

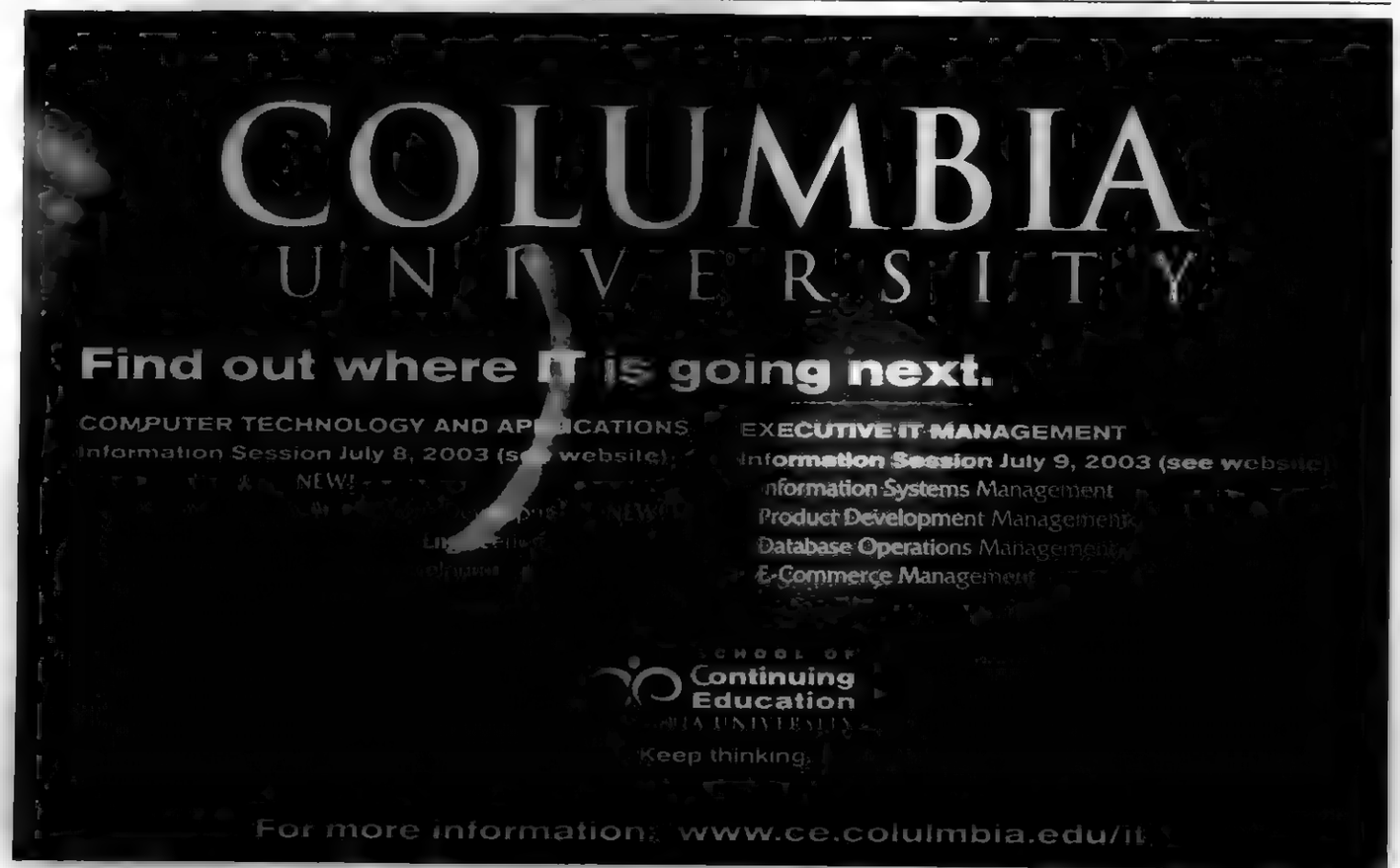
More than 400 hiring managers responding to ITAA's survey reported that while demand for IT workers continues to fall, they plan to hire better than 490,000 IT workers in 2003. Despite a real tumble since 2002, tech support as a category continues to employ the most IT workers, primarily to improve and fully capitalize on systems supporting non-IT business strategy. The number of web development positions also took a dive, while database development/administration and enterprise systems positions remained relatively steady.

What's driving the hiring? Planned investment to improve operations. The federal government is driving hiring in cyber-security, for agencies ranging from the Department of Homeland Security to the Department of Agriculture. While most every federal agency is looking for IT professionals, so too is the Department of Defense in its recruitment of uniformed personnel to man the varied high tech systems being used in peacekeeping and warfighting. While the telecom industry is far from a recovery, Sprint is driving a trend toward next-generation technology with the announcement of a multi-billion dollar investment to support a 12-year plan for new technologies.

Companies such as IBM, HP, Dell and Oracle also continue to drive hiring as they provide on-demand computing services to their clients.

IT Careers

For information on recruitment advertising,
Please contact: Nancy J. Percival,
Director, Recruitment Advertising,
at 800-762-2977
500 Old Connecticut Path
Framingham, MA 01701
Produced by Carole R. Hedden



ITcareers.com IT Careers

PROGRAMMER to create, modify and maintain computer programs using Clipper, Visual Basic, HTML, JavaScript, Xbase++, Crystal Report, ADO, OCR and SQL Server; secure specifications to determine scope and limitations of project; review flow charts, prepare and redefine programming structure to meet changing business needs. Require: Bachelor's in Computer Science/Information Systems and two years of experience. Competitive salary and benefits. Apply with resume to Recruitment Manager, HealthLogic Systems Corporation, 6185-C Buford Highway, Norcross, GA 30071

Programmer Analyst required by Comp Software Dvlpmt Co Bach & 2 yrs exp to dsgn, dvlp, maintain & implmt Oracle d/base, Forms & Reports. Dsgn Client Server based systems using HTML/DHTML & Oracle. Perform data modeling using Designer 2000. Write procedures & triggers on database in Forms & Reports using PL/SQL. Job to be performed at Wilmington, DE & various unanticipated client sites throughout the US as assigned. Resume to: Tmnet Sol., Inc. P.M.B. #5534, 2711 Centerville Rd. Ste 120, Wilmington, DE 19808.

Web Product Analyst II

DUTIES: Consult on system design, utilization, & availability of web based products & technologies for credit card processing systems; act as a liaison between system experts & the client; ensure methodology is followed & standards are met while tracking all projects & maintaining appropriate documentation; lead clients & TSYS entities through life cycle implementation, enhancement, & customization projects. Develop functional requirements & specifications, use cases & process flows for each project; assist in developing new products & enhancements; manages project plans in coordination w/ other TSYS entities including technology, operations, & messaging services.

REQUIREMENTS: Bachelor or equiv in Business Administration, Information Systems, Network Engineering, or Computer Science + total of (5) years experience in credit card or financial services or which including (2) years of experience w/ TSYS processes, system support, and project management. Must have legal authority to work in the U.S. Please send resume demonstrating all minimum requirements to: Kerri Alexander, 1600 1st Ave., Columbus, GA 31902. Ref # WPA/PA.

Software Engineer: Develop and maintain software for a web load testing product that helps Web sites to improve quality and performance of service they provide to their customers. Research and develop multi-threaded load agent technologies in a distributed software system. Work with QA and product support to identify and correct defects. Work with engineering team to brainstorm and test new ideas. Investigate and assess emerging web and software technologies. Research and develop high-level designs and implement them in code. Provide software performance analysis of load-agent technologies and Web applications. Program in Visual Basic, Java, Microsoft SQL Server, XML, Visual C++, COM/DCOM. Design complex products in a Windows environment and uses object-oriented skills to develop products. Requirements include a Master's degree or equivalent in Computer Science or closely related field and one year of work experience in the job offered or related field of software engineering using Java and object-oriented design skills. Applicants must have unrestricted authorization to work in the United States. Salary $82,400/year. 40 hours/wk. Respond with two copies of resume to Case #200202025, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

Sr Software Engineer/Developer to design, develop, test & maintain applications to support a complex Global Reference Database System w/in a multinational mutual fund environment. The database is at the hub of a critical trading environment with data distributed internally to multiple fund accounting, equity trading system decision-support & info management applications. Will create, populate & maintain the database that incorporates sound business rules including referential integrity, data scrubbing, auditing & data verification. Will also provide application & production support to end-users. Requires Bach or equiv in CSc, Technology, Eng, Math or Physics plus 3 yrs experience in job offered. OR 3 yrs developing applications in an AS/400 environment. Candidate must also possess demonstrated experience in design & development of B2B applications using IBM Websphere Application Server on IBM iSeries System, dem expertise developing B2B applications on ATG Dynamo 6.1 using Dynamo Application Server & Dynamo Commerce Server & dem expertise developing & tuning DB2 UDB & Oracle SQL Stored Procedures using SPL & PL SQL. Sal $76,000/yr M-F 9A-5P. Send 2 resumes to Case #200201101, Labor Exchange Office, 19 Stanford Street, 1st fl., Boston, MA 02114. EOE. Applicants must be workers eligible to accept full-time employment in U.S.

Senior Database Administrator. Responsible for assigned database application and for accepting the database design, agreeing on database management, system acquisitions, performing or checking sizing results, acquiring requisite system software and system/storage devices, performing data change control, installing and upgrading database software, implementing medium to large size production, test and staging databases. Maintain a dictionary or repository. Assist operations staff in the setup of the required operations environment for running the system. Assist in the provision of agreed service levels to the user/business monitoring the system (deriving statistics for usage performance problems utilization, etc.). Ensure integrity of data in the database per defined database constraints and help to maintain and define such constraints with active participation from development groups. Administer several complex objects in development project. Analyze issues and make decisions. Work on non-standard problems or issues and create and document solutions. Administer and implement security integrity controls. Follow and adhere to policies, procedures and standards relating to database management. Use knowledge of Oracle, Unix, Windows/NT/2000/98 and Internet Security. Requirements include a Bachelor's degree or equivalent in Computer Science, Electronics Engineering or closely related Engineering field and six years of work experience in the job offered or related field of Oracle database administration. Applicants must have unrestricted authorization to work in the United States. Salary $82,000/year. 40 hours/wk. Respond with two copies of resume to Case #200202599, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

Senior Software Engineer to Louisville, KY. Design and develop multi-tiered Internet software using Microsoft tools. Design and administer SQL Server databases used for software development. Participate in sales cycle. Requirements: B.S. in computer science or B.S. in business with computer information systems or management information systems focus. Two years hands-on experience in the job being offered. $72,000 & single health insurance. AN EQUAL OPPORTUNITY EMPLOYER. Send resume to Polarity Software, 1050 Bardstown Road, Louisville, KY 40204.

Seeking qualified applicants for the following positions in Memphis, TN. Technical Advisor/Scientific Programmer: Provide technical advice and expertise for real time or batch scientific programming systems/applications. Requirements: Bachelor's degree or equivalent in computer science, operations research, mathematics, statistics or related quantitative discipline plus 7 years of experience in systems development, including 3 in scientific environment. Experience with ArcGIS and Visual Basic also required. "Master's degree in appropriate field will offset 2 years of general (non-scientific) experience. Submit resumes to Chris Holliday, Federal Express Corporation, 3680 Hacks Cross Road, Bldg H, 2nd Floor, Memphis, TN 38125. EOE M/F/D/V.

Sr SW Eng for wireless telecom co in Redmond, WA. Duties incl complex analyses re dsgn dvlpmt & impl SW for wireless telecom products & services; dsgn & dvlp embedded real-time SW systems w/SW project teams & HW product dvlprs for wireless telecom & networking products & apps; impl SW systems; dvlpg SW reqs & prep detailed dsgn docs; & consult w/customers re reqs, dsgn & impl of SW systems. Job reqs incl 3G wireless comm stds (CDMA, GSM) & networking stds (TCP/IP, Internet RFCs); proficient w/ C/C++, assembler, CVS, Windows, VxWorks & Nucleus RTOS, JTAG debuggers, ARM dvlpmt tools, Gnu CC, gdb, Visual C++ & asm w/MIPS, ARM & M68K, embedded targets. Reqs: BS (or equiv) in Eng or related field; 10 yrs exp in job offd or 10 yrs exp in dvlpg wireless apps. Respond to HR Mgr, Elektrobit Inc, 11121 Willows Rd NE, Ste 200, Redmond WA 98052.

Senior Software Engineer-Lead and/or participate in specification, design, development and support of products including overall architecture, component interfaces and communication schemas; client and server-side programs using Java, C++ based product API's; Oracle, SQL Server and LDAP database schemas. Assist with development of project plans and schedules. Follow rigorous software engineering standards including developing product requirements, functional and design specifications and adhering to coding standards. Create new tools and procedures to enhance the development process. Lead efforts to identify and resolve any product performance issues. Mentor junior engineers. Requirements include a Bachelor's degree or equivalent in Computer Science, Information Systems or related field and three years of work experience in the job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $86,000/year. 40 hours/wk. Respond with two copies of resume to Case #200202319, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

Design Engineer. Develop and deploy custom software applications that enhance the productivity and communication of the company's engineers, the gathering of user requirements, and the design and development of web-based applications for solving engineering and information systems problems. Develop applications in a multi-tiered environment that utilize state-of-the-art technologies such as object-oriented internet programming and relational databases. Use Oracle Database administration PL/SQL script-ing, DB2, DB2 EEE, SQL Server Administration, Perl scripting, Wwrunner, Unix System administration, HTML, ASP, and Veritas Volume Manager. Support databases in storage array environment. Requirements include a Master's degree or equivalent in Computer Science, Electrical Engineering or closely related field and three years of work experience in the job offered or related field of software development. Applicants must have unrestricted authorization to work in the United States. Salary $75,000/year 40 hours/wk. Respond with two copies of resume to Case #200202161, Labor Exchange Office, 19 Stanford St., 1st Fl., Boston, MA 02114.

COMPUTER PROGRAMMER to design, develop and maintain computer programs for current Enterprise Project Management Software System(EPMS) using Java, JSP, XML, Oracle 9i, and ASP; develop interfaces to access Primavera Expedition project/contract control subsystem and P3e scheduling subsystem, program and maintain Web-based on-line invoice system/and/Web portal applications. Require Bachelor's in Computer Science/Information Systems and two years of experience. Competitive salary and benefits. Apply with resume to: Regional Manager, 4U Services, Inc., 5295 Highway 78, Suite D-273, Stone Mountain, GA 30087

Database Administrator/Analyst for banking s/ware applics co. in Miami, FL. Reqmts: Bach or equiv in Business Admin. 4 yrs exp in job offd or 4 yrs exp as Database Analyst/Business Analyst in related industry. Will consider applicants w/any suitable combo of education, training or exp. Respond to Sally A. Herrick, HR Director, ERAS, 13501 SW 128th St, Ste 117, Miami, FL 33186.

APPLICATION SYSTEMS ARCHITECT Responsible for applications systems design, balancing optimization of application access with resource use factors. Design and construct application systems and develop requirements and design specification for new and existing applications. Create, revise and maintain document requirements for data, workflow, logical processes, hardware and operating system environment, interfaces with other systems, internal and external checks and controls, and outputs. Require: Bachelor's degree in Computer Science, Engineering, or a closely related field, with 4 years of experience in the job offered or as a Software Programmer/Consultant. Experience must include 2 years of application systems design experience using Visual Basic and SQL Servers. Send resume to: Recruiter - Human Resources, AgFirst Farm Credit Bank, P.O. Box 1499, Columbia, SC 29202. (No Phone Calls Please).

Kanbay is a premier global systems integrator that provides high-quality, high-value solutions to the insurance, banking, credit card, consumer lending and securities industries. We provide a complete life-cycle of services including program management, business analysis, technology planning, architecture, application development, maintenance and support. Our specialized services include business intelligence, package selection, customization, implementation and testing.

The following opportunities are based of our corporate headquarters in Chicago and locations nationwide

We are seeking candidates with technical skills in: JAVA, J2EE, OOAD, WebSphere, XML, .Net, COBOL, CICS, DB2, JCL and VisionPlus expertise in an MVS environment.

- **Project Managers**
- **Technical Architects**
- **Project Leads**
- **Sr. Programmer/Analysts**
- **Associate Consultant**

For consideration, forward response to: Kanbay, Inc., 6400 Shafer Ct., Suite 100, Basement, IL 60018. Fax: 847-318-0784. Email: network@kanbay.com. Please reference code CW0603 in all correspondence. Kanbay is an Affirmative Action Employer/EOE organization.

Kanbay

www.kanbay.com

Database Design Analyst - sought by Kiretsu Technology, Inc., a S/ware Consulting Co., for position in Pembroke Pines, FL. Must have BS & 4 years s/ware dvlpmt exp. Respond by resume to Kiretsu Technology, Inc., 8362 Pines Blvd., Suite 303, Pembroke Pines, FL 33024, Attn: Lonnie Spears.

Programmer Analyst needed w/exp in web & Windows applications using DHTML (Javascript & VBScript), ASP, JSP, Webconnect, XML, VB, VFP, SQL server, Oracle, IIS & Apache. Design & develop reports using Crystal Reports. Develop WAP applications using WML. Send resumes to Vedas, 23 Crosby Dr., Bedford, MA-01730.

Senior Software Engineer Engineers new client-server apps using latest desktop, web & database technologies & Windows platform tools. Models and earthquakes, tornadoes, hurricanes, floods, incorp numerical simulation parts internally at sites in area of interest. Uses numerical analysis, subst. scientific & computer s/w developed to ensure products quality. Salary $78K, 40 hrs/wk. Min. req: BS Physics, Math, Computers or related, 2 yrs exp in s/w dev, internet tech & systems integration. Spec. req. numerical analysis, Microsoft Visual C++, SQL Server, ISAPI programming, multithreaded s/w programming, Winsock & Berkeley Sockets and Client/Server programming. Submit 2 copies resume to Case # 200202082, Labor Exchange Office, 19 Stanford St., 1st fl., Boston, MA 02114.

Downtown Law Firm seeks Computer Hardware Technician (evening shift) to perform hardware & software maintenance, configuration (TCP/IP, NIS, NFS, DNS) & operations for a broad range of applics running on Unix HP-UX & Windows. Perform daily & monthly production processing & backups using tar, Cpio, Omnibak II, Unix System Administration (kernel configurations, file system structure, Raid, user & process management, programming/scripting). Maintain PC based systems including MS Office troubleshooting. BS in Comp Info Sci or Comp Engg w/relevant work exp. req'd. Send resume to: Admin, Personnel, Cleary, Gottlieb, Steen & Hamilton, One Liberty Plaza, NY, NY 10006.

Programmer Analyst wanted by private label specialty retailer in Warrendale, PA. Must have a Bachelor's Degree or foreign equiv. degree in IT or related and 3 years exp. in job offered or in database and software application development. Experience must include knowledge of SQL, PL/SQL, SQL*PLUS Commands, PRO*C, UNIX Shell Script, VB-COM, and Visual C++ languages; NT and UNIX Operating Systems, and SQL*LOADER. Respond to Shawne Lemke, HR, American Eagle Outfitters, Inc., 150 Thorn Hill Drive, Warrendale, PA 15086.

BYSoft, Inc (Houston, TX) is seeking Software Engineers with exp in using OpenGL, VC++, MFC, VB, XML, XMotif, COM/DCOM, and ODP on UNIX/Linux, Windows NT/2000. Send resume to 10039 Bissonnet, #200, Houston, TX 77036. 713-776-1111(T) or info@byscitinc.com. Attn: Christine.

Seismic Micro-Technology, Inc. (Houston, TX) is seeking a Software Tester to test geoscience software 1 yr. exp. in seismic interpretation using geoscience software. Send resume to: 9684 Katy Fwy, #400, Houston, TX 77024. Attn: Manager of HR or 713-464-8440(F).

PROGRAMMER ANALYSTS for Chicago, IL office. Design & Develop software applications using C++, Oracle, Sybase, XML, UML, Coolgen, Interwoven, ClearCase, Clear-Quest, Plumtree, ITS, PVCS, UNIX. Bachelors req'd in Computers, Engineering or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Contact HR Manager, Stellar Software Network, Inc., 3601 Estacado Ln, Plano TX 75025.

TechNation Software Consulting, Inc. a software consulting company with its main place of business at Sioux Falls, SD has multiple positions for Software Professionals in the area of Datawarehousing Technologies and in Middleware. TechNation intends to build a top notch team that can provide solutions in these areas and is looking for professionals at TechLead, Senior programmer analysts and developer positions.

1. Techleads: Will lead a team of 3-5 programmers in new development/maintenance, provide design, lead the team in development and will allocate work and take responsibility of time schedules.
2. Senior Programmer Analysts: Will analyze client needs, evaluate existing software's, gather requirements, and help design the specs along with taking part in customization of software.
3. Developers: Will code, help customize software and will perform unit testing.

Requirements: All positions require BS in Comp Science or its equivalent with more than 3 years of overall IT Experience. All positions will require experience in one of Business Objects, Cognos, Informatica, Oracle Express, Siebel, Tibco or in WebMethods with experience in allied Internet technologies.

TechNation provides onsite-consulting services to clients across the United States and hence a key requirement for all positions is that candidates must be willing to relocate across the country for periods between 3-6 months or as needed.

Send resumes to Rona Thoft, 300 N Dakota Ave Suite #505-B, Sioux Falls, SD 57104 or email rthoft@thetechnation.com Fax: 530-733-2775

Senior Developer-Perform life-cycle web-based application development including turning business requirements into system specifications, designing database schemas, creating middleware components, creating user interfaces, and implementing applications using the latest client/server and web technologies. Design and develop robust security infrastructures to support the Windows-based application to achieve fine-grained functional and data security requirements. Research and recommend new network, application and web security method and implement these methods in related projects. Communicate the end-user feedback to the project leadership for action. Correct problems, modify or enhance programs and software functions to accomodate changing business rules, and support the application rollout at various customer sites. Use knowledge of MS SQL Server 2000. Requirements include a Master's Degree or equivalent in Computer Science, an Engineering discipline or related field and at least three years of pre-or post-degree work experience in the job offered or related field of software engineering using Microsoft development technologies. Applicants must have unrestricted authorization to work in the United States. Salary $85,561/year. 40 hours/wk. Respond with two copies of resume to Case #200201803, Labor Exchange Office, 19 Staniford St., 1st Fl. Boston, MA 02114.

Developer sought by oncology/therapeutics div. of pharma R&D co. in San Francisco, CA. Candidate must have a Bachelor's degree or equiv. in Computer Engineering or related. Min. of 5 years experience in application development & database design & development on Oracle platform required. Extensive exp. in OOAD, Object Oriented Programming, DBA, database design tools, data modeling tools (ERWin), SQL, PL/SQL, Unix (shellscripts, FTP automation), Java, Oracle 8i database, Oracle 11i applications (order fulfillment), Blue Martini CRM and HTML, pharma pricing s/w customization required. Experience in pharma pricing required. Must have strong analytical skills in pricing infrastructure, information services & data analyses, & excellent oral & written communication skills. Send resumes to: OTN, Staffing Dept., 395 Oyster Point Blvd., Suite 405, South San Francisco, CA 94080, Job Code: VM-764 or fax resume to (650) 737-9576.

Network Administrator I: Entry-level position to install & support company LAN, WAN, Internet system. Develop company graphic & animation website, also assist to maintain, plan, coordinate & implement network security measures. Req. Bachelor's in C.S. or any computer related field. No exp. req. but must demonstrate ability to perform job through course work or project involving C, C++, graphic & animation programming. Resume w/ transcripts to: Pres., Color Imaging Inc., 4350 Peachtree Industrial Blvd., Ste 100, Norcross, GA 30071

Programmers, Jr. Programmers, Software Engineers: Analyze, design and develop apps in (a) MQ Series, Shell Scripts, Java and related tech., Oracle & related tools, SQL Loader, CGI/Perl, Visual Basic, AppWorx and related technologies; (b) C/C++, Cobol, PB, Sybase, Java, Oracle, SQL Server, XML, Unix, MQ Series, Weblogic and related technologies. US Workers only. Consulting positions requiring travel. Prevailing wage/benefits. Send resume to HR, Datum America Ltd., 850 Boyce Rd., Suite 7, Bridgeville, PA 15017. EOE.

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www.itcareers.com

Senior Software Engineer: Lead and participate in specification, design, development and support of Internet Security products, including overall architecture, component interfaces, and communication schemas; client and server-side programs using Java, XML and C++ on both Windows and Unix; Java and C++ based product APIs; Oracle, SQLServer and LDAP database schemas. Internationalize software and globalize product. Develop product requirements, functional and design specifications and adhering to coding standards. Lead efforts to identify and resolve any product performance issues. Requirements include a Master's degree or equivalent in Computer Science, an Engineering discipline or closely related field and two years of experience in the job offered or related field of software development/engineering. Appecants must have unrestricted authorization to work in the United States. Salary $78,000 /year. 40 hours/wk. Respond with two copies of resume to Case #200202158, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

PTC

PTC (Parametric Technology Corporation) is one of the world's largest software companies with a total commitment to product development. PTC's software impacts every area of the product lifecycle, from product planning and engineering to service and support.

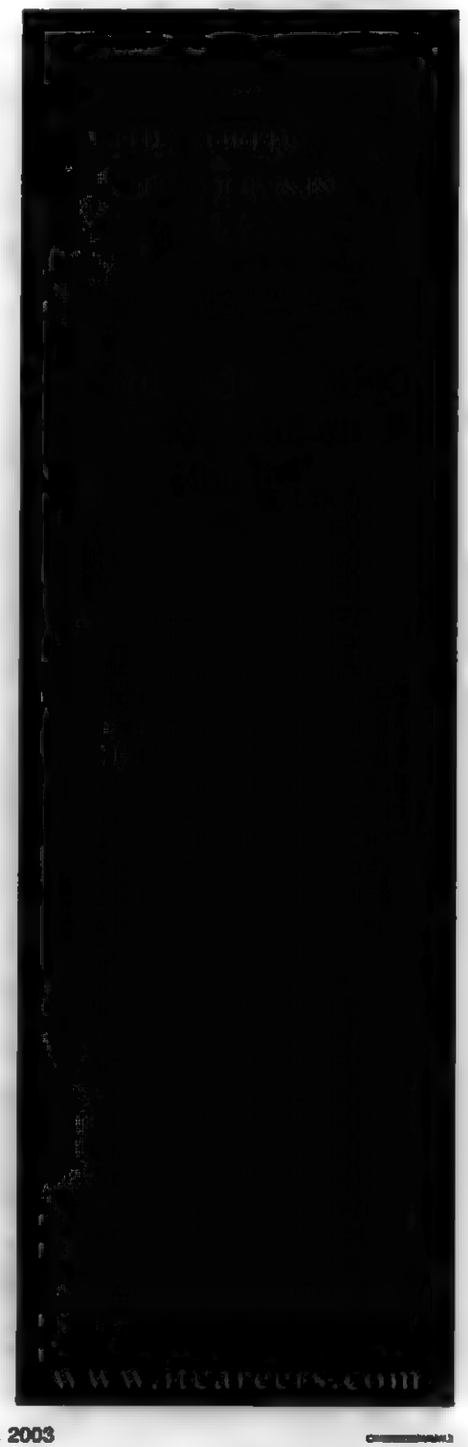
PTC has the following opportunities at its San Jose, CA facility:

- Senior Application Specialists (BS degree plus two years' experience in technical support or a development environment and expertise programming in C or C++ or a MS degree and no experience and expertise programming in C or C++)
- Senior Implementation Consultants (BS degree plus two years' experience in PDM consulting or PDM development or a MS degree and no experience)
- Senior Software Engineers (BS degree plus one year experience in software development and expertise programming in Java and HTML or a MS degree and no experience and expertise programming in Java and HTML)

Please send resume to:
Diane Radula
PTC Human Resources
140 Kendrick Street
Needham, MA 02494
or email to
dirrecruiting@ptc.com

Internet Commercial Artist will design arts/visual graphics for product ads in internet shopping sites with following duties: research on products/services and formulate concept art design/layout using freehand drawing and scratch layout; create sketches for clients review using PhotoShop, EasyPhoto, PrintShop, PhotoImpact and CorelDraw7; design animation graphics with Flash5 and WGT; prepare digitized drawings/pictures and complete final layout for Internet display utilizing HTML, JavaScript, Namo WebEditor5; consult with corporate clients to provide artistic suggestions. Requires BA/BS in Fine Arts, Studio Arts, or Graphic Designing and must be able to perform all the job tasks on the day of hiring. Full time/competitive salary. Resume to HR, Computer Concepts, Inc. 11654 Dorsett Rd., St. Louis, MO 63043. No call/EOE.

Computer Programmer: Develop, design, analyze & test J2EE applications using JSP, Servlets, JDBC, Oracle, PL/SQL, HTML, Java Script & Weblogic Application Server. Develop software applications using Signed applets & RMI. Req. Bachelor's or its foreign dgr. Equiv'l in C.S. or other related engineering field + 2yr exp. in either job offered or Software Engineering or computer programming. Resume to President, Softech Int'l Resources, Inc., 3300 Holcomb Bridge Rd., Ste 270, Norcross, GA 30092



SYSTEMS ANALYST (2 Positions)

Create & modify systems w/comp. mgmt., inventory scanning, stock status database & related components. Using Cool:Gen, VAG, COBOL, DB2, CICS, JCL & client/server techs., web specs. Do system modifications, participate in tech design of systems enhancements & develop, test, & implement app. code. Eval structure & flow of data through assigned systems. Implement system changes & enhancements w/support for continuing systems maint. Make on-line & batch system changes, as well as write & execute test plans & data. Eval structure & flow of data to determine results, sources & structure of data, & file org. for optimal system usage. Requires B.S. (or foreign equiv.) in Comp. Sci., Math, Engr., or related field & 2 yrs exp. as Systems Analyst, Prog. Analyst, or Prog./ EOE. 40 hrs/wk. Send resume to Kim Richtsteff, Bell States Services, Inc., 2601 W. Tyvola Rd., Charlotte, NC 28217

PROGRAMMER ANALYSTS for Chicago, IL office. Design & Develop software applications using C++, Oracle, Sybase, XML, Coolgen, Interwoven, ClearCase, ClearQuest, Plumtree, ITS, PVCS, UNIX. Bachelors req'd in Computers, Engineering or related field of study +2 yrs of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Contact HR Manager, Regency Technologies, Inc., 1100 Airport Freeway, Suite 204, Bedford,TX 76021.

SYSTEMS ANALYST to provide on-site consultancy to analyze, design, develop, implement and modify e-commerce applications using Java, Java Servlets, J2EE, DHTML, HTML, VC++, C/C++, VB-Script, XML, HTTP, TCP/IP, JSP, EJB, ASP, Oracle, Sybase, SQL Server and related tools in Unix, Windows and Real-time NT environment. Require: B.S. in Computer Science/Engineering and two years experience in the job offered. 25% paid travel required to client sites within the United States. Competitive salary and benefits. Apply with resume to: Vice President, Compuoom Global Solutions, Inc., 200 Perrine Road, Suite 225, Old Bridge, NJ 08857.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, information technology, engineering or related field plus 5 years of experience in systems/applications development. Experience with Java, either C or C++, and development of transactional distributed systems/applications also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

ENGINEERING

Leading energy services provider seeks Systems Integration Engineer. BS or equiv in CS, Electronics, Engrng, Instrumentation Engrng or related. Must have 5 yrs exp design of control systems that includes 3 yrs exp middle ware, enterprise resource planning or database management; 1 yr design, specification and application of energy mgmt control systems with ew protocols, 6 mos exp systems integration, web based data acquisition and programming of BMS integration protocols; knowledge C++, Java, SQL/Oracle database. Job location: White Plains, NY. Fax resume w/cover to attn: HR Dept-EIS at (914) 448-0057

Network Administrator. Troubleshoot services, connections, installations; roll out & monitor production systems, maintain utilities w/client applications; database admin.; maintain security of systems/data; share responsibility w/ administrators for 24/7 operating systems, network connectivity, system services (citrix servers etc.) Must have Bachelor's in Comp. Sci., Engg. or related, 1 yr. exp., & knowledge of SQL database admin., NT/2000 systems admin., network mgmt., Citrix; IIS; Firewalls, Security. Send resume to Steve Alderfer, HRSoft, LLC, 505 N 4th St., Fairfield IA 52556.

Computers - Sr. Technical Consultants needed. Seeking qual candidates possessing MS or equiv. and/or relevant work exp. Part of the req. relevant work exp. must include 2 yrs. working with Rational Rose, C++ & Open Market Transact. Experience with WebSphere preferred. Mail resume & ref. to: Object Solutions, Inc., Attn: HR, 3025 Harbor Lane, #312, Plymouth, MN, 55447-5119. Please refer to "STC" in your reply.

Systems Analyst. Job location: Indianapolis, IN. Duties: Assist in design, develop. & implem. of Windows appls. using Visual Basic, C++, SQL Server, Java & Oracle. Perform VB software maint. Test & troubleshoot new appls. Perform prob. resolution & gen. maint. of Windows appls & databases. Requires: B.S. in Comp Sci., Eng. or a related field & 6 mths. exp. in the job offered or 6 mths. exp. as a Prog/Analyst or Prog. Concurrent exp. must incl 6 mths. exp. using Visual Basic. Send resume (no calls) to: Lisa Tully, CTG, Inc., 5875 Castle Creek Pkwy., Suite 208, Indianapolis, IN 46250-4328.

Hill-Rom Services, Inc. Batesville, IN. seeks an Advanced Electrical Engineer, Biomedical Product Development. Must have Master's degree or equivalent in Biomedical Engineering or related field. Must have 2 years in the position offered or 2 years as a Program/Product Developer. Forward resumes to Mr. Jeff Lockwood, Hill-Rom Services, Inc., 1069 State Road 46 E. Batesville, IN 47006.

PROGRAMMER ANALYST to analyze, configure, and design computer programs utilizing Cobol, SQL, Java, XML, and utility customer information and billing software. Evaluates new business initiatives and requirements. Resolve technical issues as well as design and implement systems solutions. Require Bachelor's degree or equivalent in Computer Science, Engineering, Business, Math, Physics, or related field plus one year experience in job offered or one year work experience in analyzing, configuring, and designing computer programs, and analyzing, configuring, and designing computer programs utilizing 1) Cobol, 2) SQL, 3) Java, 4) XML, and 5) utility customer information and billing software. Must be available to work on projects at unanticipated sites throughout the United States. Send resumes to SPL WorldGroup, Inc., 75 Hawthorne Plaza, Suite 2000, San Francisco, CA 94105, Attn: Job Code: 106.334

Business Process Analyst. Work Sched. 9:00AM-6:00PM, 40 hrs/wk. $76,980.00 PYA. Evaluate, analyze, develop, install, maintain & support client server databases using Sybase, Oracle, UDB (Universal Database), MS SQL server & Net gateway in corporate facilities (vehicle assy plants & component mfg plants) in NA (U.S., Canada & Mexico). Evaluate, define software testing methods, redesign infrastructure & process, & analyze systems using Unix-based systems, Sybase, CT-Libraries, & C/C++ using object oriented methodologies. Use multiple application development tools including Power Builder, C/C++, Sybase & UDB database management system. Work in technical environment including IBM RS6000 Unix Master (or equivalent). Any Computer Science or Math Discipline. 1 Year exp. in Job or Related Occupation of Systems Analyst. 1 yr. of Related Occupation exp. must include analysis, installation & maintenance of client server databases using Sybase, Oracle, UDB server & Net gateway in vehicle assy &/or component mfg plants in NA, which may be concurrent with Related Occupation exp. Employer Paid Ad. Send resume to MDCD, PO Box 11170, Detroit, MI 48202, Ref.#210981.

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SENIOR SOFTWARE ENGINEER to design, develop, test, implement, maintain and support n-tier application software using Java, Visual Basic, Oracle, Weblogic, Oabase, Kudos Application Server, RightFax, J2EE, JSP, Business Objects and DB2 under SUN Solaris operating system. Mentor junior programmers and engineers. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 5 yrs. of progressively responsible exp. in the job offered or as Programmer/Systems Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to Ravi Kandavalle, President, Everest Computers Inc., 900 Old Roswell Lakes Pkwy., Ste. 300, Roswell, GA 30076; Attn: Job SJ

Programmer Analyst - Unix Administrator for global technology center in Braintree, MA for international hospitality company.

Prog Anal Requires: U.S. Bachelor's Degree or equivalent combination of education, training and experience in Computer Science or Computer Engineering and two years of experience in the following: Software Engineer or Computer Systems Analyst role. Javascript, VB Script, PL/SQL programming languages, Oracle Portal, Oracle database (7.x or higher), Oracle Bea Application Server, Solaris OS, and testing and debugging programs.

Unix Admin Requires: Sun Certified System Administrator and MCSE, U.S. Bachelor's Degree or equivalent combination of education, training and experience in Computer Science or Computer Engineering and two years of experience in the following: Systems Administrator or Programmer Analyst role, HTML and PL/SQL programming languages, Sun Solaris OS, Unix, Windows NT Admin, Oracle database (7.x or higher).

Submit resume to brainbee-jobopenings@thegroupofhotels.com. No phone calls please. EOE M/F/V/D.

Sr Programmer/Analyst Analyze, design, develop, test, implement and maintain B2B & B2C customized enterprise applications using EJB, Java, J2EE, HTML, and related Internet enterprise architectures and technologies. May be used on multi-tier systems related to Internet/Intranet/E Commerce. Must have BS or equivalent in CS/Math/Engineering, Information Systems or related. Must have 2 years exp. in job offered or in Enterprise applications development. Such experience must include Java and EJB. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $80,000/yr. Hrs.: 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to Case No 200202476, Labor Exchange Office, 19 Stanford St., 1st Fl. Boston, MA 02114.

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IDS

existing solutions are not perfect, but they are much better than nothing at all."

An IDS typically operates behind a firewall looking for patterns or signals in network traffic that might indicate malicious activity. Over the past two years, the sensor-based technology has been gaining increasing attention from users who see it as an added layer of protection against attacks that breach other defenses, such as firewalls and antivirus software.

However, several problems with IDSs make the technology more trouble than it's worth, said Richard Stiennon, a Gartner analyst and author of the IDS report.

The biggest is the fact that the systems impose a heavy management burden on companies by requiring full-time monitoring, Stiennon said. The tendency of such systems to generate a very large number of false alarms also adds to this burden, he said. The technology's inability to monitor traffic at transmission rates greater than 600Mbit/sec. can also be a problem, especially with widely deployed high-speed internal networks, according to Stamford, Conn.-based Gartner.

Because of these issues, IDSs will become obsolete by 2005, Stiennon predicted. Instead of spending on technologies that detect intrusions, companies would be more prudent to invest in technologies that are designed to prevent intrusions from occurring in the first place, such as "deep-packet-inspection" firewalls, he added.

"I don't know about obsolete, but IDS is not all the rage it was two to three years ago, that's for sure," said Michael Engle, vice president of information security at Lehman Brothers Holdings Inc.

When New York-based Lehman Brothers installed an IDS about three years ago, the system generated more than 600 alerts daily, he said. Since then, the firm has invested in an event-correlation technology for analyzing IDS data and distilling it into a more manageable volume, Engle said.

"I think it takes an inordinate amount of time to get meaningful IDS data from those systems, hence our investment in event-correlation software," he said.

Engle declined to identify the software Lehman is using, but vendors of such products include NetForensics Inc. in Edison, N.J., ArcSight Inc. in Sunnyvale, Calif., and Intellitactics Inc. in Bethesda, Md.

SOURCE: GARTNER INC., STAMFORD, CONN.

"We agree with a fair amount of the criticism" surrounding traditional IDSs, said Chris Hovis, a vice president at IDS vendor Lancope Inc. in Alpharetta, Ga. But using such issues to dismiss the technology entirely is a mistake, he said.

New correlation, statistical and rules-based filtering technologies are beginning to help companies cut through the noise generated by traditional IDSs and mine useful information from them, said Martin Roesch, chief technology officer at Sourcefire Inc., an IDS vendor in Columbia, Md.

"I think the Gartner report is shortsighted and ignores basic security principles," Roesch said. The notion that intrusion-prevention technologies can stop all attacks is just not realistic, making the need for IDS technology apparent, he added.

"While the technology has been plagued with issues from the past, such as high false positives, evasion tactics and mismanagement, the leading vendors in this space have responded with products that are very powerful in the hands of the right security staff," agreed Michael Rasmussen, an analyst at Forrester Research Inc. in Cambridge, Mass.

Continued from page 1

N/MCI

Defense" and possibly in all of the federal government.

"Today, N/MCI is an industry standard," said Al Edmonds, president of EDS Government Solutions.

But some Navy users, senior officials and even EDS business partners raised concerns about the N/MCI program's approach to security.

"N/MCI is the most secure network in DOD? It's kind of hard to judge that," said Cathy Baber, director of information assurance at the Naval Network and Space Operations Command, which the Navy formed last year to oversee security for N/MCI. "There are still concerns. There are a lot of things that weren't thought about," she said.

One such issue is managing the certification process for connecting N/MCI users to the current Defense Information Systems Network (DISN), the Pentagon's main telecommunications backbone for both classified and unclassified data.

Vanessa Hallihan, program manager for IS security at the Space and Naval Warfare Systems Command, manages the DISN connection process. "We haven't yet come to grips with [N/MCI] as an enterprise process," she said. "The workload is very intense, and I don't have the resources."

Bart Abbott, director of information assurance programs at Raytheon Co., a subcontractor to EDS on the project, said he believes that the N/MCI project team has delivered on the Navy's need for a more secure network, though he acknowledged that there are still wrinkles in the N/MCI security fabric that need to be ironed out.

THE ASSOCIATED PRESS

A V-22 Osprey aircraft is shown over the Naval Air Station Patuxent River, Md., one of the first units to monitor how well EDS meets its service-level agreements under the N/MCI contract.

For example, EDS has piloted the use of public-key infrastructure (PKI) technology at two user sites and plans to roll out PKI for all N/MCI users in conjunction with common access cards, or smart cards. But more work needs to be done to make PKI and smart cards easier to use, he said.

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ALMOST THERE

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IDS

existing solutions are not perfect, but they are much better than nothing at all."

An IDS typically operates behind a firewall looking for patterns or signals in network traffic that might indicate malicious activity. Over the past two years, the sensor-based technology has been gaining increasing attention from users who see it as an added layer of protection against attacks that breach other defenses, such as firewalls and antivirus software.

However, several problems with IDSs make the technology more trouble than it's worth, said Richard Stiennon, a Gartner analyst and author of the IDS report.

The biggest is the fact that the systems impose a heavy management burden on companies by requiring full-time monitoring, Stiennon said. The tendency of such systems to generate a very large number of false alarms also adds to this burden, he said. The technology's inability to monitor traffic at transmission rates greater than 600Mbit/sec. can also be a problem, especially with widely deployed high-speed internal networks, according to Stamford, Conn.-based Gartner.

Because of these issues, IDSs will become obsolete by 2005, Stiennon predicted. Instead of spending on technologies that detect intrusions, companies would be more prudent to invest in technologies that are designed to prevent intrusions from occurring in the first place, such as "deep-packet-inspection" firewalls, he added.

"I don't know about obsolete, but IDS is not all the rage it was two to three years ago, that's for sure," said Michael Engle, vice president of information security at Lehman Brothers Holdings Inc.

When New York-based Lehman Brothers installed an IDS about three years ago, the system generated more than 600 alerts daily, he said. Since then, the firm has invested in an event-correlation technology for analyzing IDS data and distilling it into a more manageable volume, Engle said.

"I think it takes an inordinate amount of time to get meaningful IDS data from those systems, hence our investment in event-correlation software," he said.

Engle declined to identify the software Lehman is using, but vendors of such products include NetForensics Inc. in Edison, N.J., ArcSight Inc. in Sunnyvale, Calif., and Intellitactics Inc. in Bethesda, Md.

Security Hype

Some problems with IDSs:

- False positives and negatives
- Increased burden on IT departments because of the need for full-time monitoring
- The taxing incident-response process
- An inability to monitor traffic at transmission rates greater than 600Mbit/sec.

"We agree with a fair amount of the criticism" surrounding traditional IDSs, said Chris Hovis, a vice president at IDS vendor Lancope Inc. in Alpharetta, Ga. But using such issues to dismiss the technology entirely is a mistake, he said.

New correlation, statistical and rules-based filtering technologies are beginning to help companies cut through the noise generated by traditional IDSs and mine useful information from them, said Martin Roesch, chief technology officer at Sourcefire Inc., an IDS vendor in Columbia, Md.

"I think the Gartner report is shortsighted and ignores basic security principles," Roesch said. "The notion that intrusion-prevention technologies can stop all attacks is just not realistic, making the need for IDS technology apparent, he added.

"While the technology has been plagued with issues from the past, such as high false positives, evasion tactics and mismanagement, the leading vendors in this space have responded with products that are very powerful in the hands of the right security staff," agreed Michael Rasmussen, an analyst at Forrester Research Inc. in Cambridge, Mass. ◗

Continued from page 1

N/MCI

Defense" and possibly in all of the federal government.

"Today, N/MCI is an industry standard," said Al Edmonds, president of EDS Government Solutions.

But some Navy users, senior officials and even EDS business partners raised concerns about the N/MCI program's approach to security.

"N/MCI is the most secure network in DOD? It's kind of hard to judge that," said Cathy Baber, director of information assurance at the Naval Network and Space Operations Command, which the Navy formed last year to oversee security for N/MCI. "There are still concerns. There are a lot of things that weren't thought about," she said.

One such issue is managing the certification process for connecting N/MCI users to the current Defense Information Systems Network (DISN), the Pentagon's main telecommunications backbone for both classified and unclassified data.

Vanessa Hallihan, program manager for IS security at the Space and Naval Warfare Systems Command, manages the DISN connection process. "We haven't yet come to grips with [N/MCI] as an enterprise process," she said. "The workload is very intense, and I don't have the resources."

Bart Abbott, director of information assurance programs at Raytheon Co., a subcontractor to EDS on the project, said he believes that the N/MCI project team has delivered on the Navy's need for a more secure network, though he acknowledged that there are still wrinkles in the N/MCI security fabric that need to be ironed out.

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FRANK HAYES ■ FRANKLY SPEAKING

Why Bad Ideas Stick

EVER NOTICE how bad ideas just keep coming around? It happened again last Tuesday at a U.S. Senate Judiciary Committee hearing on online music piracy, where committee chairman Orrin Hatch asked antipiracy experts about ways to damage the computers of people who illegally download files. When one vendor of antipiracy technology replied, "No one is interested in destroying anyone's computer," Hatch interrupted, "I'm interested.... If that's the only way, then I'm all for destroying their machines" (see story, page 10).

Sound familiar? It should — it's a hyperventilated version of last summer's "license-to-hack" proposal.

You remember that one: U.S. Congressman Howard Berman from California wanted to let copyright owners use something he called "technological self-help" instead of legal action to stop online piracy.

Berman's idea — and it was a truly awful idea — targeted the same peer-to-peer networks that Hatch's committee was holding hearings about. Under Berman's plan, a copyright holder who suspected someone of infringing on those copyrights could actually break into a suspected pirate's computer and plant malicious code — and would be protected from liability for any damage that was caused.

Wouldn't that be handy? No evidence, no expensive and time-consuming legal processes that might result in a judge or jury deciding there was no piracy after all. Instead, all a copyright holder would need was a suspicion — and a willingness to sabotage.

Of course, to make sure peer-to-peer pirates didn't slip through loopholes in a law too narrowly drawn, a license-to-hack law would have to be written as broadly as possible, targeting any network suspected of containing copyright-infringing material.

So if, say, a software vendor suspected your company of having unlicensed software on its network — whether that suspicion was true or not — the vendor could, hypothetically, break in and even sabotage your computers under Berman's proposal.

Would that be a legal stretch? Maybe. But any vendors that tried it could claim that they really did believe their copyrights were being infringed upon and that the law shielded them from having to pay for any damages resulting from their sabotage.

All in all, a very bad idea. Fortunately, not long after Berman introduced his bill, it sank without a trace.

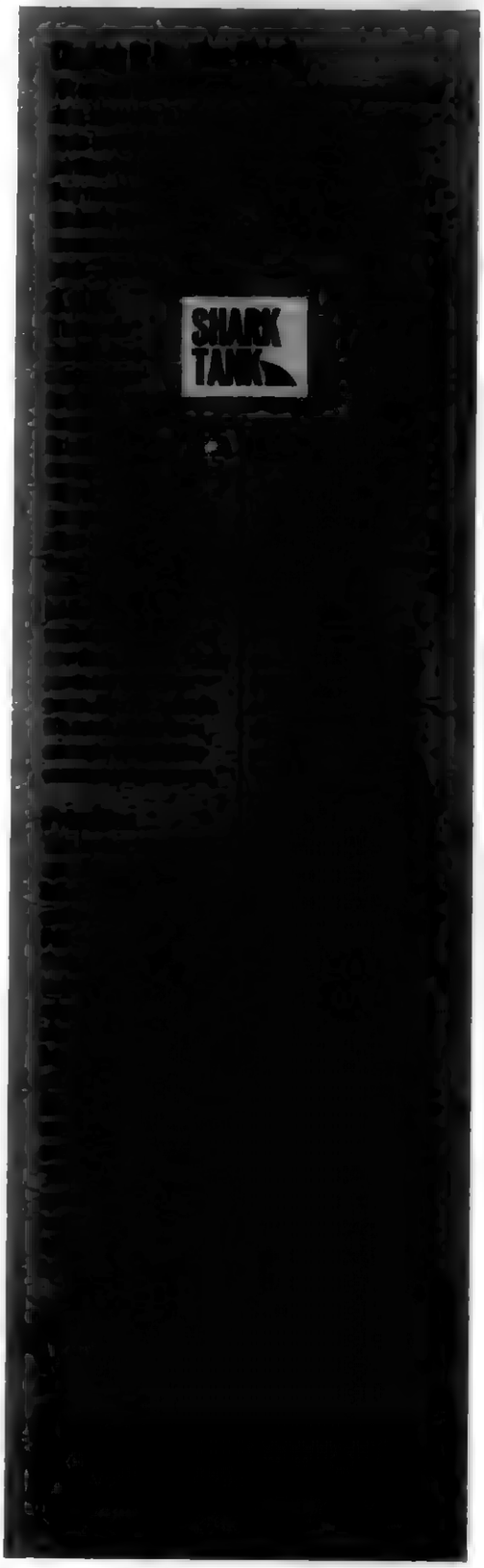
Now, a year later, it has resurfaced — in the hands of a much more powerful lawmaker.

Is it still such a bad idea? Well, let's see: Last year, the recording industry succeeded in shutting down Napster. In the year since, the recording industry has continued to win most of its legal battles. Judges have issued orders. Music pirates have been identified and fined. In short, the courts are dealing with the problem. The system works just fine. There's less need than ever for a license-to-hack law.

Meanwhile, the risks of a license-to-hack law have gotten a lot less hypothetical. For example, if The SCO Group had a license-to-hack law to use, it wouldn't need to bother with proving any claims against IBM in court. SCO could simply — and legally — launch viruses, worms, Trojan horses or other electronic attacks against anyone running AIX, Linux or any other software that SCO claimed contained its copyrighted code. And if it eventually turned out that SCO's claims were wrong? AIX and Linux users would still have been sabotaged — with no recourse.

It's probably just a coincidence that Orrin Hatch happens to be SCO's senator. But you'd think the chairman of the Senate's committee on judges and courts would understand why we *have* judges and courts — and why vigilante attacks of any kind are a bad idea.

Too bad we can't trust our lawmakers to understand that. And it's too bad those bad ideas will just keep coming around. ◗



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Offshore's Rise Is Relentless

Issue is a sensitive one for execs, who say cost outweighs controversy

BY PATRICK THIBODEAU
LOS ANGELES

OUTSOURCING WATCH

Offshore outsourcing is so mainstream that by next year, more than 80% of U.S. companies will have had high-level discussions about the topic. And 40% will have completed some kind of pilot program or will be using nearshore or offshore services.

Despite that assessment, made by Gartner Inc. at an outsourcing conference here last week, offshore outsourcing remains a difficult issue for executives to talk about. In fact, many attendees were skittish about responding to questions for this article, except in the most general terms.

Corporate officials did, however, acknowledge trends related to the politically charged issue. For instance, BP PLC in London is discussing offshore work with its existing outsourcers, IBM and Accenture Ltd. "They are offering us an opportunity to have consistent performance at a lower cost," said Russell Taruscio, downstream chief financial officer at the oil company.

Adding offshore components to outsourcing contracts is on the rise, according to IDC. In a report last week, the Framingham, Mass., research firm said offshore outsourcing

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Regulatory Requirements Place New Burdens on IT

Calif. privacy law to debut; panic emerging

BY DAN VERTON

Costly legal battles and knee-jerk decisions on security are threatening to disrupt companies that do business with California residents.

Tomorrow, a state privacy law with nationwide reach takes effect. Security and legal experts predict that the law will burden companies with massive class-action lawsuits and could change the way corporations approach wireless technology

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LEGAL ISSUES

U.S. firms scramble to comply with EU tax

BY MATT HAMBLEN

The European Union's 15 member nations tomorrow will begin imposing a value-added tax on digital sales to residents by non-European companies, a plan that has forced many U.S. businesses to undertake months of legal and technical preparations.

Complicating matters is the fact that the VAT varies from country to country, ranging from 15% in Luxembourg to 25% in Denmark and Sweden. As a result, some U.S. companies have had to choose between two costly alternatives: updating their e-commerce systems to track sales and initiate VAT payments at the various rates, or setting up new operations in one of the member countries so they can apply its tax rate to all digital sales throughout the EU.

"It's one more onerous process forced on people trying to do Internet e-commerce," said Joel Ronning, CEO of Digital River Inc., an Eden Prairie, Minn.-based company that develops and manages e-commerce Web sites for businesses. "It's turning into a mess."

Digital River, whose clients include Motorola Inc., 3M Co. and Staples Inc., has spent "millions of dollars" to get ready for the VAT, Ronning said. As part of its prepara-

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Darmen Beall, vice president of corporate systems at Hilton

HANDCUFFED PEGANELLI

W3C Cleans Up SOAP Standard

But it's unclear when vendors will adopt Version 1.2 of protocol

BY CAROL SLIWA

When Motor Coach Industries Inc. launched its maiden Web services last year, some messages didn't go through, and others reached their destinations only in partial form.

John Morrison, CIO at the Schaumburg, Ill., bus manufacturer, said it took three to four weeks to trace the problem to differing implementations of SOAP from vendors of Web services tools.

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That should change at some point, although it's unclear when. The World Wide Web Consortium announced last

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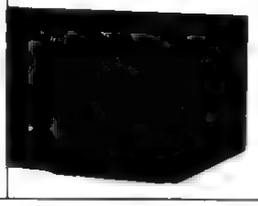

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Steps to Securing Your Company

SECURITY: Security expert and author Eric Cole outlines his four general principles to make an organization secure.
QuickLink 29454

Improving Web Performance

WEB SITE MANAGEMENT: Read how application delivery networks reduce the response time and increase the availability of dynamic Web apps hosted at a centralized data center.
QuickLink 29506

SMI-S Successor to Bluefin on Fast Track

STORAGE: The first customers could be using the storage management interface specification by the end of the year.
QuickLink 29342

Before Going Wireless, Plan a Site Survey

MOBILE/WIRELESS: Companies that are looking to set up wireless networks need to get some preliminary work done first, an 802.11 Planet conference speaker advises.
QuickLink 29400

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AT DEADLINE

Microsoft Adds New Exchange License

Microsoft Corp. today plans to release Exchange Server 2003 for manufacturing and announce a per-user client-access license for the messaging software. The new license will let a single end user access Exchange Server 2003 from a variety of devices, said Microsoft, which licenses the current version of Exchange on a per-device basis. The upgrade is due to ship in the third quarter.

3Com Reports Loss, Joint Venture Delay

Santa Clara, Calif.-based 3Com Corp. reported a $38.4 million net loss on revenue of $175 million for its fourth quarter, which ended May 30. The company also disclosed that a networking joint venture with Shenzhen, China-based Huawei Technologies Co. is now expected to become fully operational by November, two months later than planned. 3Com CEO Bruce Claflin blamed the delay primarily on internal IT issues.

Sun Buys Java Software Vendor

Sun Microsystems Inc. said it has agreed to acquire Pixo Inc., a vendor of Java-based server software that manages the distribution of digital content to mobile devices. Sun will pay an undisclosed amount of cash for San Jose-based Pixo and fold the company into its software unit. The deal is expected to be completed by September, Sun said.

Short Takes

NEWLETT-PACKARD CO. plans to resell SuSE Linux AG's version of Linux and said it will release a line of clustered Linux systems in August. . . . A law firm representing shareholders of ELECTRONIC DATA SYSTEMS CORP. said it plans next week to file a class-action lawsuit that consolidates 15 separate complaints against the Plano, Texas-based IT services firm.

PeopleSoft User Panel Opposes Oracle's Offer

Head of advisory board says buyout bid poses threat; Oracle continues pursuit

BY TODD R. WEISS

ORACLE CORP. last week said it will continue its hostile takeover bid for rival PeopleSoft Inc. despite recent changes in a proposed merger deal between PeopleSoft and J.D. Edwards & Co. Meanwhile, PeopleSoft's global customer advisory board announced that it "firmly supports" the company's decision to reject Oracle's sweetened buyout offer.

Peg Nicholson, president of the advisory board and CIO at golf equipment maker Acushnet Co. in Fairhaven, Mass., said in a statement that Oracle's tender offer for PeopleSoft is "clearly anticompetitive" and poses a threat to existing investments in PeopleSoft's business applications.

"We feel strongly that an Oracle acquisition of PeopleSoft would reduce competition and force PeopleSoft users to migrate from their current applications and possibly [their] database platforms," she said. "This unnecessary, expensive and risky effort is clearly not in the best interest of PeopleSoft customers."

> **"An Oracle acquisition of PeopleSoft would reduce competition and force PeopleSoft users to migrate.**
>
> **PEG NICHOLSON,** CIO, ACUSHNET CO.

Unnecessary Alarm

In response, Oracle said that Pleasanton, Calif.-based PeopleSoft "has unnecessarily alarmed its own customers in a cynical effort to distract attention from the tangible benefits of our offer."

When Oracle announced its takeover bid on June 6, CEO Larry Ellison said the company wouldn't actively sell PeopleSoft's applications to new customers, a comment that led some PeopleSoft users to react with dismay. But Ellison more recently promised to continue developing PeopleSoft's products for at least 10 years and said users won't be forced to convert to Oracle's E-Business Suite 11i applications.

After increasing the value of its offer from $5.1 billion to $6.3 billion on June 18, Oracle last week took another step to show that it's serious about proceeding. The company said it would waive a condition in its tender offer that stated it would go forward only if PeopleSoft and Denver-based J.D. Edwards didn't modify the merger agreement they announced on June 2.

PeopleSoft and J.D. Edwards did amend the deal two weeks ago in an effort to speed up the merger and potentially block an Oracle takeover. Although Oracle is pushing on, company spokesman Jim Finn said it still views the amended merger agreement as "an unlawful device" and called on PeopleSoft's board to meet with Oracle executives.

But PeopleSoft was unimpressed. "Oracle is just blowing smoke again," said spokesman Steve Swasey.

In another development, representatives of various state attorneys general held a conference call June 24 to discuss the possible antitrust ramifications of Oracle's takeover bid. The call followed the filing of an antitrust lawsuit against Oracle by Connecticut's state government, which is in the midst of a $100 million PeopleSoft project.

But officials from Texas and California said such calls are routine and added that they haven't made any decisions to intervene in the buyout fracas. "This is a standard fact-finding process," said Tom Kelley, a spokesman for the Texas attorney general's office.

MORE ONLINE

Oracle's Bid for PeopleSoft: Visit our Web site for additional coverage:
QuickLink a3320

Product News: Oracle announced an upgraded applications release at a user conference in London:
QuickLink 39554
www.computerworld.com

Government Certification of Software Proposed to Boost Homeland Security

BY DAN VERTON
WASHINGTON

The U.S. Department of Homeland Security is emphasizing government security certifications as a means of improving software security while avoiding more invasive government intervention.

The policy of the current administration, as with the previous two, has been to allow market forces to drive security improvements in the software industry. However, with little evidence of the effectiveness of that approach, the government's commitment to fostering change is under scrutiny.

At a homeland security conference here sponsored by the Center for Strategic and International Studies and the Information Technology Industry Council, Microsoft Corp. Chairman Bill Gates last week expressed staunch support for government testing, certification and rewards for security improvements.

SECURITY GATES
Microsoft Chairman Bill Gates sees software security as key to homeland security.
QuickLink 39493
www.computerworld.com

That approach is backed by Robert P. Liscouski, assistant secretary for infrastructure at DHS, who distinguished government certification from the type of regulation the administration opposes. He said that although private-sector decisions about security always come down to a business-case analysis, companies are often forced to make poor software choices, given the state of software quality and security.

"If we can get the risk management industry to recognize good practices that can be certified . . . I don't see that as regulation," he said. "I see that as a very positive incentive to get the industry to go where it has to go."

Dave Carey, president of information assurance at Oracle Corp. and a former CIA officer, said that although Oracle supports various government certification processes, such as the Common Criteria and Federal Information Processing Standard 140, "they are neither easy nor cheap."

On average, evaluations of Oracle products have taken eight to 10 months and cost about $1 million each, said Carey. "But once done, customers can have the confidence that the security features in the products they buy function as intended," he added.

Whit Diffie, chief security officer at Sun Microsystems Inc., said the certification process can be shortened, but reducing its cost will require significant changes to the overall testing architecture and methodology.

CIA-Supported Storage Virtualization Start-up Emerges With SAN Appliance

Device integrates storage capacity on multivendor arrays

BY LUCAS MEARIAN

Candera Inc. this week plans to go public with a storage virtualization device after two years of development, joining the race to provide users with technology that can combine different storage subsystems into virtual pools of data.

Milpitas, Calif.-based Candera will announce the release of its SCE 510 appliance, a combination switch and virtualization product that works on multivendor storage-area networks (SAN). The start-up, which has been partly funded by the CIA, is selling the systems in clustered pairs that operate separately from each other but can balance workloads between them.

Candera's promise is straightforward: The company says that using application programming interfaces based on standards like XML, HTTP and the Simple Network Management Protocol, the SCE 510 can work with any SAN switch to virtualize the storage capacity on various arrays so it all looks like a unified pool.

The new appliance can automatically identify devices on SANs by disk type, vendor and the level of supported redundancy protection, allowing systems administrators to set up dynamic provisioning policies for different types of data, according to Richard Meyer, Candera's principal engineer.

Market Rivals

The SCE 510 will compete against virtualization products from vendors like IBM and Hewlett-Packard Co., as well as Brocade Communications Systems Inc.'s virtualization-enabled SilkWorm Fabric Application Platform switches.

A senior storage architect at a Global 100 company said he's leaning toward the Candera box over rival virtualization technologies from IBM, FalconStor Software Inc. and DataCore Software Corp. because the SCE 510 was developed with redundancy and high availability in mind.

The other products run on commodity hardware that could prove to be a point of failure in his SAN, said the storage architect, who asked that he and his company not be identified. In contrast, Candera is using a pair of specialized processors designed to handle heavy-duty workloads.

A vice president of architecture and capacity planning at a large financial services firm, who also asked to remain anonymous, said his company beta-tested the SCE 510 last month and plans to roll it out in September. The device should let IT staffers manage all the disk arrays on the firm's 50TB SAN through a single interface, the executive said.

But he added that the SCE 510 is missing two key features: support for migrating data from direct-attached storage devices to SANs, and data replication capabilities for disaster recovery applications.

Meyer said he has heard the same comment from other potential users and added that both of those features are in development. But he couldn't say when they're due to become available.

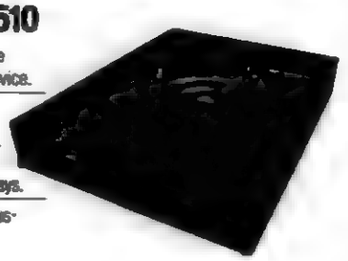
Mike Fisch, an analyst at The Clipper Group Inc. in Wellesley, Mass., said Candera's product could make a splash in the storage management market because it addresses key user requirements, including logical unit-number mapping, capacity planning and dynamic provisioning.

Candera is also jointly developing security-related hardware and software features with In-Q-Tel Inc. in Arlington, Va., a nonprofit company that acts as the CIA's technology funding arm [QuickLink 33889]. Those features include support for the Lightweight Directory Access Protocol and Secure Sockets Layer standards and should be added to the SCE 510 in the fourth quarter, Meyer said.

TECHNOLOGY DETAILS

Candera's SCE 510

- Functions as both a storage switch and a virtualization device.
- Supports AIX, HP-UX, Solaris and Windows.
- Provides a virtual pool of storage from multivendor arrays.
- Starts at $100,000 for a clustered pair of appliances.



HP Expands Its Storage, Disaster Recovery Services

Offerings include system assessments, installation of SAN management software

BY LUCAS MEARIAN

Hewlett-Packard Co. last week announced five storage management and disaster recovery services in a bid to take advantage of an uptick in storage-related consulting that's being driven by tight IT budgets.

The services being offered by HP include assessments of how to optimize storage systems, data replication deployments, and development of disaster recovery and storage-area network (SAN) management architectures. HP said it will offer the storage services as part of both straightforward consulting engagements and more comprehensive deals that also include technology installation and training.

Charlie Orndorff, CIO at Crossmark Inc., an advertising and marketing company in Plano, Texas, said he currently uses both HP and Veritas Software Corp. for IT services on some storage projects. His dealings with HP may be widened over the next few months: Orndorff intends to merge 7TB and 4TB SANs to reduce his staff's storage management headaches, and he's eyeing HP's disaster recovery and business continuity services as part of that plan.

"What you really need is a comprehensive solution that says, 'If I go down, my data will be available in one hour, four hours or whatever the SLAs are that are in place,'" Orndorff said. He added that he also doesn't want to have to hire specialized IT technicians to manage different aspects of the combined SAN as Crossmark installs more complex storage technology.

Robert Gray, an analyst at IDC, said the use of IT vendors to help design and implement storage systems is on the upswing because companies want to get the most out of their technology purchases in the current economic climate. Storage vendors "had been selling the product and walking away, leaving [IT managers] underusing what they invested in," Gray said.

The disaster recovery management service is available now, said Gary Wright, vice president of HP's Network Storage Services division. The other services announced last week are scheduled to become generally available worldwide by the end of the third quarter.

Gartner Inc. analyst Adam Couture said the announcement was largely a case of HP formalizing storage services that it and the former Compaq Computer Corp. had offered separately through their respective consulting staffs.

HP is also reducing the maximum fees that users of its StorageWorks XP128 and XP1024 disk arrays could pay under its metered pay-per-use pricing plan, Wright said. Before, companies adopting the metered pricing may have paid up to 25% more than the standard monthly lease cost for the arrays, depending on how much of the available storage capacity they actually used. Now, HP is limiting the extra fees to no more than 5% above the regular price.

HP's New Storage Services

STORAGE DOWNLOAD

For the latest news, visit our Storage Knowledge Center online:

QuickLink 61700
www.computerworld.com

BRIEFS

Ericsson Taps IBM To Manage Apps

LM Ericsson Telephone Co. said it has signed a preliminary agreement to outsource development and maintenance of its IT applications to IBM. The deal came three weeks after Stockholm-based Ericsson announced a five-year contract for Hewlett-Packard Co. to manage its IT infrastructure [QuickLink 38933]. Ericsson expects to finalize the IBM deal by September.

EDS Set to Raise $1.7B in Funding

Electronic Data Systems Corp. announced that it expects to raise $1.7 billion in new funding through private debt offerings. The deals followed decisions by two major credit-rating agencies to downgrade their ratings of the struggling IT services firm's debt. Plano, Texas-based EDS said it will also prepay $227 million that it owes to an unidentified software vendor.

Palm Reports Smaller Q4 Loss

Palm Inc. remained in the red during its fourth quarter, but the handheld vendor said its results were better than expected. Milpitas, Calif.-based Palm reported a $15 million net loss on revenue of $225.8 million for the quarter, which ended May 31. The loss was about half as big as what Wall Street analysts had forecast. In comparison, Palm had a year-earlier deficit of $27.5 million.

Short Takes

COMPUTER ASSOCIATES INTERNATIONAL INC. and STEELCLOUD INC. announced a deal under which Dulles, Va.-based SteelCloud will build CA's eTrust security software into a line of antivirus appliances. . . . IBM added versions of its WebSphere Commerce and WebSphere MQ middleware products that are tailored for midsize companies.

MARK HALL • ON THE MARK

Wireless Handheld World Is a 'Wild West'...

. . . that creates vendor shootouts to attract developers — whether independent software vendors or in-house programmers. "Unlike PCs, there are **enormous real differences in handheld devices** that challenge developers," says David Nagel, offering a litany of distinctions, from multiple screen sizes and keypad styles to the operating system and wireless service provider being used. The CEO of PalmSource Inc. in Sunnyvale, Calif. — the company that licenses the Palm OS — also points out that 400 million to 500 million smart phones, BlackBerry-style devices and other wireless-ready mobile devices are shipped each year, vs. about 100 million PCs. That makes it at once the most confusing and most promising growth market around for developers. And because it lacks a dominant Microsoft presence, Nagel says, "it's like early Wild West for developers, with wide-open territory." Amid this chaos, handheld vendors are desperate to get developers to settle down with their systems and tools. ■ Which explains **last week's branding brouhaha known as Windows Mobile.** Irwin Rodrigues, Microsoft's lead project manager for mobile devices, acknowledges that the event could be summed up as "a message to developers" that the company now has "a single API tool set for Pocket PC and Smartphone." Why spend all that money on invitations, tchotchkes, press releases and the rest **when a simple e-mail to a Virtual Basic developer list would do?** Well, just as Sun Microsystems Inc. held its high-priced JavaOne revival meeting for "wireless Java" two weeks prior, Microsoft can't afford not to attract IT early in its embrace of wireless handhelds. ■ Corporate interest and the adoption of wireless applications is changing the demand mix for handheld applications. So even developers who dwell in the IT netherworld of middleware are seeing opportunities in wireless handhelds. Markham Tate, vice president of business development at SpiritSoft Ltd. in Milford, Mass., says his company is releasing a J2EE-compliant messaging application called SpiritLite so **IT can push technology updates to handhelds.** Expect it to be ready by summer's end. ■ That shift in application demand is obvious to Ryan Wuerch, CEO of Nashville-based PalmGear.com. While virtually all categories are growing among the 18,000 Palm OS programs available on his company's site, the **games category is suddenly losing ground to business software** such as productivity applications. Wuerch likens the path of wireless software adoption to the early PC days and argues that the handheld market is following a similar trajectory. And, like the PC, handhelds will prevail over the prior technology. (So move over, Wintel.) By 2010, Wuerch assumes, your workforce will include many who have the power of today's desktop in a handheld and use it occasionally with the cradles, keyboards and displays found in offices, homes, hotels, coffee shops and wherever else their legs take them. The PC isn't in his scenario. ■ If the wireless market walks away from Wintel, it will **certainly be a kick in the head for the "tel" part,** which has so much at stake in your persistent replacement of PCs with newer, faster models. But it's already taken one on the chin, because if you really want the newest, fastest desktop, don't look for the "Intel Inside" logo. **In August, Apple Computer Inc. will ship the fastest desktop around,** the Power Macintosh G5 64-bit workstation running OS X. The SPEC CPU 2000 benchmark reveals an Apple dual-processor G5 that's about 40% faster than the hottest dual Intel Xeon processor desktop. Much of that comes from the 8GB of RAM you get, twice that of a 32-bit system. Depending on their need for speed, users will shell out from $1,999 to $2,999 to have the fastest hardware in town. ■ Before you sign a contract with Apple for a truckload of new Macintoshes, think about **getting your company's contracts under control** with an upcoming release (No. 19, to be exact) of the Determine Application Suite, an online contract management application from San Francisco-based Determine Software Inc. Among other improvements, the Aug. 11 upgrade will be able to track and audit changes to Word documents used in the contract development process. So be careful what you say, especially about contract lawyers. ◗

Microsoft Freed From Carrying Sun's Java

BY GRANT GROSS
WASHINGTON

An appeals court last week reversed a lower court's ruling that Microsoft Corp. must distribute a version of Java endorsed by Sun Microsystems Inc. But the appeals court also affirmed a ruling that Microsoft violated Sun's copyright by distributing its own version of Java with its products.

Both companies claimed victory after the Fourth U.S. Circuit Court of Appeals announced its decision on June 26, another step in Sun's private antitrust lawsuit against Microsoft.

U.S. District Court Judge Frederick Motz erred in his Dec. 23 ruling requiring Microsoft to carry the Sun-compatible version of Java with its operating systems and browser products, since there was no proof that Sun would suffer "immediate irreparable harm" without the order, appeals court judge Paul Niemeyer wrote.

The appeals court did uphold Motz's order prohibiting Microsoft from distributing any version of Java other than the one allowed by Sun in a 2001 license agreement.

Microsoft spokesman Jim Desler called last week's ruling a "positive step," saying the must-carry order was the key issue that needed resolution on appeal. As for the copyright infringement order, Microsoft already complied in February, replacing Windows XP Service Pack 1 with XP SP1a, which excludes Microsoft's Java virtual machine.

Lee Patch, Sun's vice president for legal affairs, called the appeals court ruling on the copyright infringement issue "an important victory for the Java community."

"This decision confirms that Microsoft violated our prior settlement agreement, and that it did so in a way that continued to fragment the Java platform on PCs," Patch said. ◗

Gross writes for the IDG News Service.

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NetWare on Linux Coming This Year

Novell surprises users with plans to speed up delivery of services on Red Hat, SuSE

BY MATT HAMBLEN

NOVELL INC. is poised to begin delivering on its NetWare-on-Linux promise considerably sooner than many users expected.

OPEN-SOURCE

Novell announced at its Brainshare conference in April that it was adopting Linux as its NetWare migration path by making NetWare 7 — due out in two years — a set of services that would run on both the Linux and NetWare kernels [QuickLink 37843].

But last week, Novell said a key set of NetWare services running on Linux — including directory, file, print, messaging and management services — will be made available later this year. Novell Nterprise Linux Services 1.0, which constitutes about 60% of the NetWare services stack, will run on Red Hat Enterprise Linux and SuSE Linux Enterprise Server. It will go into limited beta at 150 sites next month, Novell officials said.

Several users gave the move an unqualified thumbs up.

Doug Boval, master network engineer at St. Vincent Hospital in Indianapolis, said the medical facility could benefit from Novell support for Linux in many ways, including the possibility of moving away from "costly Windows-based desktops to Linux desktops." NetWare on Linux also would be a compelling alternative to some applications running on high-priced Unix systems, he said.

Scott Perley, president of the Southern Alberta Novell Users Group in Calgary, also welcomed the move, saying he's looking forward to using such products as Novell's iFolder file services on Linux.

Users had every reason to be surprised by last week's announcement, since Novell officials at Brainshare suggested that NetWare services wouldn't be available on Linux until the relatively distant release of NetWare 7. Those officials are now saying that they planned all along to make some services available on Linux sooner but hadn't developed the road map sufficiently to make an announcement at Brainshare.

"We in fact knew a lot at Brainshare, but we didn't know enough," Jeff Hawkins, vice president of Novell's Linux business office, said last week. "We were well along the way of driving the engineering efforts and aligning all of the organization behind this product release, but we weren't prepared to make any announcement at Brainshare about the actual product itself."

Hawkins indicated that Novell will use the launch of NetWare 6.5 this summer to push the new Linux offering.

"There probably will be [a connection between NetWare 6.5 and Nterprise Linux Services 1.0] as we look at how we get our current customers to embrace it," he said. "Those are going to be pricing and deployment strategies. We're not announcing those right now, but you can imagine that those are pretty important conversations that are happening."

John Enck, an analyst at Gartner Inc., said users that plan to adopt Linux but have never considered NetWare may like Novell's Linux strategy because Novell has "stronger directory and file/print services than the open-source community provides."

Novell last week also announced agreements with Dell Computer Corp., Hewlett-Packard Co. and IBM under which the hardware vendors will offer Novell's Linux products on their servers and collaborate with Novell on Linux training and support.

Jim Stallings, general manager for Linux at IBM, predicted that Novell's move to support Linux will put pressure on companies like Microsoft Corp. "that have proprietary architectures and that charge exorbitant fees for them."

NEW PRODUCT

Novell Nterprise Linux Services 1.0

The software will enter beta-testing next month; pricing wasn't disclosed. Services include:

- Novell eDirectory and DirXML
- Novell iFolder
- Novell iPrint
- Novell iManager
- NetMail
- ZENworks for Servers
- Virtual Office via Extend Director Standard Edition

Computerworld's Don Tennant contributed to this report.

Flashline Promises to Cut Redundant Development

'Super-registries' in Version 4 organize software assets

BY CAROL SLIWA

Flashline Inc. today will announce a new version of its 3-year-old portal-like flagship product that's designed to help companies manage and reuse software assets they built using Web services, Java, .Net, open-source and model-driven development methods.

Flashline 4 features five preconfigured "super-registries," called FlashPacks, to organize a company's software assets, said Charles Stack, CEO and founder of the Cleveland-based company. A FlashPack serves as a central hub where developers can go to evaluate projects their colleagues are working on or have completed in specific development areas, such as Web services, Java or Microsoft Corp.'s .Net.

FlashPacks include XML-based schemata to describe the software assets, sample metadata, reports that measure the usage of the assets and extensions to automatically populate the registry.

The Flashline Registry Advanced Edition introduces a graphical navigator to identify how software assets are related to particular projects and map those relationships between the various projects. Coupled with new assets-in-progress capabilities, the navigator can help reveal similar ongoing development efforts within or among projects, so teams can eliminate redundant work.

To help teams meet their return-on-investment goals, Flashline is adding more comprehensive metrics to allow developers to see actual savings from every group that used a particular component, model or pattern, as opposed to merely showing the savings achieved by the group that created the component.

Other new features include finer-grained role-based security down to the asset level and support for clustering in IBM's WebSphere and BEA Systems Inc.'s WebLogic application servers.

Dale Hite, chief technology officer in the software architecture group at Fidelity National Financial Inc. (FNF) in Jacksonville, Fla., said he's particularly interested in Flashline 4's new ROI calculation capabilities and project hierarchy management enhancements, so that the relationships of components to projects and products can be inherited from one project to the next. About 250 of FNF's geographically dispersed developers use Flashline, which runs on a Linux-based WebLogic server, to collaborate on component-based projects, Hite said.

Rich King, a software engineer at Diebold Inc. in North Canton, Ohio, said his company began using Flashline about a year ago as part of a push toward component-based development of automated teller machine software using Microsoft's .Net tools.

"We wanted to be able to create custom applications in as short a time as possible with the highest quality possible," he said.

John Rymer, an analyst at Cambridge, Mass.-based Forrester Research Inc., said Flashline is pushing beyond mere storage, categorization, security and check-in/check-out capabilities in Version 4.

"They're providing some utilities that will help in maintaining, evolving and ultimately promoting much greater reuse of assets," he said.

Flashline 4 will be available at the end of July; pricing starts at $70,000 for 75 users.

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More Vendors Rolling Out Sarbanes-Oxley Software

New tools are focused on automating checks of financial controls by users

BY THOMAS HOFFMAN

OPENPAGES INC. this week will become the latest vendor to offer software that's designed to help companies meet the financial documentation and reporting requirements of the Sarbanes-Oxley Act of 2002.

And like many other products that have been announced recently, the Web-based software suite developed by Westford, Mass.-based OpenPages specifically addresses Section 404 of the law. That section requires publicly held companies to conduct annual evaluations of their financial reporting controls and procedures.

Vendors such as Oracle Corp. and Redmond, Wash.-based Concur Technologies Inc. have also detailed Section 404 compliance tool kits [QuickLink 38820].

In addition, Protiviti Inc., a Menlo Park, Calif.-based firm that offers internal auditing and business-risk consulting services, last week introduced a Web-based repository for organizing and documenting Section 404 compliance plans.

OpenPages said its Sarbanes-Oxley Express 404 software is based on J2EE technology and runs on top of application servers from Oracle and San Jose-based BEA Systems Inc. The software is priced between $25,000 and $65,000, depending on the number of end users.

Many Units, One Database

Volt Information Sciences Inc., a New York-based provider of temporary staffing and IT services that has annual revenue of more than $2 billion, plans to finish installing the OpenPages software on a Windows 2000 server this week.

James J. Groberg, Volt's chief financial officer, said the company operates 12 business units, each of which has its own accounting and profit-and-loss (P&L) responsibilities. For financial reporting purposes, "you have to treat each one differently," he noted. But Volt is looking to develop a database that links the disparate accounting data under a single structured format.

After evaluating a handful of products, Volt in May settled on the one developed by OpenPages. Groberg said it helped that OpenPages was willing to make enhancements based on Volt's suggestions, including the creation of a master content chart of balance-sheet and P&L accounts.

But even though Sarbanes-Oxley compliance tools are becoming available from more vendors, many CIOs and other executives are still having a hard time comprehending the act's requirements. Sarbanes-Oxley, which was signed into law last summer, includes more than 90 sections and 300 discrete points of law.

Seeking Clarity

The mandates of Sarbanes-Oxley "aren't very clear," said Louis Boyle, a Meta Group Inc. analyst based in Hilton Head, S.C. "CIOs have been asking us, 'What is it? What do we need to do? How do we prepare for it?' "

The U.S. Securities and Exchange Commission, the Public Company Accounting Oversight Board and other regulators haven't specified what kind of information they're looking for from companies, said Groberg. "You're almost working in the dark in terms of what you're going to have to provide," he said.

Protiviti said its SarbOx Portal software is designed to provide users with a process-based approach to documenting and evaluating their financial reporting controls.

The software is being offered only to Protiviti's consulting clients, and a company spokesman said pricing "is being kept confidential." ◗

How would you characterize your company's understanding of the Sarbanes-Oxley Act?

BASE: An online poll of corporate executives who took part in a June 26 webcast sponsored by *Business Finance* magazine; a total of 292 responses were received.

Intel Hopes Madison Will Boost Itanium Use

BY TOM KRAZIT AND ROBERT MCMILLAN

If the third time really is the charm, then Intel Corp. and its hardware partners are set to reap the benefits of Madison, the third generation of the 64-bit Itanium processor family, being announced today.

Momentum is finally building behind Itanium as it evolves from a low-volume product to one that, with the introduction of Madison, will be more attractive to users, said Dean McCarron, principal analyst at Mercury Research in Cave Creek, Ariz.

Dell Computer Corp. last week released details about its new Itanium server, the Madison-based PowerEdge 3250, which is the company's first Itanium server since the launch of the inaugural Itanium chip. Dell skipped the second generation of Itanium, known as McKinley.

Dell decided to use Itanium again because Madison delivers a superior level of performance over the McKinley chip for the same price, said Darrel Ward, a Dell product manager. The PowerEdge 3250 is a dual-processor server that users can cluster in up to 128 nodes, Ward said. Its pricing and availability will be announced later this year.

Hewlett-Packard Co., IBM, Unisys Corp. and others are expected to make systems with the new processors available during or soon after today's launch.

Itanium systems haven't appeared in many server rooms because of the lack of enthusiasm for Intel's EPIC (explicitly parallel instruction computing) instruction set, introduced with the first Itanium chip in May 2001.

Many companies use 32-bit x86 server processors such as Intel's Xeon, but some are deciding that they need to take advantage of a 64-bit processor's ability to store more data in memory, as well as the wider general-purpose registers that allow for better performance.

But in order to run applications on Itanium, users must port all of them to the new instruction set, which can be a time-consuming process.

Madison's increased performance will be an incentive to make that switch, especially for users of Microsoft Corp.'s SQL Server database, said Nathan Brookwood, principal analyst at Insight 64 in Saratoga, Calif. "SQL Server has really only existed on the 32-bit Intel Xeons, and databases are the horizontal application that benefit the most from 64-bit architectures," said Brookwood. "Anybody who is using SQL Server on Xeon and running out of gas is going to love this processor."

Advanced Micro Devices Inc. also offers an alternative for users contemplating a 64-bit architecture. The Opteron processor, launched in April, uses 64-bit extensions to the x86 instruction set to let companies keep some of their applications running at 32 bits while they port the applications that a 64-bit architecture will benefit the most. ◗

Krazit and McMillan write for the IDG News Service.

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BRIEFS

Microsoft Blends Business Units . . .

Microsoft Corp. said it has combined its Windows server, storage software and developer outreach organizations into a single unit. Eric Rudder, a senior vice president who had been in charge of the developer operation, will head the merged unit. The company also named Peter Cullen chief privacy strategist, effective July 14. Cullen is now corporate privacy officer at Royal Bank of Canada in Toronto.

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Microsoft warned of two newly discovered security vulnerabilities, including one that involves the Windows Media Services feature in server versions of Windows 2000. Microsoft gave the flaw an "important" severity rating and said attackers could use it to run malicious code on unprotected systems. The other hole is in Microsoft's Windows Media Player 9 Series software.

SAP, Oracle to Resell Adapters

Information Builders Inc.'s iWay Software Inc. unit in New York said SAP AG plans to resell a software adapter that connects SAP's NetWeaver integration technology to the UCCnet product data synchronization hub. Meanwhile, Attunity Ltd. in Wakefield, Mass., said Oracle Corp. will resell a set of adapters that link its Oracle9i Application Server software to mainframes.

Short Takes

GEAC COMPUTER CORP. in Markham, Ontario, said it has agreed to buy COMSHARE INC., a developer of corporate planning and budgeting software in Ann Arbor, Mich., for $52 million (U.S.) in cash. . . . ADVANCED MICRO DEVICES INC. said it will report lower-than-expected sales for the second quarter.

N.Y. Hospitals Part Ways on IT, Tap IBM

Outsourcing deals to separate systems, tech strategies

BY BOB BREWIN AND JUAN CARLOS PEREZ

IBM last week announced that it has signed contracts to manage the core computing systems of three New York hospitals, which are using the deals to dismantle a shared IT unit so each facility can set its own technology direction.

The agreements with Mount Sinai Hospital, New York University Medical Center and NYU Downtown Hospital go into effect this week and have a combined value of $380 million over the next 10 years, IBM said. Together, they represent the largest hospital IT outsourcing deal the company has won thus far.

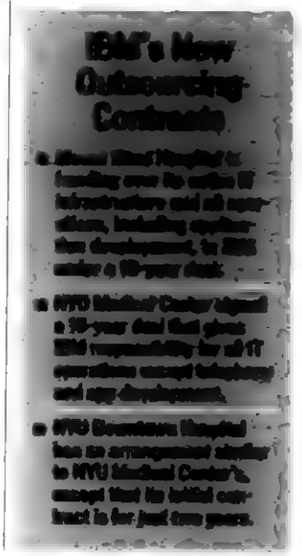
The three hospitals began consolidating their IT departments in 1998, when they were combined under a nonprofit holding company called Mount Sinai NYU Health. They now share a data center at a Mount Sinai building in Manhattan.

During the next 18 months, IBM will transfer applications from that data center to redundant facilities it owns on Staten Island and in Rochester, N.Y. Dave Liederbach, vice president of IBM's health care industry unit, said the company will host all of the clinical and business applications for the three hospitals and provide disaster recovery and business continuity capabilities. "We're basically facilitating a restructuring and separation of their IT infrastructure," he said.

Richard Donoghue, senior vice president of strategy and business development at NYU Medical Center, said the IT requirements of the three hospitals have started to diverge. "The demands placed on the IT department by the hospitals were pulling the IT leadership in different directions and creating problems," he said.

For example, Donoghue said, NYU Medical Center wants to carry out an IT development plan at its own pace and according to its own priorities, without having to coordinate projects with Mount Sinai Hospital. Each hospital also wants to set an independent strategy for meeting the privacy requirements of the Health Insurance Portability and Accountability Act, he added.

The hospitals expect IBM to split the IT infrastructure into three entities by mid-2005, according to Donoghue. About 340 of the 500 staffers in the shared IT department will be shifted to IBM, he said. Other workers will be assigned to the individual hospitals, partly to help manage their outsourcing relationships with IBM.



Liederbach said he doesn't know how many applications IBM will host and support in total, but he noted that it could "run into the hundreds."

Although the outsourcing contracts are separate, they share one important element: the creation of improved disaster recovery capabilities. The move to set up redundant data centers is designed to ensure continuity of IT operations in the event of a natural disaster or an incident like the Sept. 11 terrorist attacks.

The attacks in 2001 destroyed NYU Medical Center's data center, which was near the World Trade Center complex. It took the hospital three days to restore its critical systems, whereas the contract with IBM stipulates that applications must be back in operation within 12 hours.

Perez writes for the IDG News Service.

Siemens Rollout Encrypts Medical E-mail Messages

Tool will help ensure HIPAA compliance

BY BOB BREWIN

Siemens AG's health care technology unit today plans to introduce a secure messaging system designed to ensure that electronic communications between patients and their doctors and between physicians and hospitals comply with data privacy laws.

Sue Merk, director of community innovations at Erlangen, Germany-based Siemens Medical Solutions, said the new system supports the Advanced Encryption Standard and is built around technology from Sigaba Corp., a subsidiary of Secure Data In Motion Inc. in San Mateo, Calif.

The software can scale from small medical practices to the largest hospitals, Merk said. It uses a rules-based engine to check e-mail and instant messages for any personally identifiable information about patients, in keeping with the requirements of the Health Insurance Portability and Accountability Act (HIPAA).

Messages that have such data are then encrypted. End users can access encrypted e-mail by typing in a user name and password, which activates a Sigaba-developed secure key server. The system can also be beefed up to require the use of biometric identifiers such as thumbprints, Merk said.

PRIVACY

Alegent Health, an Omaha-based nonprofit health care company that operates eight hospitals and 100 medical clinics, has signed on to use the new messaging system. Ken Lawonn, vice president of IT at Alegent, said the company views e-mail as an effective way to do business but also needs to ensure that it complies with HIPAA.

Alegent has 5,000 e-mail accounts, and Lawonn said it plans to run all external messages through the Siemens software. He added that he's also looking to use the system to support direct forms of communication, including e-mail billing and sending medical records to patients.

Alegent installed a small HP/Compaq server to run the software and paid an upfront fee of about $14,000. Siemens will bill Alegent on a per-message basis under an application service provider contract, Merk said. Doctors who practice at Alegent facilities pay $10 per month for unlimited access to the messaging system via a PC plug-in.

Lawonn said Alegent employees would have to send more than 1 million messages each year — a total that isn't realistically possible now — before the company would need to consider buying the Siemens software outright.

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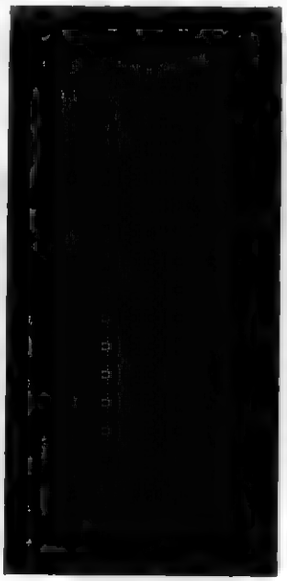

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Continued from page 1

SOAP

week that Version 1.2 of SOAP — a key foundation-level technology for companies building Web services — has achieved "recommendation" status.

Recommendation status means SOAP 1.2, a set of rules for exchanging structured information among systems or organizations, is a fully vetted standard that has gone through a rigorous public-review process and substantive interoperability testing.

By contrast, SOAP 1.1 was a de facto standard that was never vetted by the W3C or any other standards body, said Don Deutsch, vice president of standards strategy and architecture at Oracle Corp. and a member of the W3C Advisory Board.

The W3C's XML Protocol Working Group, which was responsible for SOAP 1.2, identified and resolved more than 400 technical and editorial issues raised about the prior version. The group later tracked seven SOAP 1.2 implementations from various W3C member organizations and independent developers to ensure their interoperability.

SOAP 1.2 provides a more precise description of the processing model and removes ambiguities that sometimes led to interoperability problems for those trying to implement Version 1.1, said David Fallside, chairman of the W3C's XML Protocol Working Group and a senior technical staff member at IBM.

"By providing the processing model in greater detail and expanding the scope of cases that it covers, you significantly reduce the chances that two different people sent off to implement the specification would come up with implementations that are not interoperable," Fallside said.

SOAP 1.2

- Clarifies processing model
- Provides better integration with XML standards
- Is protocol-independent
- Allows performance optimization, because it's based on XML Infoset

But it's unclear when vendors will adopt SOAP 1.2. Deutsch said Oracle is committed to supporting the standard, but he couldn't say when that will happen because "to do anything meaningful" with SOAP, most tool kits depend on another standard, the Web Services Description Language (WSDL). The W3C is still working on WSDL 1.2. Deutsch said it will take "some time" for vendors to fully support all the features of SOAP 1.2, so during the transition period, SOAP 1.1 will co-exist with SOAP 1.2.

Jason Bloomberg, an analyst at ZapThink LLC in Waltham, Mass., said he thinks it will take a year or two for SOAP 1.2 to work its way into products. In the meantime, "vendors and end users are going to be annoyed at times at the fact that there are two [versions of SOAP]," he said. But he added that work is ongoing in the Web Services Interoperability (WS-I) Organization to create profiles on how to use standards such as SOAP.

Users will have to wait for SOAP 1.2's improvements, such as protocol-agnosticism. SOAP 1.1 confined users to sending messages over HTTP, but with 1.2, they will be able to choose other protocols, such as SMTP, TCP/IP, BEEP (the Blocks Extensible Exchange Protocol) and IBM's MQSeries, Fallside said.

"We expect a lot of people will flow XML messages over HTTP, so there is an HTTP binding for SOAP. But you don't have to use it," he said.

Bloomberg said HTTP was never designed for system-to-system communications. "HTTP was really designed for hypertext. HTTP is synchronous, and it's not secure. It's not reliable," he said. "So it's definitely good to support other protocols for different uses, whether it's message queuing protocols or asynchronous messaging protocols of other kinds."

Division of Labor

The W3C group working on SOAP 1.2 split the specification into two parts — essential SOAP (which includes the processing model, the extensibility framework and the message construct), and optional elements, such as the rules for representing a remote procedure call (RPC), encoding SOAP and describing an HTTP binding. Fallside said the separation breaks the old perception that SOAP is merely RPC over HTTP.

Another key change in SOAP 1.2 is that it's based on the XML Information Set, which provides a way of describing the information conveyed in an XML document. By contrast, pointy brackets were paramount with SOAP 1.1, which was based on XML 1.0 serialization, Deutsch said.

"The upshot is more flexibility in the representation of messages, so you can tailor or customize for your application/business requirements," he said.

Fallside said this will be helpful for companies that need to send more compact messages between applications via an extremely low-bandwidth connection. He said he expects that most companies will still use XML representations, since that will allow them to use off-the-shelf tools and applications.

BASIC PROFILE

The WS-I Organization will consider incorporating SOAP 1.2 into its Basic Profile.

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Continued from page 1

Outsourcing

is the dominant trend in the IT services industry, with 42% of the application management contracts now having some offshore component. A big reason is cost.

Bob Walters, IT director at supply chain system provider Intermec Technologies Corp. in Everett, Wash., surveyed development costs recently at an SAP AG user conference. He determined that U.S. companies are charging $80 to $120 per hour for programming work, while the fee for offshore providers is about $40.

When you can pay a third of the price, offshore is "something that has to be considered," said Walters.

As offshore business grows, so does competition for it. Pioneering India-based offshore companies, such as Tata Sons Ltd., are facing increasing competition from the large U.S. IT consulting firms. Accenture CEO Joe W. Forehand, who spoke at the Gartner conference, compared the trend to the previous exodus from the U.S. of many manufacturing operations. "The way we look at it, the industrialization of IT is a reality, and we have to embrace that," he said.

Competition is also becoming more global. In the vendor exhibit hall, Bamboo Networks Ltd.'s mere presence raised eyebrows. Some rivals said it was the first China-based outsourcer to set up a booth at a U.S. outsourcing conference.

China is considered something of a sleeping giant in the offshore world that isn't quite ready to compete with India. China "represents the next wave" in offshore outsourcing, said Traci Gere, an IDC analyst.

Rajesh Rao, chief operating officer at Hong Kong-based Bamboo, which operates an offshore development center in Guangzhou, China, said the company believes it has developed its offshore processes sufficiently to compete for U.S. customers.

One user of offshore services, Sudhir Agarwal, senior manager of architecture and services at Verizon Communications in New York, said India's talent pool, its populace's proficiency with English and the country's U.S. connections will ensure India a dominant role for years to come. But China's emergence "is good for companies in the U.S.," Agarwal added.

Business Process Outsourcing Gains Momentum

LOS ANGELES

According to Gartner Inc., business process outsourcing (BPO) is on the rise, with outsourcing of the human resources component expected to grow the fastest. Approximately 86% of U.S. companies will outsource one or more human resources functions in the near future, with payroll processing often being the first step.

Key to any successful outsourcing relationship is the ability to measure the cost of providing existing services, said Gartner analyst Rob Brown.

Another hot BPO area is insurance. Liberty Insurance Services Corp., a subsidiary of Toronto-based Royal Bank of Canada, is one provider.

Its insurance BPO work can involve a combination of offshore and onshore development, said Ted Cole, vice president of the Greenville, S.C.-based subsidiary. But customer data stays in the U.S. An offshore center may see a policy image that requires data entry, but that's the extent of the interaction. Regulators don't like insurance data to go offshore, he said.

Insurance BPO covers a range of services, including transaction and claims processing, any kind of data entry, underwriting and policy administration. Gartner expects the insurance BPO market to increase from $6.8 billion this year to $8.9 billion by 2005.

Human resources outsourcing services are expected to reach $46 billion this year and $51 billion next year, Gartner said.

– *Patrick Thibodeau*

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Sun Exec Opposed to Open-Source Java

Schwartz: Current process produces uniform standard

BY CAROL SLIWA
SAN FRANCISCO

***Jonathan Schwartz**, executive vice president of software at Sun Microsystems Inc., spoke with Computerworld at the company's recent JavaOne conference here about the possibility of Java becoming an open-source technology and other issues. Excerpts follow:*

Should Java be made fully open-source? The problem with open-source is that [victory] goes to volume, and that's evident in the Linux community today where ISVs [independent software vendors] are qualifying to Red Hat and abandoning everyone else. Why? Because Red Hat has volume.

If Java were open-source, Microsoft could take it, deliver it as they saw fit and drive a definition of Java that was divergent from the one that the [wider] community wanted to be compatible [with]. And to the victor would go the spoils of that nefarious action.

To the extraordinary credit of the Java Community Process [JCP], we have a uniform, compatible standard that now spans hundreds of millions of devices. You have to really be careful in understanding the distinction between open-source and open standards.

An IBM executive once told me those two terms mean the same thing. IBM is dead wrong, and I also think that IBM is somewhat duplicitously straddling that gap for its own benefit, exploiting the open-source community on the one hand and then on the other hand trying to derive a proprietary advantage from its implementations of open-source products.

Did IBM talk to you before including its proprietary graphical user interface technology, the Standard Widget Toolkit (SWT), in its open-source Eclipse platform? No. And I think what they've done with SWT violates really what you would want to do with the Java platform. No one wants "write once, run on this operating system." IBM has a lot of weight, and they don't like the JCP, I think in part because they can't throw their weight around. They are just one voice of many.

Sun gave all of the keynotes at JavaOne. Why did other key Java vendors have such a small presence? You'll notice that nobody from Sun got up and really talked about Sun products. We talked about the health of the [Java] community as probably the company that has the single biggest vested interest in its success. I think that the folks who came to JavaOne wanted that.

Some attendees noted IBM's near absence. I think it's an obvious absence. Microsoft wasn't here, either.

No one would have expected Microsoft. Now that we've settled the Java issue with respect to distribution, that's no longer an issue for Microsoft to manage explicitly. Who knows? Maybe we've got some partnering opportunities with Microsoft. We do have a common competitor in the form of IBM. . . . If they would abide by the contract, we would love to work with them. ■

MORE ONLINE
To read more of Schwartz's thoughts about Java, go to our Web site:
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MARYFRAN JOHNSON

Beating the Odds

AT A TIME WHEN GOOD NEWS about IT is as unexpected as a winning lottery ticket, our story about Hilton Hotels' daredevil infrastructure upgrade is quite a standout (see story, page 25). It makes for especially welcome reading in the wake of the latest research decrying the dreary state of successful IT project completions.

In a survey of some 2,000 companies (more than 800 of them in the Fortune 1,000), The Hackett Group in Atlanta found that unless a company is among the top 25% of technology users, three in 10 IT projects fail on average, and that less than 40% of IT managers have any faith that their departments can react quickly enough to changing business goals. On top of this, less than half of companies even bother to validate an IT project's business value after it has been completed [QuickLink 39300].

How many of these depressing studies and statistics have you read in recent years? Yeah, I've lost count too. The problem with them is how little they contribute to actually solving any of the real-world problems associated with complex IT projects.

That's what I found so riveting in reporter Gary H. Anthes' account of Hilton's megaoverhaul of its Unix client/server system. It's an honest, warts-and-all look inside a massive infrastructure upgrade — one that's been slogging away during the most prolonged downturn in IT history. Your company may not be the world-famous Hilton chain, but the problems encountered and solved by its IT group will still resonate with familiarity.

"We had every platform and operating system under the sun," says Damien Bean, Hilton's vice president of corporate systems. He also had 1,500 users standing by as potential front-line critics as the IT department gambled on a migration to PeopleSoft 8, Microsoft Windows 2000 Server and SQL Server 2000 running on Dell servers.

It was a move fraught with risk because none of those vendors had ever played together on a field as large as the one Hilton provides. "We were doing engineering that no one had ever done before," Bean noted. He took advantage of that — as the biggest customers can — by pushing the vendor trio to prove themselves. Microsoft, Dell and PeopleSoft each had to pony up the people, the expert support and the resources necessary to make this unproven three-tier Web architecture work.

Still, it didn't all go perfectly. That's the nature of IT projects.

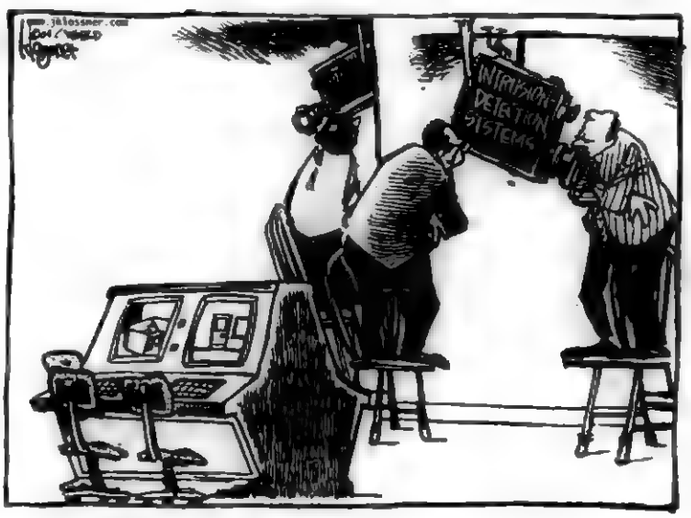
The biggest technology snafu hit on the first day of switching over to the new payroll system, but that high level of vendor attention paid off. The latest unpleasant surprise has more to do with industry politics and finance than technology: the looming threat of an Oracle takeover of PeopleSoft.

"What I have told everybody here at Hilton — and I've been getting a lot of calls from other big customers, too — is don't do anything yet," Bean told us last week. "Any decision you make now is going to be lousy, because there's not any good information." But he's confident that whatever happens can be handled.

That's the nature of IT leadership.

As the project heads into its final phase, the savings are already in the millions, and Hilton's controller is enjoying his newfound ability to close the books in roughly half the time he once did.

IT projects will always be targets of criticism. They'll always be a gamble because they involve such a volatile mix of people, technology, business and politics. But done right, as at Hilton, they can be better than a winning lottery ticket.



PIMM FOX

Call Centers Grow Up

COMPANIES should turn their call centers into IT-equipped intelligence operations designed to provide e-learning, customer analysis and threat detection.

Best Buy, Starwood Hotels and Continental Airlines are doing just that, as if to disprove the notion that IT is history. They're using an intelligent software suite from Roswell, Ga.-based Witness Systems Inc. to randomly record both voice and data communications in order to improve customer service and the bottom line.

For example, Continental's four domestic reservation centers, which handle about 60 million calls annually, use IT for more than just measuring call levels. The airline takes the technology to greater heights, integrating the call review process with IT operations and business goals and letting management at company headquarters in Houston keep an eye on things.

This enables IT staffers to troubleshoot bugs and problems with the Web site in real time, thanks to electronic buckets in which reservation agents (there are nearly 5,000) place customer reports. Since the IT department can see the actual keystrokes that led to any problems, fixes are made more quickly. And those fixes are also less expensive to execute, because IT personnel don't have to fly to a reservation center in the hope of seeing a recurring glitch.

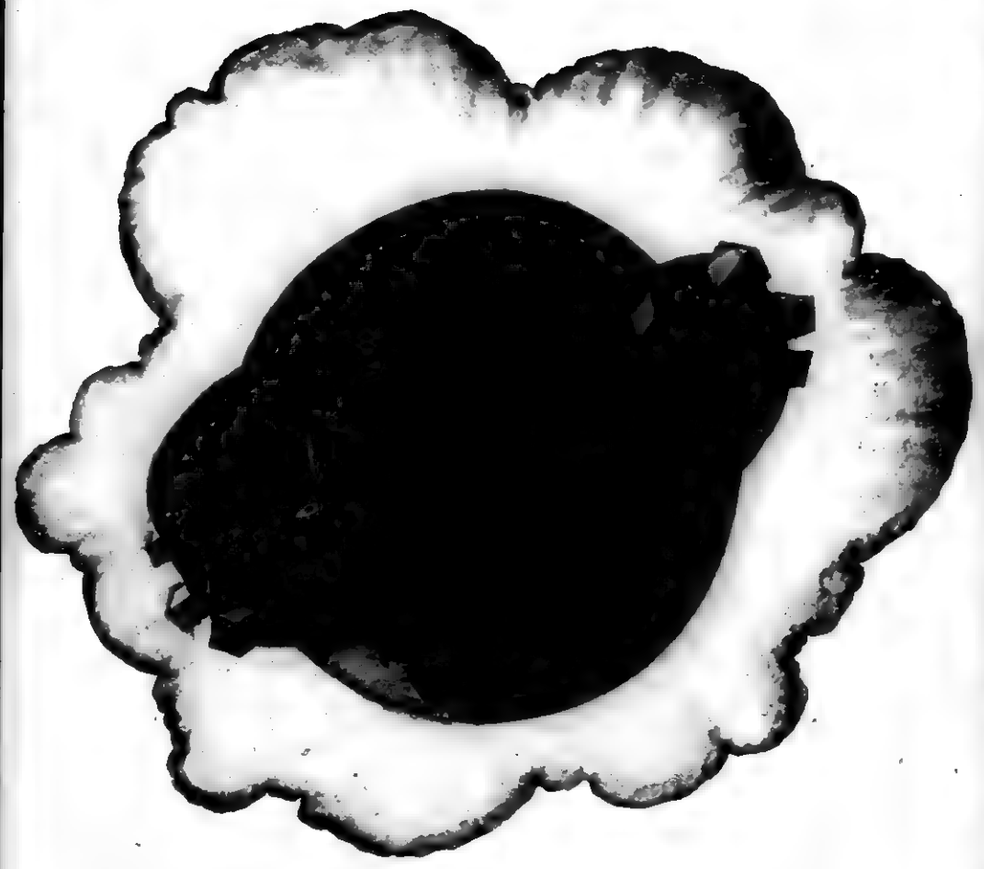
The system also helps agents group problems, questions and concerns according to criteria the airline perceives as important.

The system records up to 10 random calls per agent per month, but it also lets each agent flag calls for examination by a supervisor. For example, an agent who has trouble closing sales can select calls for review by a manager, who can then help him improve his performance.

And in Houston, managers can log onto the Windows NT system from

White Paper

June 30, 2003



The Top 10 Critical Challenges for Business Intelligence Success

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The Top 10 Critical Challenges for Business Intelligence Success

More than half of all BI projects fail — make sure yours isn't one of them

Let's start with the bad news: More than half of all Business Intelligence projects are either never completed or fail to deliver the features and benefits that are optimistically agreed on at their outset. While there are many reasons for this high failure rate, the biggest is that companies treat BI projects as just another IT project. Face it: Business Intelligence, or BI, is neither a product nor a system. It is, rather, a constantly evolving strategy, vision and architecture that continuously seeks to align an organization's operations and direction with its strategic business goals.

With BI, business success is realized through rapid, easy access to actionable information. This access, in turn, is best achieved through timely and accurate insight into business conditions and customers, finances and markets.

Written by
Shaku Atre,
President,
Atre Group Inc.

Complex stuff, but worthwhile. Successful BI brings greater profitability, the true indicator of business success. And success is never an accident; companies achieve it when they do the following:

- Make better decisions with greater speed and confidence.
- Streamline operations.
- Shorten their product development cycles.
- Maximize value from existing product lines and anticipate new opportunities.
- Create better, more focused marketing as well as improved relationships with customers and suppliers alike.

Organizations must understand and address these 10 critical challenges for BI success. BI projects fail because of:

1. Failure to recognize BI projects as cross-organizational business initiatives, and to understand that as such they differ from typical standalone solutions.
2. Unengaged business sponsors (or sponsors who enjoy little or no authority in the enterprise).
3. Unavailable or unwilling business representatives.
4. Lack of skilled and available staff, or sub-optimal staff utilization.
5. No software release concept (no iterative development method).
6. No work breakdown structure (no methodology).
7. No business analysis or standardization activities.
8. No appreciation of the impact of dirty data on business profitability.
9. No understanding of the necessity for and the use of meta-data.
10. Too much reliance on disparate methods and tools (the dreaded silver bullet syndrome).

In this white paper, we examine each of these challenges.

1. Cross-Organizational Collaboration

Traditionally, any business initiative, including a decision support project, was focused on a specific goal that was limited to a set of products or an area of the business. Due to this narrow focus, organizations were unable to analyze the project's impact on business operations as a whole. As organizations became more customer focused, these initiatives began to integrate customer information with product information.

It is critical to realize that customers and markets, not manufacturing plants and product managers, must drive the business. It is also optimal to correct any customer problems before the customer realizes the problem existed. Enterprises have a better chance to achieve high customer loyalty if customers can pay when their problem is solved — not when the product is shipped. Initially, the integration occurred in regional or departmental databases, with no cross regional collaboration.

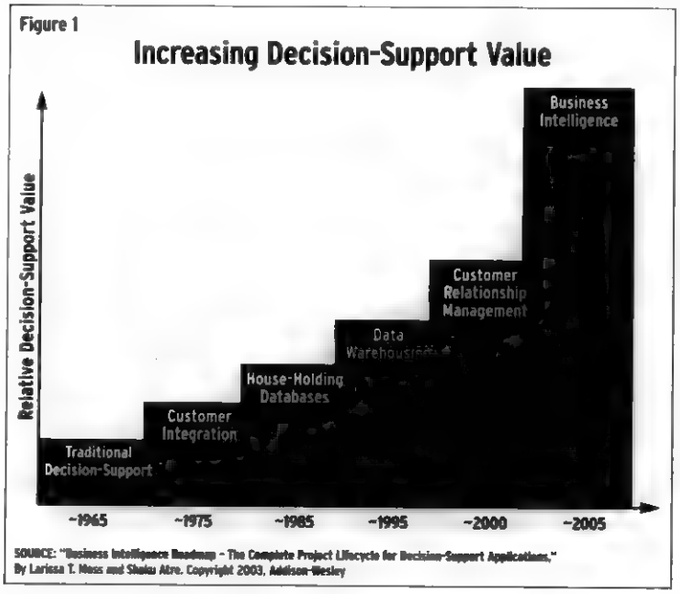
Customers and markets, not manufacturing plants and product managers, must drive the business.

Enterprise data warehouses were the next step in the evolution toward cross organizational integration of information for decision support purposes such as sales reporting, key performance indicators (KPIs) and trends analysis. Customer relationship management (CRM) followed, bringing the promise of increased sales and profitability through personalization and customization.

BI is the next step in achieving the holistic cross organizational view (Figure 1). It has the potential to deliver enormous payback, but demands unprecedented collaboration. Where BI is concerned, collaboration is not limited to departments within the organization; it requires integration of knowledge about customers, competition, market conditions, vendors, partners, products and employees at all levels.

To succeed at BI, an enterprise must nurture a cross organizational collaborative culture in which everyone grasps and works toward the strategic vision.

Figure 1



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2. Business Sponsors

Strong business sponsors truly believe in the value of the BI project. They champion it by removing political roadblocks. Without a supportive and committed business sponsor, a BI project struggles for support within an organization — and usually fails.

Business sponsors establish proper objectives for the BI application, ensuring that they support the strategic vision. Sponsors also approve the business case assessment and help set the project scope. If the scope is too large, sponsors prioritize the deliverables.

Specifically for BI projects, business sponsors should also launch a data quality campaign in affected departments. This task goes to business sponsors because it's business users who truly understand the data.

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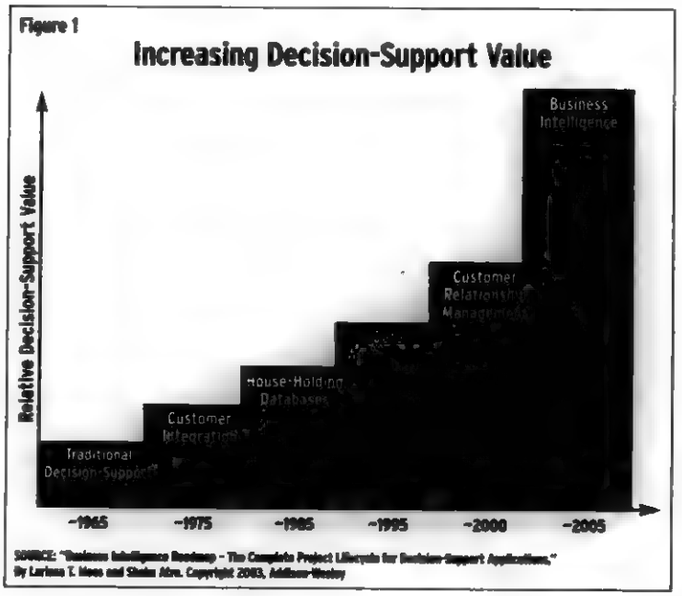

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run a project review session at assigned checkpoints to ensure that BI application functionality maps correctly to strategic business goals, and that its return on investment (ROI) can be objectively measured.

3. Dedicated Business Representation

More often than not, the primary focus of BI projects is technical rather than business-oriented. The reason for this shortcoming: most BI projects are run by IT project managers with minimal business knowledge. These managers tend not to involve business communities. Therefore, it's not surprising that most projects fail to deliver expected business benefits.

It's important to note that usually 20% of the key businesspeople use BI applications 80% of the time. Therefore, it's vital to identify key business and technical representatives at the beginning of a BI project — and to keep them motivated throughout the project. A BI project team should have involved stakeholders from the following areas:

Business executives are the visionaries with the most current organizational strategies. They should help make key project decisions and must be solicited for determining the project's direction at various stages.

Customers can help identify the final goals of the BI system. After all, their acceptance of products or service strategies is what matters most.

Key business partners provide a different view of the customer and should be solicited for information at the start and on an ongoing basis.

The Finance department is responsible for accounting and can provide great insight into an organization's efficiencies and improvement areas.

Marketing personnel should be involved during all phases of the project because typically, they are key users of BI applications.

Sales and Customer Support representatives have direct customer contact and provide customer perspective during a BI project. They must have representation on the team.

IT supports the operational systems and provides awareness about the backlog of BI requests from different groups. In addition to providing technical expertise, the IT staff in the BI project team must analyze and present BI-related requests.

It's vital to identify key business and technical reps at the beginning of a BI project — and keep them motivated throughout.

Operations managers and staff make tactical business decisions. They provide the link between strategic and operational information, making them important during some key phases of a BI project.

4. Availability of Skilled Team Members

BI projects differ significantly from others because at their outset, they tend to lack concrete, well-defined deliverables. In addition, the business and technical skills required to implement a BI application are quite different than other operational online transaction processing (OLTP) projects. For example, while operational projects normally focus on a certain area of the business, such as enterprise resource planning (ERP), CRM or supply chain management (SCM), a BI project integrates, analyzes and delivers information derived from almost every area of the business as a whole.

The required technical expertise varies as well; typically, for example, a database administrator's focus is efficient retrieval of data using OLTP systems. By contrast, where BI systems are concerned, it's vitally important to focus on data storage in addition to data retrieval.

A BI project team lacking BI application implementation experience will most likely fail to deliver desired results in the first iteration. Since most BI projects have aggressive timelines and short delivery cycles, an inexperienced and unskilled team is a risk that must be avoided.

Mandatory BI project skills include:

- BI business analysts who can perform cause-and-effect analysis to develop business process models for evaluating decision alternatives. These individuals should also be able to perform what-if analysis by following a proven BI methodology.
- A KPI expert experienced in creating balanced scorecards. These experts must be able to identify the KPIs that meet business needs, calculate and report them and monitor per-

formance. They also should iteratively re evaluate KPI effectiveness and must integrate these KPIs into the balanced scorecard.

- Balanced scorecard experts to continuously develop and fine tune scorecards. Measuring success in a dynamic business environment requires an effective toolset. With a balanced scorecard, an organization's vision and strategy can be translated into objectives, targets, metrics — and incentives to meet those objectives and targets.
- Data warehouse architects with experience developing BI related logical and physical data models, including both star schemas and OLAP. Ideally, these people might also have experience with such technologies as statistical tools and data mining algorithms.
- Cube developers and implementers with experience implementing BI specific data models, OLAP servers and queries. These individuals must be able to develop and deploy complex and intelligent cubes to conduct multi dimensional OLAP analysis for different users.
- Personalization experts experienced at developing Web based generic BI applications that can not only meet the reporting needs of many users, but also provide a personalized view to each user.

5. BI Application Development Methodology

To succeed, BI projects must adhere to a plan with clearly defined methodologies, objectives and milestones. In this respect, they are hardly unique. However, unlike other undertakings, BI projects are not limited to a confined set of departmental requirements. Rather, their purpose is to provide cross organizational applications. Therefore, BI methodologies and deliverables differ.

Unlike other undertakings, BI projects aren't limited to a set of departmental requirements.

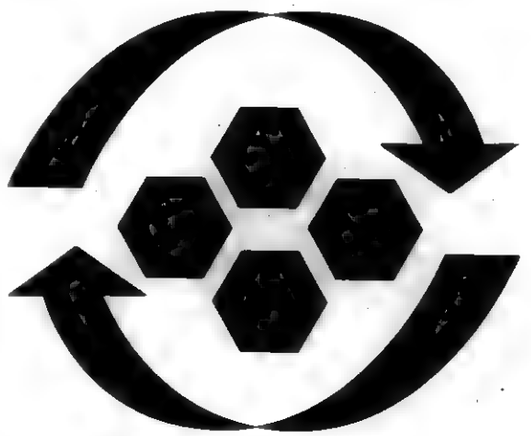
Like any project, BI starts out by answering some basic questions, such as: What will be delivered? What are the benefits and expected ROI? What is the total cost? When will it be delivered? Who will do it? The answers collectively define the BI project as follows:

Project deliverables map goals to strategic business objectives. These deliverables should be measurable in business terms. For example, "In order to increase sales 20%, the sales data merged with pipeline data must be available to sales teams within three days of month's end."

Project scope aligns deliverables with BI application deployment phases and timelines. Unlike traditional OLTP applications, the number of transactions the system will perform cannot measure BI project scope. Transactions usually represent an organization's processes, which in turn represent functions. Since BI projects are data intensive, not function intensive, their scope must be measured by the data they will transform to the target BI databases, and

Figure 2

BI Project Planning Process



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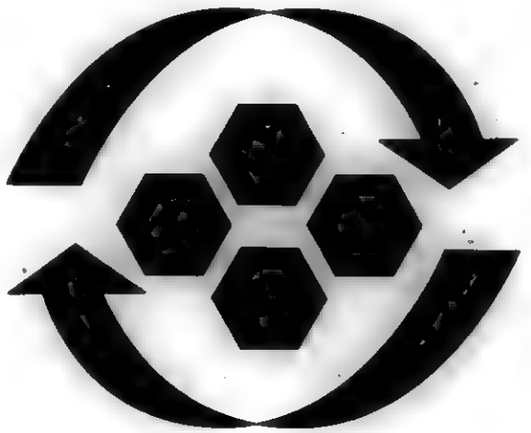

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how quickly this data can be available. This focus on data is necessary because almost 80% of the effort in a typical BI project is spent on data-related activities.

ROI for a BI project must be derivable from project deliverables. Project sponsors must measure the effectiveness of delivered BI applications after the completion of each phase to determine whether the project is delivering the promised ROI. If it isn't, improvements must be made.

6. Planning BI Projects

Due to the nature of the beast, BI projects tend to hit more unknowns than OLTP projects. Why? OLTP projects implement the processes of an organization, which in turn represent the functions. By contrast, BI projects are supposed to provide data, which will be transformed into information, which in turn is transformed into action. Therefore, BI project planning is not a one-time activity, but rather an iterative process in which resources, timelines, scope, deliverables and plans are continuously adjusted (Figure 2).

Although it's an iterative process, the initial project plan must be created with as much detail as possible (Figure 3). BI project planning activities include:

Determining project requirements. As part of this activity, existing high-level data, functionality and infrastructure requirements must be reviewed and revised to include more detail and remove ambiguity.

Determining the condition of source files and databases. Before completing the project plan, operational data stores must be reviewed to account for any issues that may surface during the data-analysis phase.

Determining or revising cost estimates. During this activity, the organization performs detailed analysis to determine purchase and maintenance cost estimates for hardware, software, network equipment, business analysts, IT staff members, implementation, training and consultants.

Determining or revising risk assessment. Enterprises must perform a detailed risk assessment in order to accurately determine and rank BI project risks (based on severity and the likelihood of their occurrence).

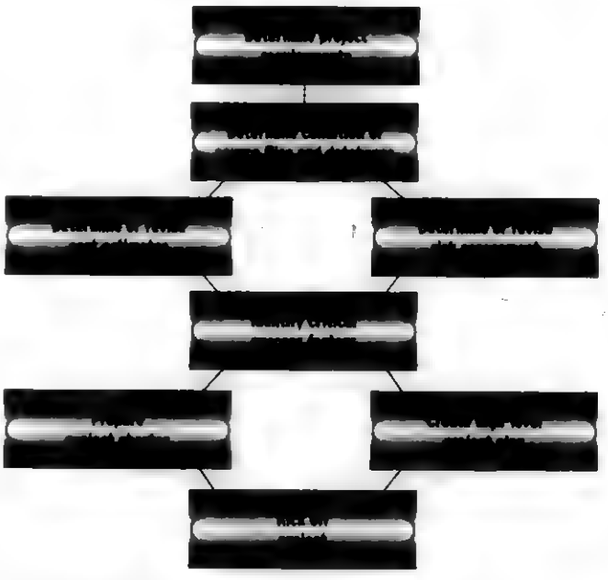
Identifying critical success factors. Here an organization determines what conditions must exist in order for the project to succeed. Factors include supportive business sponsors, realistic time frames and the availability of resources.

Preparing the project charter. This is a detailed memorandum of understanding that should be prepared by the project team and approved by the business sponsor and key business representatives.

Creating a high-level project plan. These are detailed breakouts of tasks, resources, time lines, task dependencies and resource dependencies

Figure 3

Project Planning Activities



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mapped on a calendar.

Kicking off the project. On completion of the plan, the project is kicked off in an orientation session at which all team members, business representatives and the BI sponsor are present.

7. Business Analysis and Data Standardization

By now it's clear that BI projects are data-intensive and that "data out" is as important as "data in." It's crucial that the source data be scrutinized. The age-old saying, "Garbage in, garbage out," still holds true.

In most BI projects, business analysis issues are related to source data, which is scattered around the organization in disparate data stores and in a variety of formats. Some of the issues include:

Identifying information needs. Most business analysts have challenges when it comes to identifying business issues related to BI application objectives. They must evaluate how addressing these issues can help in obtaining answers to business questions such as, "Why is there a decrease in sales revenue in the fourth quarter on the West Coast?" Once the issues are identified, business analysts can easily determine related data requirements, and these requirements can in turn help identify data sources for the required information.

Data merge and standardization. The biggest challenge faced by every BI project is its team's ability to understand the scope, effort and importance of making the required data available for knowledge workers. That data consists of fragments in disparate internal systems and must be merged into a common data warehouse — not a trivial task. Data requirements normally extend beyond internal sources, to private and external data. Therefore, data merge and standardization activities must be planned and started at the beginning of the BI project.

8. Impact of Dirty Data on Business Profitability

Inaccurate and inconsistent data costs enterprises millions. It's imperative to identify which data is important, then find out how clean it is. Any dirty data must be identified, and a data-cleansing plan must be developed and implemented.

Dirty data must be identified and a data-cleansing plan must then be developed and implemented.

The business objectives of any BI project should be tied to financial consequences such as lost revenue and reduced profit. The financial consequences are usually the result of a business problem related to inaccuracies in reports due to reliance on invalid, inaccurate or inconsistent data. However, most BI projects fail to tie financial consequences to dirty data through monetary expressions (such as losing $10 million in quarterly revenue due to the enterprise's inability to up-sell).

Even the best BI application will be worthless if driven by dirty data. Therefore, it is important for every BI project to employ knowledgeable business analysts who understand the meaning of source data and can ensure its quality.

Underestimating the data-cleansing process is one of the biggest reasons for BI failure. Inexperienced BI project managers often base their estimates on the number of technical data conversions required. Project managers also fail to take into account the overwhelming number of transformations required to enforce business data domain rules and business data integrity rules.

For some large organizations with many old file structures, the ratio of a particular data transformation effort can be expected to be as high as 85% effort in data cleansing and only 15% in enforcing technical data conversion rules. Therefore, even if estimates appear realistic at the project's outset, you must factor in data-cleansing efforts. Note that full-time involvement from the right business representatives is mandatory for data cleansing activity.

9. Importance of Meta-Data

Clean data is worthless to knowledge workers if they do not understand its context. Valid business data, unless tied to its meaning, is still meaningless. Therefore, it is imperative for all BI applications to consciously create and manage the meaning of each data element. This data about data is known as meta-data, and its management is an essential activity in BI projects.

Meta-data describes an organiza-

tion in terms of its business activities and the business objects on which they're performed. It helps transform business data into information. It is imperative for every BI environment. For example, what is profit? Does every businessperson have the same understanding of profit? Is there only one calculation for profit? If there are different interpretations of profit, are all interpretations legitimate? If there are multiple legitimate versions of profit, then multiple data elements must be created, each with its own unique name, definition, content rules and relationships. All this information is meta-data.

Meta-data helps businesspeople navigate BI target databases and helps IT manage BI applications. There are two types of meta-data:

- Technical meta-data provides information about BI applications and databases, and assists IT staff in managing these applications.
- Business meta-data provides business users with information on data stored in BI applications and databases.

Both types are crucial to success and should be mapped to each other and stored in meta-data repositories.

10. The Silver Bullet Syndrome

There is neither a single technology nor a technique that will resolve all the challenges to reach the goal of a successful BI environment. That is to say, there is no silver bullet.

BI projects have an enormous scope and cover multiple environments and technologies. At a minimum, a BI environment comprises:

- A tool for extracting, transforming and loading data from disparate source systems into the BI target data warehouse.
- A data warehouse that stores historical and current business data, as well as an OLAP server that provides analytic services.
- Front-end BI applications that are used to provide querying, reporting and analytic functions to the organization's knowledge workers.

Valid business data, unless tied to its meaning, is still meaningless. BI applications must create and manage the meaning of each data element.

In most organizations, these BI components are implemented in different phases and by project teams. Each team implements the product that meets most of its functional requirements. More tools create greater complexity and increased interoperability issues, and require more administration involvement.

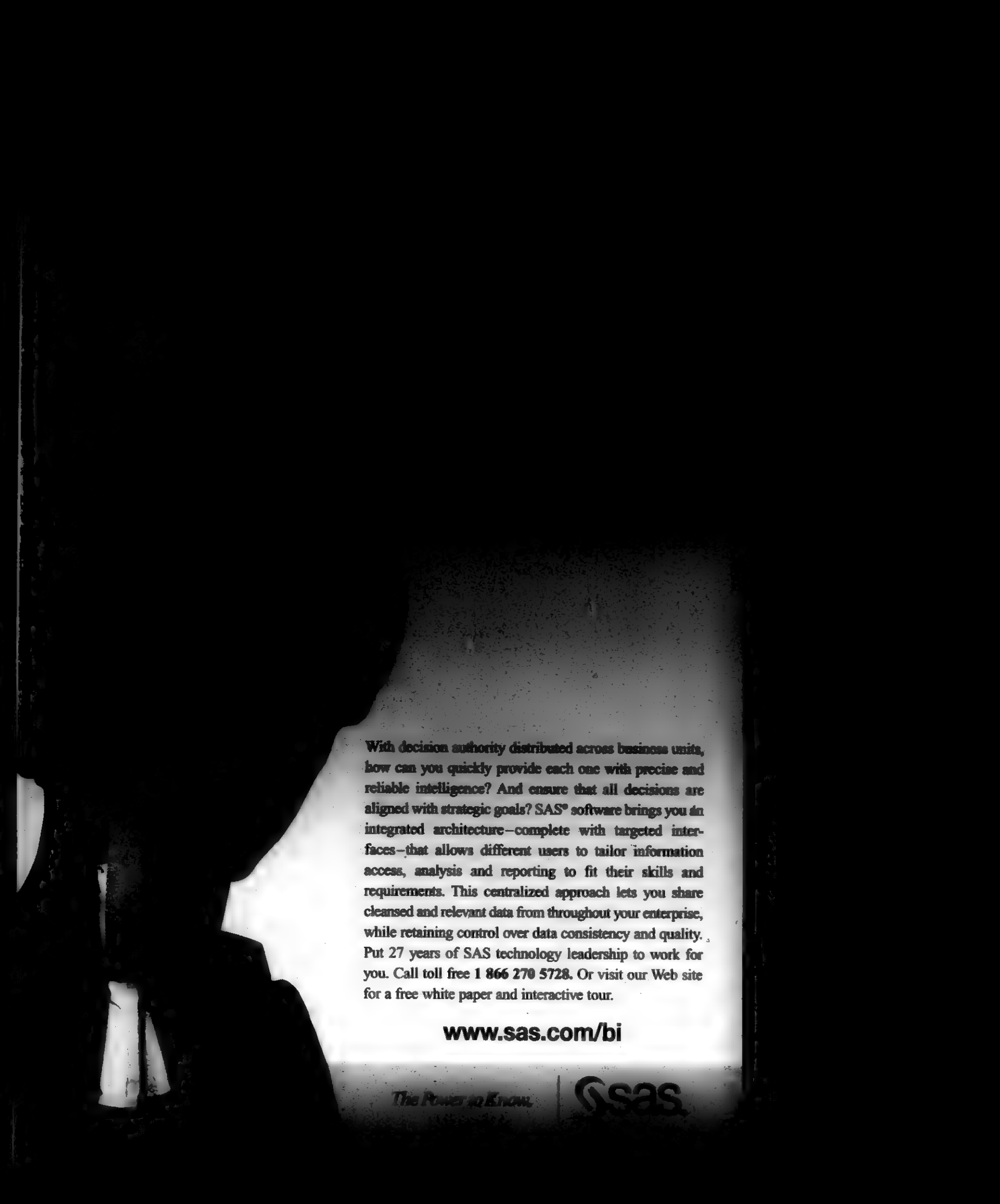
BI project teams must always consciously strive for the lowest possible number of tools. This will allow different BI activities to map to the same overall roadmap.

Conclusion: Maximizing ROI

BI applications, if implemented efficiently and properly, have tremendous payoff. They can help an enterprise increase its business agility, decrease operating costs and improve its customer loyalty and acquisition.

And in most cases, these improvements bring a host of tangible benefits (better customer satisfaction, increased revenue and profits, cost savings and higher market share). Bottom line: a successful BI project is a genuine, often dramatic, improvement to any organization.

Ah, but there's that word again: successful. As we've seen, many complex factors go into the successful BI project. By paying attention to the 10 critical challenges for BI success, your enterprise has a great chance to complete and deliver the features and benefits agreed upon at the beginning of the project. ✦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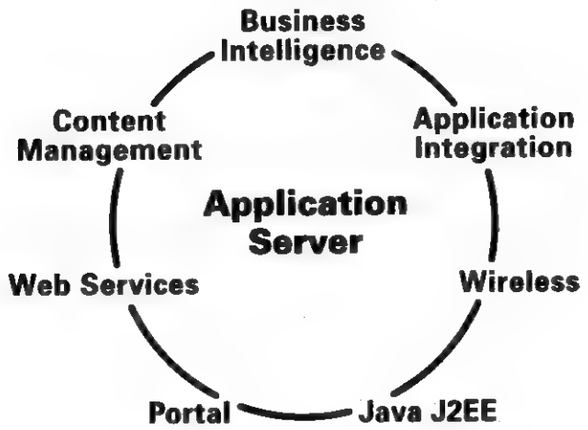

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their desktops on a regular basis to look for recurring problems or trends, and to measure agent service and sales performance. They can also assess IT operations based on customer feedback.

By using IT, HR management was able to revamp the agent review process, whittling a list of 65 questions down to 14 and shifting the focus of the review process from administration to coaching and learning. Continental has also restructured its training program for new hires to reflect the customer service issues that show up in the call center.

Creative application of IT has made it possible to automate and link a variety of customer service data, making it easier to provide current information about flight delays or fare changes.

Providing an online evaluation form makes it convenient for managers to score as they listen to recorded calls. They can even mark calls and e-mail them for review by other personnel.

That's pretty versatile and far reaching for a system that was originally conceived as just a security measure to monitor, capture and relay threatening calls within real-time parameters. In today's world, that kind of vision and those kinds of results mean that IT is hardly passé.

DAN GILLMOR

Take Another Look at Apple

EVERY ONCE in a while, corporate IT shops have to ask, "Is the Mac any more, or less, worthy for the enterprise?"

We learned some useful facts about Apple Computer's future last week at the company's annual conference for developers in San Francisco. At the top of the list: Apple isn't moving to the Intel architecture for its central processors, but it is beginning to shed a hardware albatross in a smart way.

For IT, the hardware story may prove to be the most interesting. Apple leapt into the 64-bit era when it announced a new line of computers based on IBM's PowerPC 970 microprocessors. The move was long overdue recognition that Motorola, which has been Apple's PowerPC supplier, has lost too much ground in power and price to the Intel architecture in recent years. Apple is still using Motorola chips on lower-end machines and probably will keep doing so for some time, but the alliance with IBM strikes me as Apple's future.

There's no doubt that this hardware is a big step forward. It's not just a faster CPU, which Apple is branding the G5. The entire system offers an impressively advanced architecture that includes faster memory and an internal bus speed that moves the Mac ahead of the competition. Apple is also embracing Universal Serial Bus 2.0, somewhat surprisingly given its pushing of FireWire, but this is what the company has to do in today's world.

All that won't be enough to entice the enterprise for routine office applications. You're unlikely to see IT departments replacing their Windows desktop computers with the PowerMac G5, due to ship in August. Although the prices are quite competitive with the fastest Intel-compatible machines, they're way more costly than the slower — but still amply fast — PCs running Windows or Linux for ordinary office work.

However, users of high-end Macs have genuine incentives to upgrade. That's especially true for the "creative professionals" Apple counts as a core market. These folks are sure to be pleased. Software developers are rewriting their applications to take advantage of the G5 (for example, Adobe is reworking Photoshop), but 32-bit applications should run without modification. In some ways, G5s may be attractive as replacements for some Unix workstations.

Apple didn't announce a rack server or notebook G5. Expect the server before the notebook; heat issues are sure to constrain the latter.

The software story is mixed. The next version of the Unix-based operating system — Mac OS X 10.3, code-named Panther — is being delayed three months or so. Too bad. It's slick, with plenty of usability enhancements, such as vastly better search, and it looks like it will work even more smoothly inside Windows-oriented enterprises.

But Microsoft's increasingly ambivalent attitude toward the Mac could become a problem. Microsoft is killing development of Internet Explorer for the Mac, noting (without irony) that Apple's developers have an unfair advantage in developing the Safari browser because they have better access to the underlying operating system. And given how closely intertwined the Windows version of Office is becoming with the operating system, it's likely that the next OS X version of Office will be the last.

Apple is making tentative moves toward replacing Office with its own suite of applications, such as the Keynote presentation software. But Microsoft's never-ending efforts to lock in users with hard-to-decipher file formats, complex macros and other tricks will remain a problem for Mac users, and thus for Apple as well. This transition will be tricky.

Bottom line for IT? Apple can still make a case in the enterprise, targeting creative types, some road warriors and some server applications, and it's clearly not running short on innovation.

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READERS' LETTERS

Revised Opinion

IN THE MAY 12 edition of *Computerworld*, I was quoted in the article "Wading Into IP Telephony" [QuickLink 38056] as saying, "Avaya's not as focused on data as Cisco is. . . . The Cisco user interface is cleaner." While this may have been our first impression at the time I was interviewed, over the past six months our network analysts have concluded that for voice-over-IP monitoring and management, the Avaya Cajun switches are the choice performers. Since then, we have installed over 75 Cajun switches throughout our facilities, with no regrets.

Thomas Dunkerley
IT communications manager, The Seattle Times, tdunkerley@seattletimes.com

Human Error

NEIL RASMUSSEN makes some good, practical points on facilities management ["Avoiding Data Center Blowups," QuickLink 38121]. Surprisingly, many of these involve human rather than technical factors (for example, the classic lack of coordination between construction and operations staffs). These problems often border on the absurd, though the outcomes are not always so charming. We have had maintenance staff who wedged open the service doors before they went home for the weekend, and locksmiths who put new locks on the wrong side of these same doors.

Rasmussen's observations about oversizing power and cooling capacity are equally apt. I once had a difficult discussion with an HVAC engineer who came to look at the new heat exchanger in a small server room. Using crude arithmetic examples, the engineer tried to explain that the air in the room had to recirculate several times a minute or cooling wouldn't be effective. I tried to explain that heat exchange is nonlinear and that it sounded like most of the energy of the 2-horsepower fan was in any case being converted into turbulence. It was clear that neither factor had occurred to him, though they proved easy to demonstrate. By simply reversing the pulleys so the fan would run slower, we saw the room temperature fall by 6 degrees Celsius. All this is a reminder to temper our natural tendency to focus attention on exotic hardware and fashionable methodologies before we have cultivated a rational grounding in how things actually work. It takes a little longer, but makes a lot less mess along the way.

Dan Razzell
Starfish Systems, Vancouver, British Columbia

False Security

GARTNER'S ADVICE on collecting metrics sounds good on the surface, but you can count only the attacks you can detect, and of those, you can guess their effectiveness or ineffectiveness based only on whether your security tools claim to have successfully blocked them ["IT Managers See Need for Risk Metrics," QuickLink 38973]. If the security tool knows how to detect a particular type of attack, then it probably knows how to block it as well, and therefore it should report 100% effectiveness. Bill Spernow, chief information security officer at the Georgia Student Finance Commission, said it best when he cautioned that these numbers can give a false sense of security.

Scott B. Hutchinson
Network administrator, Office of the Sheriff, Contra Costa County, Martinez, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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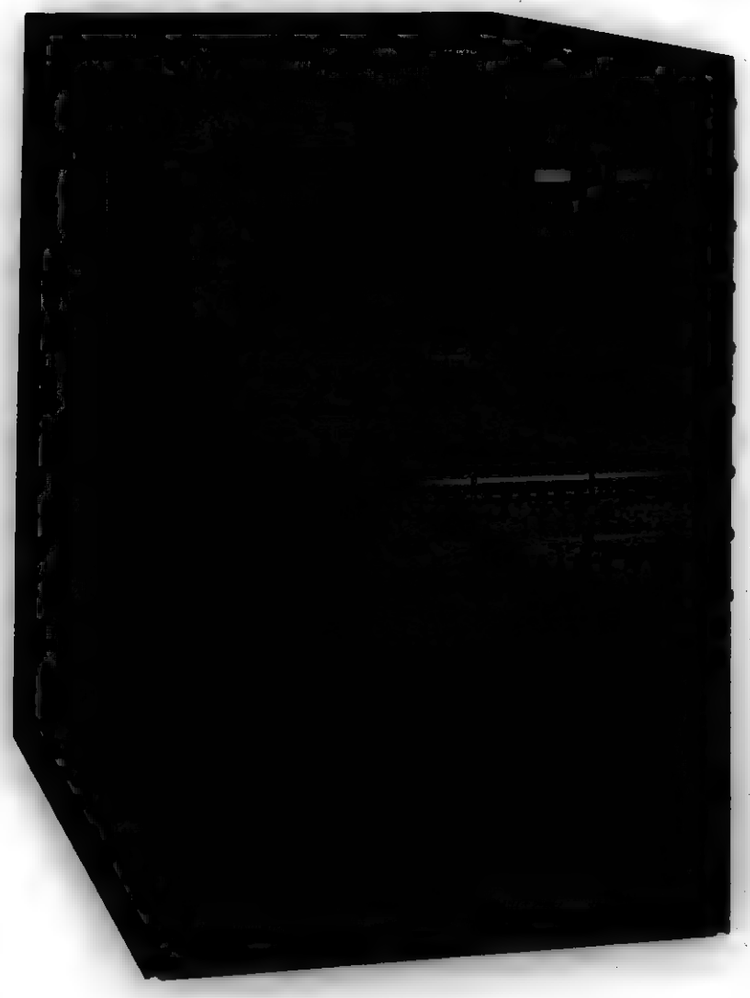

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Q&A

Sharing the Info Wealth

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SECURITY MANAGER'S JOURNAL

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OPINION

Bracing for the New Privacy Laws

As privacy laws proliferate, fear of lawsuits and legal penalties will push the issue of compliance front and center, says Robert L. Mitchell. **Page 34**

MANUELLO PABANELLI

HILTON CHECKS INTO NEW SUITE

Hilton's migration of its enterprise application suite from Unix client/server to a three-tier Web design on Windows pushed the limits of the technology. But it's finally paying off. By Gary H. Anthes

HILTON HOTELS CORP. is in the final stages of a massive system upgrade and conversion but is already saving millions of dollars in operating costs and software license fees. More strategically, the total changeover in its infrastructure — including server hardware, operating systems, database and application architecture — will greatly simplify maintenance and support and free up IT staff to concentrate on business process improvements, according to Damien Bean, vice president for corporate systems at Hilton.

The $4 billion, Beverly Hills, Calif.-based lodging company is converting its suite of PeopleSoft 7.5 client/server applications to PeopleSoft 8 on a three-tier, Web-based architecture. It's also scrapping Unix-based Hewlett-Packard Co. servers in favor of Windows 2000 Server boxes from Dell Computer Corp. and replacing its Sybase Inc. databases with SQL Server 2000 from Microsoft Corp.

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Just before the merger, in response to the Y2k challenge, Hilton had replaced its local, independent payroll, human resources and financial systems with centralized PeopleSoft 7.5 client/server applications running on HP hardware and Sybase database server software. The resulting production environment was far from bulletproof, Bean says. "It had been a mad scramble because of the Y2k issue, and toward the end they were just slamming things together and hoping for the best," he says.

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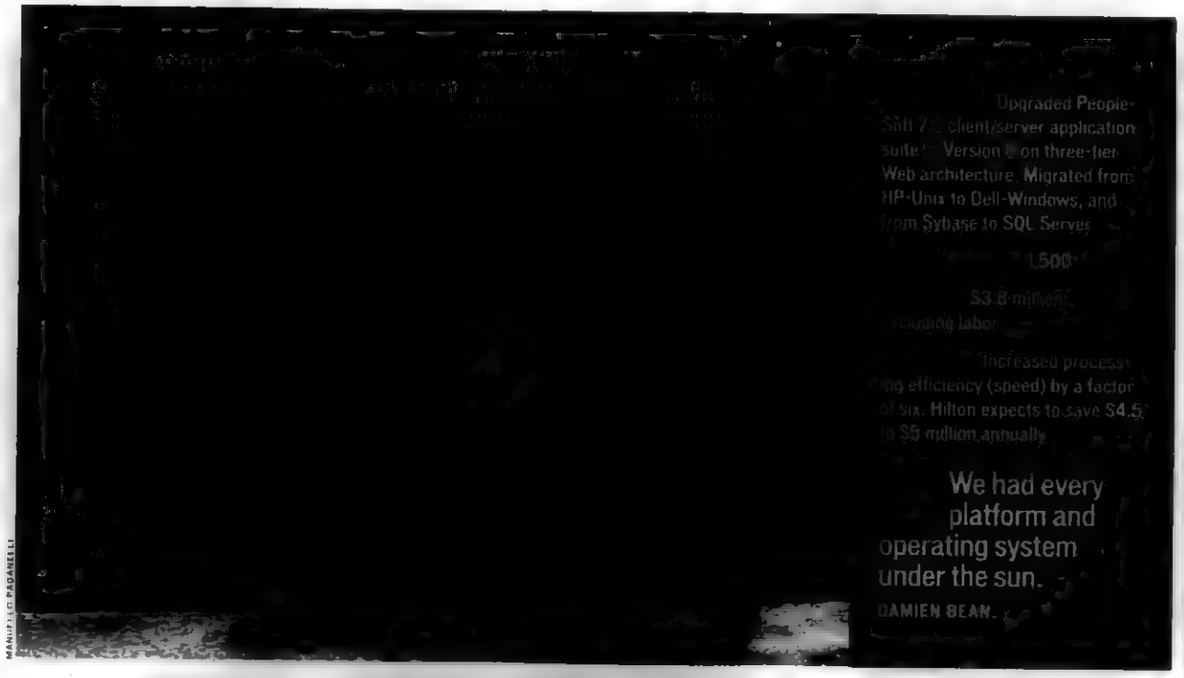

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Hilton bumped HP in favor of Dell largely for cost reasons. Bean saw Dell servers as commodity boxes that could be had on the cheap and easily replaced with another vendor's Wintel machines anytime a better deal came along. As for databases, "we didn't see Sybase as a strategic platform for Hilton," Bean says. "I had visions of it being [acquired by Computer Associates], and I didn't want to be left behind."

Bean says Hilton had two long-term, industry-standard options: SQL Server 2000 on Windows and Oracle9i on Linux. "We clearly knew Oracle would work, and we got a very competitive bid from Oracle," he says. On the negative side, Hilton staff had extensive SQL Server experience but virtually no Oracle expertise.

Even more significant, Hilton was already installing the SQL Server-based property management system at every hotel, and the software license from Microsoft allowed client access to PeopleSoft for very little incremental cost. It was cheaper than Oracle "by orders of magnitude," Bean says.

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Bean concluded that if he was going to live on the edge, so would his three key vendors — Dell, PeopleSoft and Microsoft. He met with senior executives at all three companies and stressed that the hotel giant would make a gold-plated reference account. "We said, 'If you've got someone willing to try this and take some risk, this is a project you can't afford to let fail,'" he says.

Scalding Performance

Hilton decided to test its Wintel system concept first on a travel agent commission system, an HP-Sybase application that had been coded using the PeopleTools application development environment. Although it was big — 50 to 60 tables and 100GB of data — it wasn't terribly complicated, nor was it so time-sensitive that it couldn't be down for a day or two if there were problems.

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The PeopleSoft application servers and SQL Server database servers "ran like a scalded bat," performing six times faster than the previous system, Bean recalls. Gratified and emboldened, Hilton's IT shop moved on to migrate the PeopleSoft HR and payroll systems for 71,000 employees.

The project turned out to be far more complicated than expected. Bean says, because no one had ever set up such a large PeopleSoft HR system: It consisted of six four-way Web servers and five eight-way application servers. The job was further complicated by the processing autonomy and flexibility Hilton gives its hotels. "Hilton is the ultimate real-time environment," Bean says. "We don't do batch payrolls every Thursday night. If Hotel A wants to run its payroll Monday at 11 p.m., they do it."

Dell, Microsoft and PeopleSoft provided sustained on-site support, as did BEA Systems Inc., supplier of the WebLogic Web servers and Tuxedo application servers used in the project. "We were doing engineering that no one had ever done before," Bean says. "We did an enormous amount of brainstorming on the new setup and how to load-balance across it." And they made it work.

MORE HILTON

Hilton will be a guinea pig for a new clustering technology from Dell.
QuickLink 39246

Timeline: A chronology of Hilton's data center upgrade project
QuickLink 39097
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"We should have done a bit better on the stress testing, which is why we are spending an awful lot more time on it now," says Jane Melville, project manager and director of corporate systems. "It takes a lot of expertise to get each layer correct" in a three-tier architecture, she adds.

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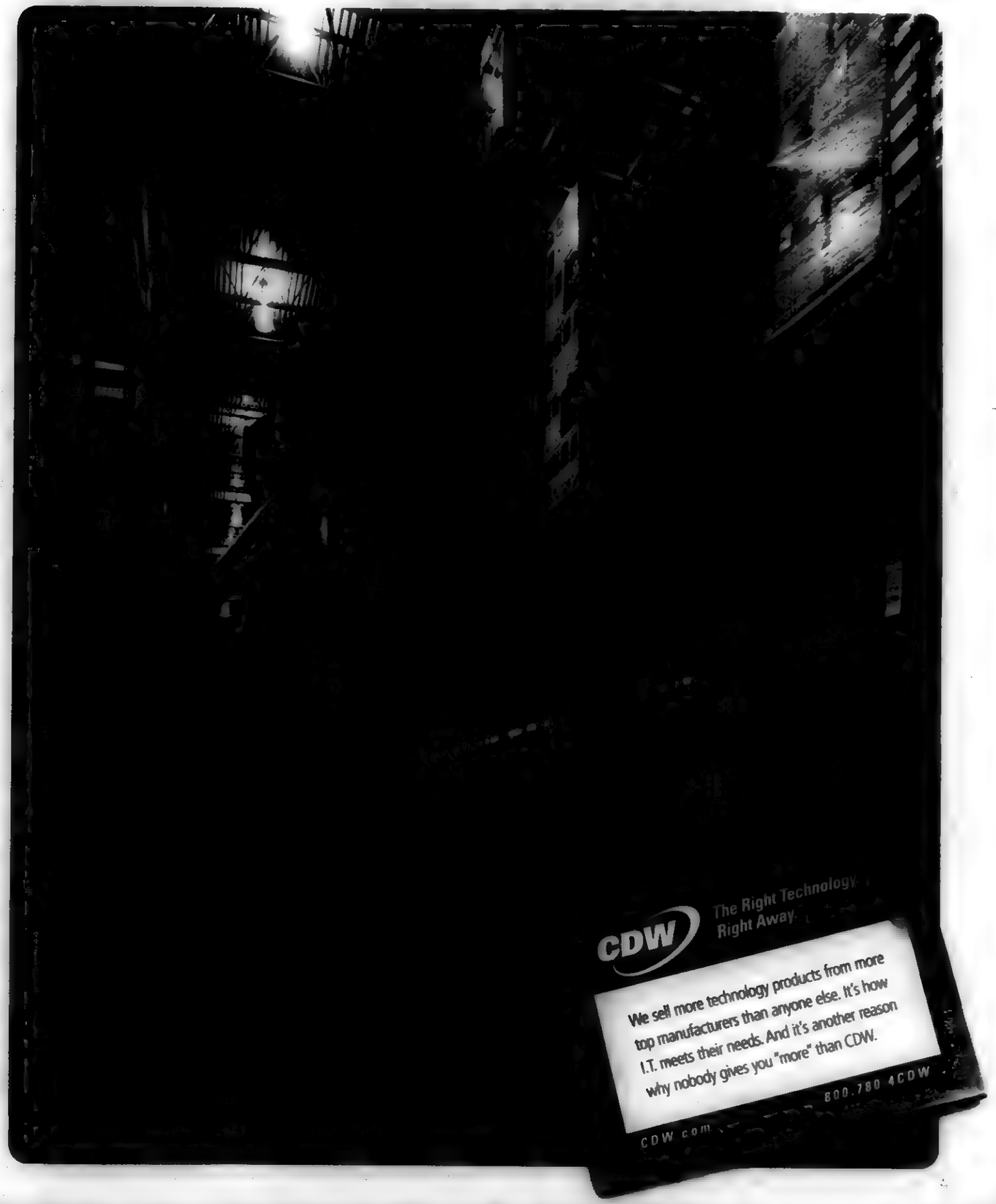
> 9:32 am. Martha Watson counts over 1,200 name brands in order to justify the word "more" to the legal department.



Preventive Medicine

As IPS technologies mature, users say the benefits of proactively blocking attacks outweigh the risks of false positives. By Lauren Gibbons Paul

[illegible] used to go down daily [illegible] Students introduced viruses from their laptops, and unpatched servers were the targets of attacks, a steady barrage of worms like Nimda and Code Red.

"At one point, the network was going down on almost a daily basis," says Jeff Danford, CIO at the Ohio institution. Last October, Danford turned to a new type of security product: an intrusion-prevention system (IPS). The university bought two UnityOne-2000s from TippingPoint Technologies Inc. in Austin. The appliances monitor network traffic for anomalies such as buffer overflow attacks and automatically drop packets associated with those events, essentially cutting off attacks before they can start.

With a list price of $99,995 each, the TippingPoint devices aren't cheap (although Danford received a substantial academic discount). And the technology — which has been on the market for a little over a year — is unproven in large-scale corporate networks. But Danford was ready to try anything. "We have to have some level of openness on our network. We can't lock it down like a bank could," he says.

In January, two weeks after Danford set up the appliance, the SQL Slammer worm hit. "We didn't skip a beat. We had a lot of exposed servers," he says. Overall, the university receives over 3,000 attack attempts every week. So far, he says, they've all been filtered out.

Many companies face similar challenges. The number of system vulnerabilities and cyberattacks are skyrocketing, according to the CERT Coordination Center at Carnegie Mellon University in Pittsburgh, which logged 52,658 malicious incidents in the first quarter alone. And the propagation speed of attacks has gone up dramatically, says Neal Hartsell, vice president of product marketing at TippingPoint. For example, the Nimda worm took a day or two to infect thousands of hosts worldwide in 2001. In January, the SQL Slammer worm compromised nearly 100,000 machines in just 30 minutes.

EMERGING TECHNOLOGIES

IPS PROS AND CONS

- ↑ [illegible] illegitimate requests on a network or server.
- ↑ [illegible] learned behavior patterns as well as signatures to detect and block both known and unknown attacks.
- ↑ [illegible] to test security patches and fixes before deploying them.
- ↓ [illegible] false positives that block legitimate traffic.
- ↓ Even host-based devices are still unproven in large-scale deployments.

IPSs work by proactively blocking illegitimate network traffic and server requests, including both known and unknown threats. They immediately block network traffic or server requests flagged as malicious by monitoring deviations from normal system behavior or by following a series of rules. By contrast, intrusion-detection systems (IDS) recognize only known attack patterns. They flag network intrusions after the fact, issuing alerts or pouring the data into logs for later review by a systems administrator.

To Richard Stiennon, an analyst at Gartner Inc., the advantages of an IPS over an IDS are clear. "If you owned a jewelry store, would you rather add a deadbolt to the front door or add another security camera?" he says.

As with IDSs, vendors offer both host- and network-based IPSs. Host-based IPSs (HIPS) first appeared more than two years ago and are just beginning to gain mainstream acceptance. Network Associates Inc. says more than 1,000 companies use its Entercept HIPS product. The systems work by installing a software agent on each server and then managing the agents from a central console.

Network-based IPSs (NIPS), available from companies like TippingPoint, are relatively new. These "inline" systems sit on the network and inspect packets for anomalies. But adoption has been slow to date because potential buyers are unsure how a NIPS fits into the overall security picture, according to Stiennon.

Both types of IPSs yield other benefits as well. For example, network administrators can deploy software patches on a scheduled basis rather than rush them out as emergency fixes. With an IPS in place, "companies . . . can be assured they are maintaining security until they can deploy the patch," says Eric Ogren, an analyst at The Yankee Group in Boston.

IPSs may also deter attackers from launching a major attack on a network. Many attackers do test runs prior to attacking a system. If a threat is deflected, that may dissuade an attacker from a broader attack. "We've seen the system deter attacks. That's a cool thing," says Bryan Turbow, founder and president of Myrient Inc., a managed services provider in Aliso Viejo, Calif. Myrient uses Captus IPS, a NIPS system from Woodland, Calif.-based Captus Networks Corp.

NIPSs and HIPSs aren't mutually exclusive. Ideally, both types of IPSs should be part of a layered information-security architecture that also includes firewalls, vulnerability assessment and remediation alongside other types of protection, say analysts.

But users are wary of buying a product that might generate false positives, a major complaint about IDSs. The consequences of a false positive are more dire with an IPS, since it could block legitimate business traffic rather than just generate alerts or reports. Some vendors claim that their products

■ PRODUCTS

IPS Emerges From Mergers

Until recently, start-ups and independent vendors dominated in the IPS market. But the niche has recently caught the attention of large vendors of network security products, leading to an acquisition spree. That's good news for corporate IT, since it means scalability and support are likely to get better.

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Preventive Medicine

Outlook: As IPS technologies mature, users say the benefits of proactively blocking attacks outweigh the risks of false positives. By Lauren Gibbons Paul

EMERGING TECHNOLOGIES

THE UNIVERSITY OF DAYTON'S network used to go down all the time. Students introduced viruses from their laptops, and university servers were the targets of an unrelenting barrage of worms like Nimda and Code Red.

"At one point, the network was going down on almost a daily basis," says Tom Danford, CIO at the Ohio institution. Last October, Danford turned to a new type of security product: an intrusion-prevention system (IPS). The university bought two UnityOne-2000s from TippingPoint Technologies Inc. in Austin. The appliances monitor network traffic for anomalies such as buffer overflow attacks and automatically drop packets associated with those events, essentially cutting off attacks before they can start.

With a list price of $99,995 each, the TippingPoint devices aren't cheap (although Danford received a substantial academic discount). And the technology — which has been on the market for a little over a year — is unproven in large-scale corporate networks. But Danford was ready to try anything. "We have to have some level of openness on our network. We can't lock it down like a bank could," he says.

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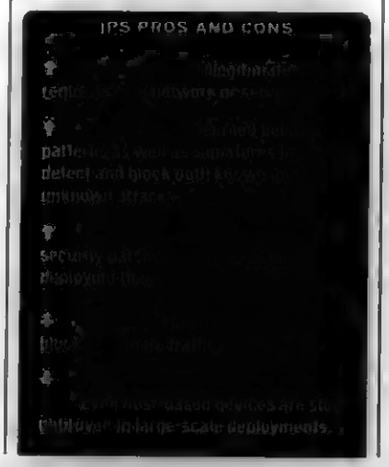

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TippingPoint's $99,995 UnityOne-2000 NIPS protects LAN segments with traffic up to 2Gbit/sec.

Vert Networks Inc. and its IntruShield family of NIPS products.

Cisco has gotten involved as well, acquiring Waltham, Mass.-based HIPS vendor Okena in April and rechristening its StormWatch product Cisco Security Agent.

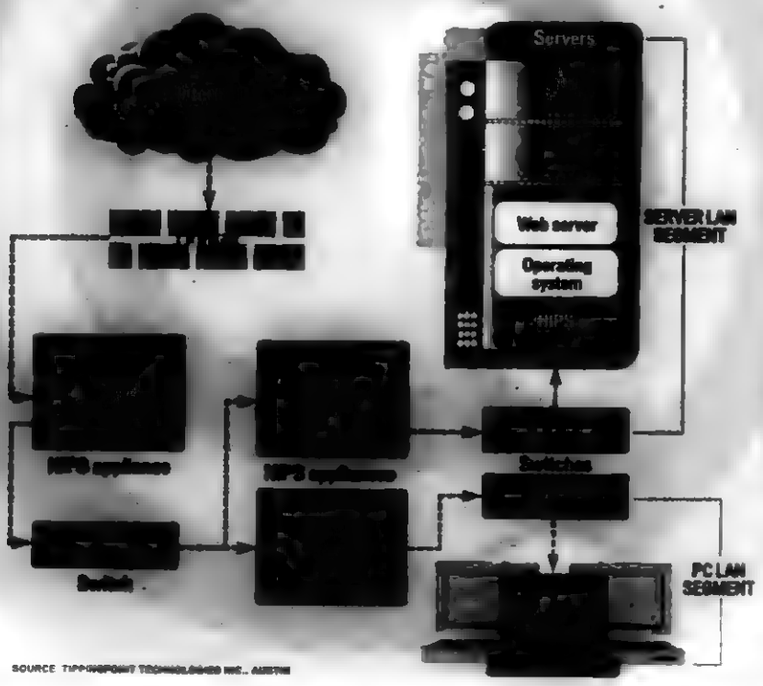
Primary Response, from Sana Security Inc. in San Mateo, Calif., and STAT Neutralizer, from Melbourne, Fla.-based Harris Corp., round out the major HIPS products.

Pricing varies, but Entercept starts at $1,295 per server and $4,995 for the console.

The first NIPS products appeared in early 2002 but have yet to catch on with buyers. TippingPoint claims over 30 customers to date. Firewall vendor NetScreen Technologies Inc., which bought OneSecure Inc. last year, now sells NetScreen-IDP. Other players include Captus Networks, which offers the IPS 4000 series. Prices for NIPS appliances start at about $40,000 and go as high as $100,000 or more.

Adding an Intrusion-Prevention Security Layer

As with IDSs, IPS designs can include both host- and network-based components. Unlike IDSs, however, IPSs apply rules or detect unusual patterns of behavior in order to block possible attacks, not just log them. While NIPS appliances monitor network activity on the wire, protecting entire network segments, HIPS devices protect applications residing on individual servers.



SOURCE TIPPINGPOINT TECHNOLOGIES INC., AUSTIN

are less likely to have false positives because their filtering techniques are more sophisticated than those of IDSs.

But not all users agree. "You still do have false positives," says Vivek Kundra, director of infrastructure technologies for the Arlington County, Va., government. In October, he spent $30,000 to install Entercept on 30 critical servers. "We have spent a lot of time in the lab to make sure we're not shutting down government services to our constituents," he says.

There is nothing inherent in IPS technology that makes it more accurate than IDS, adds Jonas Hellgren, vice president of product management at Guardent Inc., a security services provider in Waltham, Mass., that offers IPS management.

Cisco Systems Inc., citing the false-positive issue, is sitting out the NIPS business for now, despite its recent acquisition of HIPS vendor Okena Inc. "Once we fix the false-positive problem, we can go on to being more proactive," says Tom Turner, director of marketing for the newly renamed Cisco Security Agent HIPS product.

Good Enough

IPS technology isn't yet mature, says Stiennon. And ultimately, IPS, IDS and other security functions will merge into firewalls, which will become general-purpose security appliances. But he doesn't think IT should wait, because IPSs are the only way to prevent attacks — both known and unknown — before they occur. "This is good technology that works," Stiennon says.

Kundra says intrusion prevention should be part of every IT manager's security portfolio. "There is still a lot of human intervention needed to define the types of behavior that are automatically excluded," he says. "You have to create, test and manage those rules." Nonetheless, he says, it's irresponsible not to invest in an IPS today. A few years ago, many IT managers didn't believe antivirus products would work, he says. Yet they protect against viruses that could bring down an enterprise. "Why wait for an organized cyberattack?" Kundra says.

Yankee Group's Ogren agrees. "This technology may not be mature, but there's no value in waiting. It is the only chance an organization has today against Day Zero attacks. It will get easier and scale better as time goes on. But it's ready for prime time right now."

Paul is a freelance writer in Newton, Mass. You can reach her at laurenpaul@attbi.com.

Defining Acceptable Behavior

TECH CHECK

All IPSs can protect against known attacks by using signatures, which define the specific pattern associated with a worm like Slammer or Fizzer. But an IPS's real strength lies in its ability to protect against threats for which no signature exists.

NIPSs inspect network traffic for compliance with a set of rules for acceptable and unacceptable behavior as defined by a security expert. By contrast, HIPSs, which reside on a server, take two different approaches to accomplish this task.

Cisco Security Agent and Network Associates' Entercept are examples of HIPS products that use a rule-based approach. A security expert describes behavior he considers normal and acceptable for the server as well as a list of outright unacceptable behavior, and the system interprets and blocks activity based on those rules.

"The downside is, the burden of managing that description rests with the customer," says Yankee Group analyst Eric Ogren. And since security is a moving target, those rules must be updated regularly.

By contrast, Sana Security Inc. in San Mateo, Calif., uses a behavior-based approach. After being placed on a server, its Primary Response system uses artificial-intelligence-like capabilities to "learn" what is normal behavior for that server. "By looking at the sequence of system calls, it builds a profile of what is being run through the server path," says Steve Hotinger, chief scientist at Sana.

But that isn't foolproof, either. "What if an attack happens while the product is in learning mode?" asks Jim Hurley, an analyst at Aberdeen Group Inc. in Boston. "And there's no way of knowing what is normal under all conditions," potentially leading to legitimate requests being blocked. Hurley calls himself a skeptic when it comes to intrusion prevention, though he concedes that "some of this has great promise."

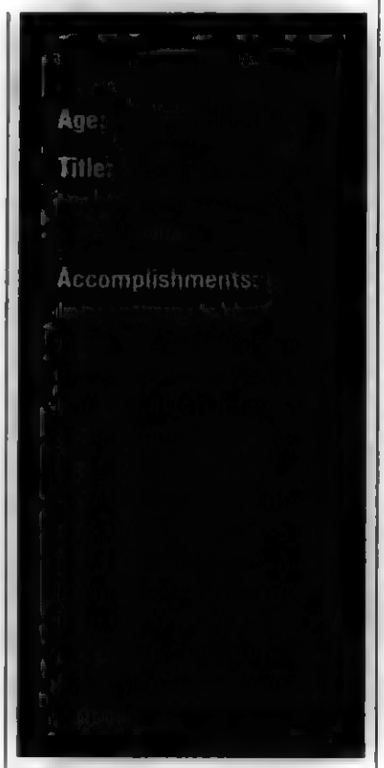
– Lauren Gibbons Paul

Sharing the Info Wealth

Distributing information from analytics throughout a company is the BI industry's greatest challenge, says SAS Institute's Don Hatcher.

***Don Hatcher** leads a team that shapes the strategic direction of SAS Institute Inc.'s products and technologies. Cary N.C.-based SAS's current initiatives focus in part on distributing analytics throughout its customers' organizations, rather than limiting access to the tools to a few highly trained individuals, said Hatcher in an interview with Computerworld's Tommy Peterson. He also said the biggest barriers to a business-intelligence (BI) implementation don't always involve technology.*

What is the thing your customers are asking for most often? If I had to give you one thing, I think it is enabling a greater percentage of the enterprise to leverage our analytics. It's dissemination. There's this concept that we have, which is the information supply chain. It started by just getting access to data — that's where all the vendors were focused. Then we all were focused on storing it and being able to analyze it. And then we were focused on having some tools so you could analyze it differently. The big focus nowadays for SAS is, How do we get this breadth of information out to the wider audience? Because we believe that 80% of a customer's enterprise needs are business intelligence today. We've had customers tell us that [they] can't find enough business analysts. We need to empower domain experts and information consumers to do some things themselves. That's what you [will] see us delivering in [Version] 9.1 when it comes out — a breadth of interfaces so



that 80% of an enterprise can use business intelligence, instead of a very small percentage of an enterprise.

How tough was it to adjust your technology to do that? Actually, we didn't have to adjust the technology; we just had to add delivery mechanisms on top of it. Our analytics still play a huge role within enterprises. We just needed to enable domain experts and information consumers to be able to leverage them. We've spent two or three years working on this project. We hired 32 new usability experts writing the front ends. We've got another 250 developers sitting there writing the BI back end. We spent a lot of time talking to our customers to understand how this dissemination needed to happen.

Are you eliminating the hierarchy of people with doctoral degrees in statistics or some other math field so you can present the information to the people who need to know it? You need the Ph.D.s to create the initial model. What we're not doing is dumbing down the analytics. We're just ensuring that when they get used, that people who know how to use them are creating a safe environment for the rest of the knowledge base. There's a lot of folks out there dumbing down analytics and black-boxing stuff. That's very dangerous, because models have to be retrained to notice the subtleties in the data.

What does it mean to have to retrain models? If you build the model, it's just a bunch of nodes hooked together that don't particularly know anything yet, and you need to run data through them, which creates, say, a decision tree, which is an example of one data mining model. It comes up with a decision tree that says, "When boys between 25 and 30 buy gym shoes, try to sell them gym socks also. But for a guy who's 45 to 50 who buys gym shorts, you don't necessarily want to sell him gym socks." You've got to train the model and then you leverage the model. But the model needs to be retrained from time to time because the information in the data changes. You make some adjustments in your model based on this new information to keep it fresh or even make it better at times.

Does that mean that analytics is a technology that isn't going to be commoditized anytime soon? Actually, that's exactly what I think we're doing. We're enabling an enterprise to take advantage of it but allowing them to do it in a controlled manner. But the models have to be kept fresh. To some banks, a half-percent increase in something represents millions of dollars. It's those kinds of things that you learn. You create a model that makes you better than you were, but then you gather new data, and you're able to tune the model even more.

The key thing we've been hearing is enabling the enterprise. People can be told they're empowered, but until you give them the information to truly let them be empowered, they won't believe you — and they'd be right.

What are the biggest problems companies face in trying to implement business intelligence and analytics? The big pain I really think is organizational change. . . . I'm not trying to downplay the challenges with implementing technology, but I would wager that most of the challenges around technology have to do with culture, have to do with people, have to do with process. I know there are customers where I could go in and sell them systems that would make them more effective as a company, but their culture won't allow it to be successful. Each silo of the business is rewarded for maximizing their silo.

If you want a technology, I'd say data quality is the biggest pain. Data quality can delay an implementation of a warehouse or even a data mart upwards of six months or more. As soon as you pull data that's not accurate through and into a warehouse and report on it and give it to somebody, their trust of the new system instantly dies. ◗

HATCHER ON CPM AND MORE

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Taming Data Complexity

Technology promises lucid displays of complicated information, regardless of its format. By Julia King

WHILE MUCH OF THE IT world focuses on building computers that are faster, smaller, cheaper and brainier, CEO Peter Lucas and his colleagues at Maya Design Inc. are obsessed with liberating the reams of data that computers contain, regardless of the format in which the data is stored.

To Lucas, computers are little more than "transducers" — necessary but "uninteresting prosthetic devices" for viewing data. "We can't see data, so we build computers, the same way we use goggles to see infrared," he says.

What would be much more valuable, Lucas believes, is a computing architecture for sharing data now stranded in relational databases, which he calls "information islands."

FUTURE WATCH

This is also the goal of the Semantic Web, which involves taking a relational database and "webbing it," according to Web inventor Tim Berners-Lee [see story, QuickLink 37596]. Where Maya's technology differs, Lucas says, is in "taking the much more radical step of freeing the data from any particular Web page or any particular machine."

Instead of describing data in a standard way or with metadata as the Semantic Web does, Maya's technology wraps the data in "containers," which reside in repositories in a peer-to-peer-based "information space" where people can meet and collaborate.

Pittsburgh-based Maya, a spin-off of Carnegie Mellon University, has come up with a container it calls a "u-form" that Lucas says makes it easy to transfer and manipulate data across different computer systems and applications. Higher-level semantics can be layered on top of the u-forms.

What guides the transfer of data from place to place is a set of "shepherds," or rules-based software agents developed by the data owners. For corporate applications, Lucas notes that u-forms could be encrypted and shepherded only to paying customers.

The same data could be viewed in different ways by different users. For example, a logistics manager could view on his PC a geographic map of warehouses and their contents in a specific region. Meanwhile, an inventory manager could draw on the same data and display on his handheld device a bar-chart representation of goods available for shipment from those warehouses.

In this example, multiple distributed views of the data could be linked in real time, permitting the data itself to become a medium for collaborative work. This is comparable to two users running Excel on the same data set, and every time one of them changes a number, the other's display is instantly updated.

Maya Design's Maya Viz software arm has technology it calls CoMotion, a set of

tools for building different views of data that's stored in u-forms. The shepherds tell the u-forms where they can and can't go, based on the metadata, or data about the data, that's contained in the unique identifier portion of the u-form. Individual applications on a user's machine (built using CoMotion's visualization tools) dictate how data will be displayed.

The U.S. Transportation Command, or Transcom, at Scott Air Force Base in Illinois, is an early beta tester of CoMotion. Transcom is using the software to create different views of the vast amounts of data it must manipulate.

"Since 9/11, we've moved 700,000 people and over 2 million short tons of cargo. We have seven requirements databases that we pull from," each of which uses a different data schema and format, explains Lt. Col. Cody Smith, director of operations. Using Maya's technology, Transcom is able to display that data differently to its various customers.

"If we're dealing with ships, for example, we need to be displaying metric feet. Others need to look at tons or short tons of cargo," Smith says.

Common Understanding

"U-forms and the Semantic Web are aimed at solving different kinds of problems," says Jason Bloomberg, a senior analyst at ZapThink LLC in Waltham, Mass. "The Semantic Web is aimed more at business-to-business communications, where Company A and Company B need a common understanding of the terminology. A purchase order, for example, has to mean the same thing to both of them.

"The Semantic Web is about getting computers to understand content. U-forms are giving human beings more power in working with systems and content," he adds.

"The technical breakthrough we've made is separating the information from the visualization and manipulation," says Maya's Lucas. He foresees a world of peer-to-peer "civic computing" in which virtually all public information is stored in u-forms in a public "information commons" that's easily usable by anyone, anytime. Maya refers to this vision as the Civium (Latin for "of the people") Project.

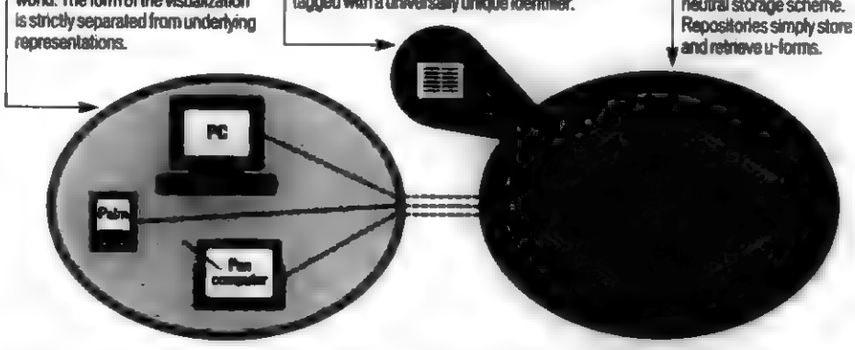
"Instead of using peer-to-peer to steal music, let's liberate all accumulated public-domain data and create a vast information space to make it freely available," Lucas says.

Pittsburgh Green Map (*www.greenmap.org*), an interactive service for locating environmental, recreational and other "green" assets in western Pennsylvania, serves as a prototype of Lucas' vision. Developed in conjunction with 3 Rivers Connect, a Pittsburgh-based nonprofit environmental group, the service encompasses data from geographic information systems and other types of data from various public databases using different schemas and formats. This data has been converted to u-forms and is virtually located in an "information space," which is accessed via a "geobrowser" application developed by Maya.

Lucas says this technology is about as mature as the Web was in 1991. "It seems as good an assumption as any that it will follow a similar curve and take about as long," Lucas says. "That would mean that it will be actually useful to large numbers of people within a few years and will be on the cover of *Time* in about five years."

An 'Information Commons'

In a simplified version of Maya's vision, data of all types and formats is ensconced in u-forms, or standard information containers that can be easily moved among "schema-neutral" repositories in a peer-to-peer network. Data can be entered or accessed simultaneously as well as displayed differently by people using different devices.



COLLABORATE TO SIMPLIFY

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Corporation Caught In the Cross Hairs

A focused e-mail attack sends our worried security manager scrambling to track down the source. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

MY COMPANY deals with large electronic financial transactions on a regular basis, and I worry that this makes us the perfect target for a focused attack on our networks. This issue had been a theoretical one for me, however, until last week.

We do receive a great many attacks, but we aren't being singled out: Many other companies are being targeted at the same time. This leads me to conclude that either the attackers are taking the approach of targeting as many companies as possible with the same assaults and seeing which ones work, or there is so much noise in our monitoring logs that any targeted attacks are lost amid the chaos.

I have been reassured by how widespread the attacks have been. They show that we don't need to be totally secure — just more secure than most companies. This goal is a lot cheaper and easier to achieve than perfect security, but it's only safe if no one is targeting us. If we are the target of a focused attack, hackers will keep coming back with new approaches until they find one that works.

Fairy Tale Attack

We have outsourced our e-mail monitoring to New York-based Messagelabs Inc., which offers us a guarantee that no malicious code will get past its defenses. To back up that claim, it's admirably paranoid. The company's statistics show that about one in 270 of our e-mails contains a virus. Last week, we saw a surge of suspicious e-mails. Normally, this signals a big virus outbreak, but there was no mention of this on any of the antivirus Web sites. The malicious code Messagelabs stopped was simply characterized as "Possible new Trojan software detected."

Whoever was sending these e-mails was using a "Rumpelstiltskin attack." In this type of attack, which gets its name from the fairy tale about a queen who must turn her first-born child over to Rumpelstiltskin unless she can guess his name, the attacker tries to guess e-mail address names by taking a list of common names, combining them with possible first and last initials and sending them to an e-mail server.

I wasn't too worried about the general attack, but in the middle of all those attempts, the attacker had sprinkled in real e-mail addresses of staff members. It was clear that this attacker had a list of about 200 of our employees' e-mail account names. Perhaps someone internal had leaked the list?

> **This attacker had a list of about 200 of our employees' e-mail account names. Perhaps someone internal had leaked the list?**

The address list was clearly an old one, because many of the people on it had left the company. But if the attacker had bothered to get a list of real addresses for our company, even out-of-date ones, then surely this couldn't be a random probe. It had to be targeted directly at us.

Attacker Could Return

I wasn't worried by the first approach: Trojan horse executables in e-mails are a low risk thanks to our defenses. However, if an attacker was willing to put the effort into picking us out of all the possible targets and writing a new Trojan horse for his attack, then he was unlikely to give up once he realized his e-mail attack had failed. He would be back, but with Internet Relay Chat, Web or instant messaging distribution of his software. And if our desktops weren't as paranoid as Messagelabs, his attack just might work.

I asked Messagelabs to send my team and me a copy of the code so we could analyze it. Then I checked the newsgroups. Lots of people were being probed in this way, but only by spammers. Nobody was reporting attempts to sneak Trojan horse code in by this method.

I examined the executable. The code included a series of addresses, and when it was run, the program would connect to a Web site and pull down more code. I asked Messagelabs to investigate it further and then checked out the Web address.

I found it mentioned in a few postings, but these were advertising a porn dialer, a Trojan horse tool that alters your dial-up Internet connection to call a premium-rate phone number in a foreign country, secretly running up a huge phone bill.

Then Messagelabs contacted us to say that it had identified the software as something called TROJ_DIALER.B, and we were able to back down to a more relaxed state. It seems that this wasn't the first wave of a targeted attack but rather the act of a zealous spammer. Over the next few days, other companies reported the same probing.

So as it turns out, we weren't the only target; we were just "lucky" enough to be early on the list of what turned out to be a large number of targets.

But I'm still left with a nagging doubt. What if the only attacks we detect in all the noise are those that aren't targeted? If an attacker can't be bothered to aim at a target, it seems more likely that he will make less effort to hide his attacks. Could there be attacks that are targeted but stealthy enough to escape detection?

It is all a moot point, however, because to get the funds required to perfect security, I'll need evidence of the targeted attacks that I can't detect amid all the other events.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1590**

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SECURITY LOG

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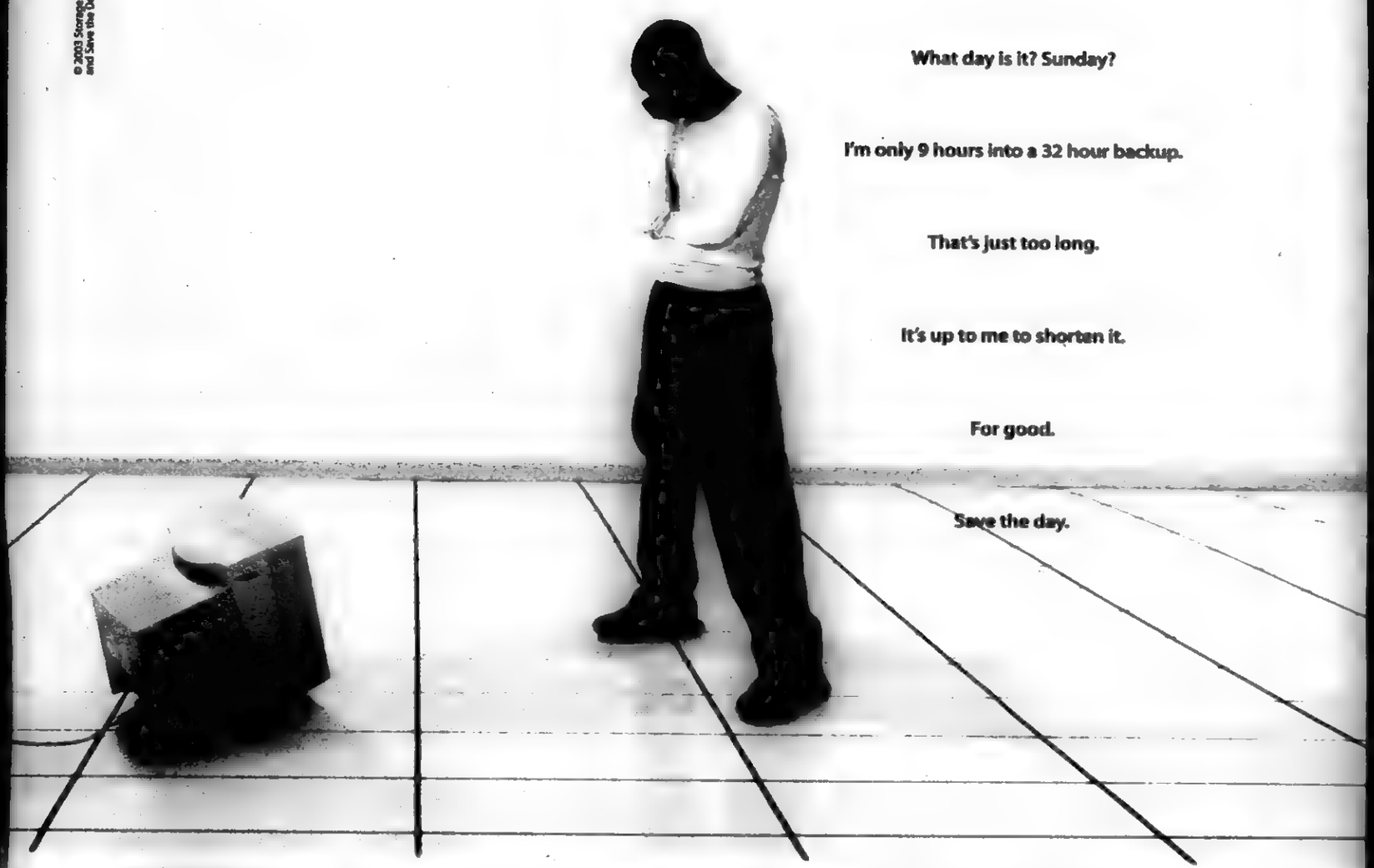

What day is it? Sunday?

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BRIEFS

XOsoft Upgrades Data Rewinder

New York-based XOsoft Inc. last week announced Version 3.5 of its Data Rewinder software for disaster recovery. The software allows storage administrators to "undo" application and database server corruption, according to XOsoft. The standard version of Data Rewinder is priced at $995, and the advanced edition costs $2,395.

Concord Releases EHealth Suite v5.6

Concord Communications Inc. in Marlboro, Mass., announced Version 5.6 of its eHealth Suite. The new release provides an embedded Oracle database, expanded foreign language support and faster deployment capabilities, the company said. Pricing starts at $100,000.

Mind Electric Java Platform Updated

The Mind Electric Inc. in Addison, Texas, last week announced Version 4.1 of its Java-based Web services runtime platform. New features include support for the SOAP 1.2 standard and a plug-in for Borland Software Corp.'s JBuilder tool. The standard, entry-level edition of the product is free for most commercial uses. The professional edition sells for $2,000 per CPU.

CommVault Beefs Up QiNetix Platform

CommVault Systems Inc. in Oceanport, N.J., announced that it's adding a component to its QiNetix Storage Management Platform. QiNetix QNet will assess an application's storage consumption by correlating how the application and changing data management policies affect the storage architecture. Pricing starts at $1,000 or $1,500 per backup server or production host, depending on the configuration.

ROBERT L. MITCHELL

Bracing for the New Privacy Laws

ONE WOULD THINK THAT, some eight years into the Internet age, enlightened self-interest would have motivated financial services and e-commerce vendors to put a higher value on maintaining the integrity of customer data. But companies' seeming inability to follow a consistent and reliable security model for the use of customer data, and the secretive approach taken to handling credit card security breaches, have helped create a consumer backlash — and a torrent of state and federal legislation.

The latest regulatory salvo, California Senate Bill 1386 (SB 1386), becomes law July 1, and more regulations are coming. The law requires companies to disclose any compromise of customer data to every affected consumer residing in California within 48 hours. And if you don't have up-to-date contact information for those consumers, you must post a notification on your Web site — the e-commerce equivalent of a scarlet letter.

Financial services companies worry that the negative publicity associated with disclosing data compromises could wreak havoc with consumer confidence in both e-commerce and the financial services industry. Consumer fears have been fueled by a string of high-profile data losses, including the compromise of some 8 million credit card numbers at card processor Data Processors International Inc. (DPI) last February. Most of the affected card associations' member banks didn't notify affected customers, despite the possibility that those numbers could be used in conjunction with so-called skip-trace database services online to gain enough information for identity theft.

E-commerce vendors, left in the dark about which card numbers were affected, had to make doubly sure they were checking card verification codes to protect themselves against chargebacks. Fear of negative publicity has kept the issue under wraps. Fear of legal penalties and lawsuits under new laws will now push the issue to the forefront as never before.

In the case of credit card number theft, card associations do provide security guidelines to merchants and banks, but not all organizations abide by them, says Julie Fergerson, chairman of the Merchant Risk Council in New York. "If DPI had done the [MasterCard] Site Data Protection program . . . the break-in never would have occurred," she says. Now legislatures have stepped in to enforce change.

That leaves IT professionals to struggle with the intricacies SB 1386 and similar federal legislation, called the Database Security Breach Notification Act, that Sen. Dianne Feinstein (D-Calif.) introduced last week. Bills pending in the Senate include the Social Security Number Misuse Prevention Act and the Privacy Act, which prohibit the display, sale or purchase of Social Security numbers and other personally identifiable information without the consumer's permission. Another bill, the Identify Theft Prevention Act, would prohibit the printing of full credit card numbers on receipts.

Ever aware of a sales opportunity, IT security vendors are madly waving red flags, hoping to cash in on the SB 1386 bonanza. Since this law exempts data that's encrypted from the disclosure rules, storage security vendors like Kasten Chase Applied Research Inc. are trumpeting the risks of network storage — and promoting PKI-based authentication and encryption at the storage device level for "at rest" data. But encrypting stored data isn't as easy as vendors make it sound. "It breaks a lot of indexing and backup schemes," says John Pescatore, an analyst at Gartner Inc.

Encryption also doesn't protect companies from insider attacks, which analysts say are at least as common as external threats. Liquid Machines Inc. in Lexington, Mass., extends encryption to data retrieved in queries. Policies set in Active Directory or another LDAP-compliant directory service control user access; results can be pasted into and viewed locally within supported applications such as Excel and Word. All usage is centrally monitored.

Another start-up, San Francisco-based Vontu Inc., offers a surveillance tool to help monitor access to sensitive data and "quarantine" it when issues arise, while Cupertino, Calif.-based StrongAuth Inc. offers compliance management and SB 1386 policy templates.

Such technologies can provide tactical support, but do you need them? Organizations with well-designed security policies and infrastructures will probably exceed the legal hurdles these rules set, analysts say, although compliance-monitoring tools may also be needed. And every organization handling sensitive consumer data should be using encryption. Implementing that is no picnic, and that's where vendors could be of help.

"The product vendors should focus on making it easier, not on trying to drum up fear, uncertainty and doubt with every new law that comes along," says Pescatore. Fortunately, vendors seem eager to rise to that challenge.

PRIVACY PLEASE

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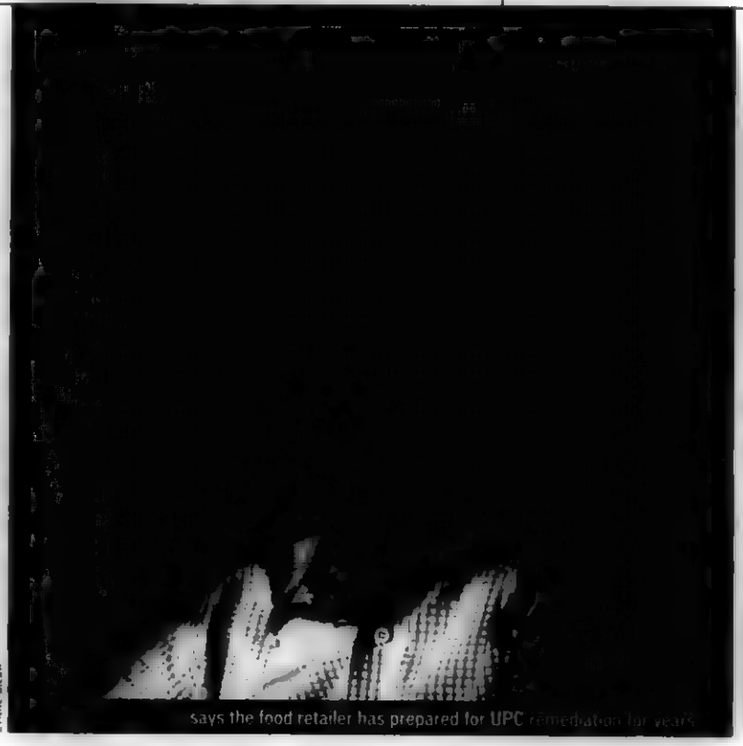
Wanted: Security Tag Team
IT and engineering must join to secure dangerously vulnerable process networks, like at Du Pont, where Tom Good (left) has been leading the effort to protect such systems. **Page 38**

OPINION
SarbOx: Where IT and Finance Meet
CIOs need to jump in and figure out how to meet the looming requirements, says columnist Norbert J. Kubilus. **Page 44**

Managing the Temporary Players
A Web-based workforce management system lets Shell Oil improve the way it contracts for temporary help. **Page 42**


says the food retailer has prepared for UPC remediation for years

ANOTHER DIGIT, ANOTHER DEADLINE

Shades of Y2k: U.S. retailers must update their systems to handle longer bar codes by Jan. 1, 2005.

BY KATHLEEN MELYMUKA

THE IT DEPARTMENT at Ahold Information Services in Greenville, S.C., has been working for years toward a deadline that's little known outside the retail world.

"We began designing data warehouses and new projects three, four, even five years ago with this in mind," says Ed Gropp, chief business and technology officer at the subsidiary of Ahold USA Inc., which operates U.S. supermarkets including the Stop & Shop and Giant Food chains. The company is "fairly well along," Gropp says, and he's confident Ahold will be ready.

But others in the retail industry are less prepared.

The dust has barely settled over Y2k, and there's another technology deadline approaching. Sunrise 2005 is the Uniform Code Council Inc.'s (UCC) mandate by which all U.S. manufacturers, distributors and retailers must be able to process new, longer product codes by 2005. Like Y2k, this is a business issue that involves database field formats, so responsibility falls heavily on IT. Like Y2k, it's a seemingly simple task that becomes more complex as you get more involved. And like Y2k, it leaves most retailers with no choice but to comply.

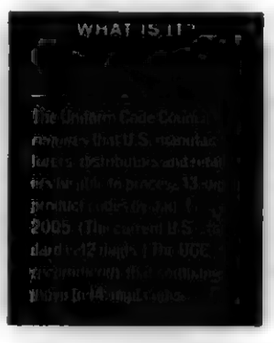
A Globalization Issue

Sunrise 2005 is essentially about numerical limits and globalization. In the 1990s, the Lawrenceville, N.J.-based UCC, which assigns the 12-digit universal product codes (UPC), determined that the numbers would eventually run out if more digits weren't added. The council notified retailers in 1997 that as of Jan. 1, 2005, it would introduce 13-digit UPCs and that they would have to be able to process them.

Sunrise 2005 is also a step toward global synchronization of retail data, which is expected to cut precious time and billions of dollars out of the supply chain. Current UPCs conflict with the eight- to 13-digit European Article Numbering (EAN) codes used throughout the rest of the world.

When foreign products are traded here, they must be relabeled so that U.S. 12-digit systems can read them, a time-consuming, expensive and error-prone effort. This relabeling will end in 2005.

A final twist: Sunrise 2005 *requires* that U.S. retailers be able to process 13 digits, but the UCC *recommends* that they process 14 digits. That's because 14-digit codes will be required for global synchronization as well as emerging supply chain tools such as reduced space symbology (RSS) and radio-frequency identification (RFID).



Although Sunrise 2005 also affects manufacturers, the bigger issue is for retailers, says Pam Stegeman, vice president of supply chain and technology at Grocery Manufacturers of America Inc. in Washington. Manufacturers won't need to change UPCs on existing products, and their back-end systems can already process 14-digit codes, which are often used on packing crates.

Many retailers with large volumes of international trade have been processing EAN code for years. "Wal-Mart is compliant and has been for several years," says Linda Dillman, CIO at Wal-Mart Stores Inc. "Because we have global systems, which means the same

What's in It for You?

According to the Global Commerce Initiative, an organization of retailers, manufacturers and the UCC and EAN International, Sunrise 2005 compliance can bring productivity improvements of 1% to 3% in supply chain costs, improving the bottom line by 10% to 15% per year. Specifically, the group says Sunrise 2005 will:

- Eliminate costs associated with correcting inaccurate information.
- Automate more tasks.
- Serve customers better through a wider variety of product sources.
- Support food-safety initiatives by better identification and tracing of tainted products.
- Improve trading partner relationships through better communication.
- Reduce product introduction time.

The sooner your company gets with the program, the sooner you begin to benefit. "There are benefits to getting done early," says Patrick Walsh, director of industry relations at the Food Manufacturing Institute. "You get an edge on the competition in product assortment and the ability to accelerate e-commerce business applications" using emerging tools such as RSS and RFID.

Christine Overby, a senior analyst at Forrester Research Inc., agrees. "Firms that get an early start sharing clean data with their trading partners will use money formerly wasted on inefficient processes to seed investments in new technology innovations like RFID," she says. "These first movers will distance themselves from the pack as these new investments further reduce inefficiencies while improving customer-service levels."

– Kathleen Melymuka

applications support all of our operations in other countries, we have supported a 13-, 14-digit product code since the mid-'90s."

The Navy Exchange Service Command is also ready. "We are an international retailer, so we already deal with 13-digit EAN codes, and our system will support 14," says Bill Finefield, retiring CIO at the Virginia Beach retailer for Navy bases and ships. Because many software vendors cater to international companies, all his systems were built to be compliant with international standards, he says.

Alan Garton, director of channel management for general merchandise at the UCC, says that a large percentage of traditional department stores and mass retailers are already compliant. "Big-box" retailers of appliances and electronics are a "mixed bag," he says. Some are ready; others still have work to do.

But grocery retailers are lagging because many have older systems that were set up in the 1970s and '80s. Among grocers, global retailers like Ahold tend to be working on remediation, and national chains are at least gearing up, says Patrick Walsh, director of industry relations at the Food Marketing Institute in Washington. "The challenge is whether the wholesale community and small, independent operators will be prepared," he says.

Failure to comply isn't seen as potentially catastrophic — just unwise. "This is not a Y2k in any way, shape or form," says Gropp. "Companies are not going out of business if this doesn't get done."

"It won't cause systems to crash," Garton explains. "You can still do business, though you may have to reconstruct data and fix problems."

Huge point-of-sale problems aren't anticipated, because scanners built since the mid-1980s can already process 13-digit codes. The trouble will arise if larger codes are incompatible with back-end databases.

"Even if point-of-sale scanners can read the bar code, you won't be able to process the data as a result of the scan," says Chris Sellers, a Chicago-based retail consultant at Electronic Data Systems Corp.

In other words, you may be able to sell an item to a customer, but your inventory systems won't know it's gone, your stocking system won't reorder, and your revenue systems won't record the sale. The trouble this could cause will depend on the volume of non-U.S. items and new items with 13-digit UPCs that you trade.

Remediation, Again

Sunrise 2005 is like Y2k in that retailers have to hunt down and expand numeric fields in their databases. But it's also different. "It's not a date field, which is relatively discreet and easy to find," Sellers notes. And the code can show up in unexpected places. For example, product codes are used internally in financial systems and externally with suppliers of materials and packaging, distributors, and logistics services. "It's messy," says Gropp. "These numbers show up in almost every report, every screen, every file you process."

Gropp has integrated the Sunrise 2005 remediation into virtually every IT project for years. "It's not one thing; it's a piece of a lot of other projects," he says. "Every time we get into a system or we're designing a new application, we make sure that it can process the codes," he explains. "If we're updating a purchasing application, we incorporate this into it."

More Hurdles

Finding the code is one challenge, but there are others. Under the current UPC system, the first half of the number is a vendor ID, the second half is a product ID. The code as a whole is supposed to be "nonintelligent," signifying nothing except a unique product. But some retailers have been "parsing" the code, using the first six digits as a vendor reference code to point to their internal data on that vendor. Parsing the code in this way will no longer work. Because EAN codes and new UPC codes will have vendor numbers up to 10 digits in length, the first six digits will no longer be unique.

If retailers want to use the number as a vendor reference, they will need to use the entire number, Garton says. "But the tougher part is how people have entire systems built on this," he says. "I believe this [problem] is bigger than most people are admitting."

SUNRISE GLOSSARY

Terms you need to know to understand the global move to longer retail bar codes.

QuickLink 39125
www.computerworld.com

For companies that have yet to begin remediation, the time and effort involved will depend on their size, the state of their technology and whether they have been parsing code. EDS's Sunrise 2005 services for large companies include a four- to six-week assessment and a three- to nine-month remediation.

The current economic doldrums and enduring Y2k fatigue among executives make this a difficult time to garner enthusiasm for another IT deadline. Gropp says that among his peers, other priorities have often taken precedence. "They say, 'I've got other projects with higher return,' " he says.

You can put Sunrise 2005 on your company's radar by accentuating the positive, Sellers says. "You don't want to say, 'We have to do this,' " he explains. "You want to say, 'Here are the benefits.' " (See "What's in It for You?")

Sunrise 2005 is a voluntary deadline, but if you deal in a large volume of non-U.S. or new products or you share data electronically with suppliers, it should be a priority. "If you want good customer service and you want to share standardized data, you have to do this," Garton says. Finefield agrees. "We learned years ago that the best thing you can do is be standards-compliant," he says. "Typically, retailers wait too long and then hurry to catch up. If it's going to impact your business, you need to do it."

Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@yahoo.com.

Sunrise 2005 Compliance

Retailers were asked whether they could support the following product codes today:

GROCERY RETAILERS

MASS RETAILERS

SPECIALTY STORES

BASE: Survey of 60 large North American retailers.

SOURCE: UNIFORM CODE COUNCIL INC., LAWRENCEVILLE, N.J., 2003

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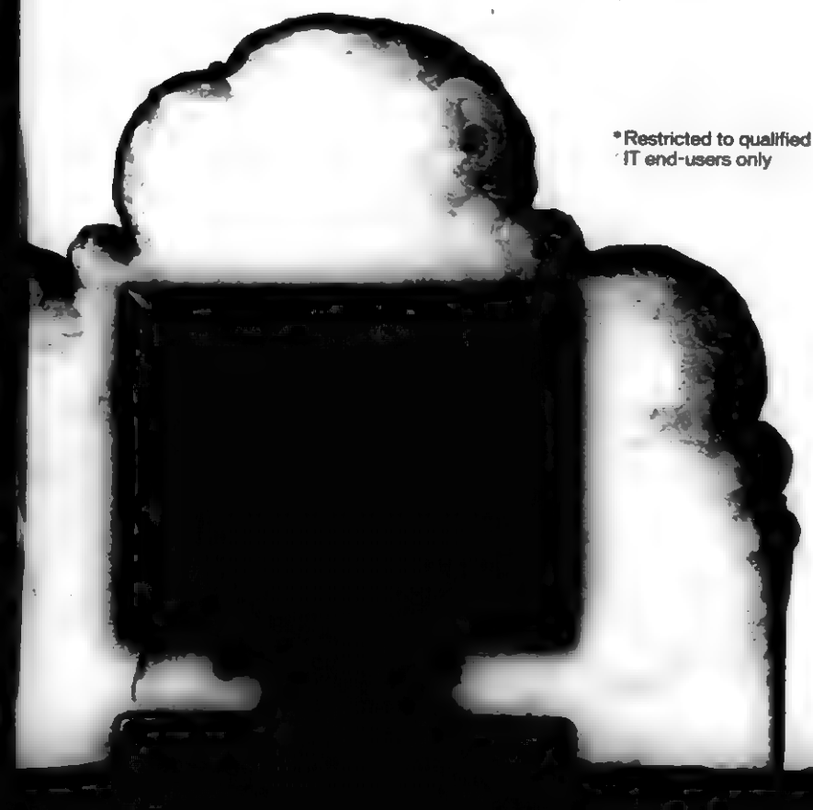

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WANTED: SECURITY TAG TEAM

IT and engineering must work together to secure dangerously vulnerable process networks. By Mathew Schwartz

WHEN AN EMPLOYEE from an Australian company that makes manufacturing software got fired in early 2000, he applied for a job with the local government, but was turned down. In retaliation, he got a radio transmitter, went to a nearby hotel where there was a sewage valve, and used the radio to hack into the local government's computerized waste management system.

Using software from his former employer, he released millions of gallons of raw sewage near the hotel grounds and into rivers and parks.

"He did this 46 times before he was caught," notes Joe Weiss, a process-control cybersecurity expert and consultant at the Cupertino, Calif., office of Kema Consulting. "The first 20 [times], they didn't even know it was cyber," meaning an external attack launched using a computer, he says. "From 20 to 45, they finally figured it was cyber, but they didn't catch him until 46." Though this person never worked for the wastewater utility, he was still able to break into its supervisory control and data acquisition system, which was designed with a big security assumption in mind — that only insiders would want to access it.

Hundreds of thousands of similar process systems and networks used in dozens of industries worldwide remain dangerously vulnerable. And like it or not, IT managers need to address this problem despite three enormous challenges: the traditional barriers between IT and the engineers who typically run process networks, the highly customized nature of process applications, and the lack of security software for process applications and networks.

Historically, IT has had little, if anything, to do with process-control systems, because they run reliably and rarely crash. Instead, IT focused strictly on corporate data networks. But that needs to change, experts say.

Process-control networks are to manufacturing environments what IT is to an office — endemic. For example, more than 2,400 oil, natural gas and chemical companies in the U.S. employ process-control networks in their manufacturing systems. Other heavy users of process networks in-

Continued on page 40

MICHAEL BRANSCOM

DB2 Information Management Software

Continued from page 38

clude the power, water, food, drug, automobile, metal, mining and manufacturing industries.

For example, process networks in the chemical industry control chemical-making equipment and monitor sensors. If anything goes wrong, such networks react by adjusting the environment in predefined ways, such as shutting off gas flow to prevent leaks or explosions.

One company that's taking process network security seriously and involving IT is Du Pont Co. in Wilmington, Del. Tom Good, a project engineer at the chemical manufacturer, has been leading its 20-month-old effort to categorize and reduce its process-control system vulnerabilities.

Du Pont's philosophy for dealing with this problem, he says, is that "on all of our critical manufacturing processes, we are either going to totally isolate our process systems from our business systems by not connecting our networks, or we're going to put in firewalls to control access."

To tackle process-control network security, Good says Du Pont formed a team made up of IT staffers, who understand networks and cybersecurity; process-control engineers, who understand the process-control equipment; and manufacturing employees, who understand manufacturing risks and vulnerabilities.

To give the three groups visibility, each reports to a separate member of a committee that's leading the effort. The team first discerned which control devices are critical to manufacturing, safety and continuity of production. Then the team identified the assets of each — hardware, data, software applications — and researched relevant vulnerabilities. Only then did it begin the arduous task of testing fixes and workarounds to see which ones might work for which machines.

Even in a manufacturing environment that uses similar process-control hardware and software, precise vulnerabilities differ by environment. "Dealing with, say, a water treatment process on effluent out of a plant is considerably different than dealing with a production operation, where you might be dealing with vessels under high-temperature and high-pressure conditions," says Good.

On the basis of its research, the team is also deciding how to separate networks and where process-control firewall appliances should go. High-end enterprise firewalls aren't required; each process network supports only 10 to 50 users. "The greater cost is in the network equipment and re-engineering activities to separate networks and place critical process-control devices together on the clean side of the firewall," says Good. "The challenge is to accomplish these tasks on online control systems while keeping the process running."

The Challenge

Until about 15 years ago, most process-control networks were secure because they were extremely proprietary. Then customers demanded less expensive front ends and TCP/IP networking. Such networking opened up process-control systems to common vulnerabilities, then the Internet, yet the underlying systems weren't strengthened to make up the security difference.

The methods IT uses to secure data networks can't be used to quickly secure control systems. Every component can have multiple critical functions. For example, at a refinery, various sensors help ensure safety when filling tankers — whether there's a truck beneath the filler, whether there's gas available. If the truck's tanker reads full or the truck moves away, the process must interrupt.

Process-control hardware is also difficult to secure. Application customization is so rife that it's impossible to run antivirus software on some PCs and Unix boxes, says Kris Zupan, CEO and chief technology officer at e-DMZ Security LLC, also in Wilmington.

Likewise, patching the operating system can require rewriting the application. In the rare cases when applications can be patched, shutting down the always-on machines is costly — and a patch might have unintended effects and compromise production.

Other information security tools don't work well in these environments either; for example, complicated passwords can slow access in an emergency. As a result, every machine of a particular type worldwide may have the same password. In other words, anyone who has ever used one type of machine theoretically has access to all machines of that type.

IT managers everywhere will have to learn that safety in process control is paramount. That's a switch. IT's traditional goal is "data confidentiality, data integrity and data availability," says Theresa Grant, director of information security at The Dow Chemical Co. in Midland, Mich. "However, in the process-control arena, the very first objective is safety, the second is safety, and the third is operational integrity." If certain systems fail, people can die.

To help companies assess and remediate process-control vulnerabilities, various initiatives are under way. The Instrumentation, Systems and Automation Society, a Research Triangle Park, N.C.-based standards body, is developing best practices for securing process-control networks.

Various organizations, including petroleum and chemical trade associations, have commissioned studies to find best security practices for their industries. Studies in hand, they hope to persuade each industry to implement security best practices.

Another initiative, at least at Du Pont, is to get Microsoft Corp. to better detail its patch practices. Good says too much time is spent testing patches to make sure they work with the process-control applications, when in many cases, the patch might not even be applicable.

Du Pont sat down with Microsoft representatives and "exposed them to our world of safety — where any safety incident is unacceptable," says Good. "I don't know where the awareness-building will lead. If Microsoft measures what it's doing as 'better' because it had 200 fixes this year vs. 250 fixes last year, there's obviously a gap in meeting the level of performance that is important to our industry."

The more realistic solution is for IT and engineering departments to cooperate on the problem. For example, IT knows how to better secure things — "change management, release management, providing things of that nature," says Dow's Grant. Engineers understand process-control intricacies.

Hence, any fix-it team needs both kinds of experts, as well as anyone else with a stake — manufacturing, supply chain — to help explain what touches what. That team would map computers, processes and networks and test where security can be applied. It's exacting work, warns Zupan: "If you modify the controlling system, it can produce hazards that not even the designers predicted."

The irony, of course, is that companies demanded off-the-shelf components, and now they're paying the security price. Network separation is likewise no simple panacea. "It's been there in limited fashion [before], but a lot of times, there's a lot of back doors and a lot of Web front ends that need to be protected as well," says Michael Rasmussen, an analyst at Forrester Research Inc.

Process-control hardware can have a life span of 15 years. No doubt, some security vulnerabilities will remain as long as current hardware remains in use. By tackling the greatest risks, however, companies can help minimize their process-control system vulnerabilities and better secure manufacturing environments.

HOW TO GET STARTED

1 Understand and acknowledge that there's a problem. For IT managers, "one of the biggest things is literally just understanding" the issues, says Kema's Joe Weiss.

2 Mitigate the IT/engineering culture clash. "One approach that can be taken is just awareness – sitting down with the right folks on the manufacturing side, taking them out for lunch and sharing with them your information security strategies. Having that dialogue, that's where it begins," says Dow Chemical's Theresa Grant.

3 Work on cross-functional teams. IT needs to "work with operations on a day-to-day basis" to really understand process systems, what is really applicable to these types of systems and what is needed to improve their security, says Weiss.

4 Get your CIO involved. Engineers report to the vice president of operations or manufacturing; IT reports to the CIO. They're in different silos. Those two need to talk, along with the heads of risk management and physical security.

5 Foster a leadership group. Dow created a global information management team with representatives from all work processes to share information and challenges that other lines of business might not understand.

–*Mathew Schwartz*

Schwartz is a freelance writer in Somerville, Mass. He can be reached at Mat@Penandcamera.com.

MANAGING THE TEMPORARY PLAYERS

Shell uses a Web-based system to reduce the costs and headaches of procuring short-term labor. BY THOMAS HOFFMAN

MICHAEL BARTALOS

LIKE OTHER BIG, geographically dispersed companies, Shell Oil Products US spent a lot of money on temporary contract labor to fill short-term requirements for everything from accounting to IT consulting.

But while the Houston-based subsidiary of Shell Oil Co. still spends nearly $100 million annually for contract labor, it now takes a more cost-effective approach, thanks to its implementation late last year of a contingent workforce management system.

The Web-based system from Denver-based IQNavigator Inc. helps Shell Oil Products automate its contingent workforce management processes, including supplier qualification, requests for proposals, time-and-expense entries and invoicing.

Prior to the initiative, functional and business departments throughout Shell Oil Products applied a hodgepodge of manual processes to manage temporary and contract labor, says Kim Chapman, team leader for the contingent workforce management project. "We were spending quite a bit of money, and the team was charged with looking at how we could reduce our spending" through improved sourcing and better rates, says Chapman.

The team, which included representatives from Shell Information Technology International Group — an IT services arm that supports multiple Shell divisions — set a goal of reducing contingent workforce spending by 8% annually. Thanks to the use of IQNavigator, a set of process improvements and a reduction in the number of labor suppliers it worked with, Shell Oil Products was able to surpass its annual cost savings target in less than two months.

Reducing the number of contingent labor suppliers was one of the first steps. For instance, Shell Oil Products had been working with more than 20 suppliers of temporary administrative personnel, says Chapman. But it's now working with just four preferred suppliers.

By consolidating, Shell Oil Products is in a better position to negotiate labor rates, and there are fewer supplier relationships to manage. The consolidation, as well as automation and process improvements, lets Shell Oil Products get volume and early-payment discounts from its labor suppliers. By virtue of these discounts, the company has cut its payments to new contractors by an average of 28%, Chapman says.

The labor vendors like it, too, because it means they can become preferred providers for all of the divisions of the company, not just one or two.

"It's a vendor's dream. It's still up to you to perform, but now you won't be limited" in the number of corporate divisions you can work with, says Pamela O'Rourke, president of Icon Information Consultants LP, one of the preferred consultants that Shell Oil Products taps for temporary labor.

Getting Suppliers to Pay

One reason Shell Oil Products has gotten such swift returns on its investment is that it's not paying for IQNavigator. The software is paid for by labor suppliers such as Icon Information.

Having suppliers pay access fees for contingent workforce management software "has become the norm in the industry," says O'Rourke. She points to similar arrangements Icon has with J.P. Morgan Chase & Co. and Waste Management Inc., where system access fees typically range from 3% to 5% of an invoice, she says.

A Gartner Inc. report last year labeled IQNavigator a "trendsetter" in this market niche and said the company had an impressive lineup of large customers. But while the use of contingent workforce management systems might be gaining traction in the U.S., it hasn't drawn much interest in Europe, notes Wolfgang Bernhart, a consultant at Arthur D. Little GmbH in Wiesbaden, Germany.

At Shell Oil Products, Chapman says, the biggest challenge was getting different departments to change the way they procure temporary and contingent labor and to be willing to use a smaller number of suppliers.

"We're trying to educate people internally that this is business and that we're trying to get the right people at the right price," says Chapman. "People don't like that kind of scrutiny and aren't always accepting of that level of change."

So it didn't hurt that the company's CEO and chief financial officer sponsored the project.

To help other departments and divisions accept the new approach to hiring contract labor, Chapman and his team "did a lot of change management work," he says. It included holding awareness sessions with suppliers and internal managers and communicating the benefits of the new approach. "Some areas were more receptive than others," says Chapman.

Nevertheless, the project is moving apace. In December, Shell Oil Products' human resources, supply chain and special projects groups were added to the system. The IT division and retail operations units were added in February and March, respectively, followed by the company's transportation division in April and its refining and lubricants businesses in May.

The overhaul has transformed the way Shell does business with labor providers. Says Chapman, "We couldn't have done this five years ago."

SHELL OIL PRODUCTS US

HEADQUARTERS: Houston

PARENT COMPANY: Shell Oil Co.

BUSINESSES: An oil refiner and marketer, with four refineries in the western U.S.; it sells fuel at 22,000 gas stations (along with partner Equilon Enterprises LLC). The company also makes lubricants such as motor oil.

HISTORY: The unit was acquired from Texaco and recently absorbed Pennzoil-Quaker State.

SOURCES: WWW.HOOVERS.COM; WWW.SHELLOILPRODUCTSUS.COM

TAMING TEMP COSTS

Read about Carlson Companies Inc. and other big businesses that are using temp management software:

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IBM

BRIEFS

Companies Lack E-mail Policies

Employers are doing a poor job of managing employee e-mail and preparing for potential e-mail-related lawsuits and regulatory audits, according to a recent survey of 1,100 companies from the American Management Association, The ePolicy Institute and Clearswift Ltd. Here are some key points:

- 34% of employers have implemented written e-mail retention and deletion policies.
- 22% have fired employees for violating e-mail policies.
- 14% have been ordered by a court or regulatory body to produce e-mail, up from 9% in 2001.
- 48% offer e-policy education, and 27% provide e-mail retention and deletion training.
- 90% have installed software to monitor incoming and outgoing e-mail, but only 19% use technology to track internal e-mail.

Former GE Exec Joins Solectron

Marc Onetto, a former General Electric Co. executive, last week joined Solectron Corp. in Milpitas, Calif., as executive vice president of worldwide operations. Onetto, 52, will be responsible for worldwide manufacturing, materials management, quality, new product introduction, IT, logistics and repair operations. From 1992 through last year, he held several positions at GE, including CIO in the GE Medical Systems unit.

E-billing Cuts Costs

A B2B biller could save $2.7 million per year by delivering all business bills over the Web. Paper bills cost an average of $5 each to produce and deliver; Web-based bills cost $2 each, according to a Gartner Inc. survey of 100 large companies that send an average of 75,000 bills each month.

NORBERT J. KUBILUS ■ PEER TO PEERS

Sarbanes-Oxley: Where IT and Finance Meet

THERE'S A GIANT SIGH OF RELIEF rising in the executive suites and corporate boardrooms of large, publicly held companies around the country. Why? Because the U.S. Securities and Exchange Commission has postponed implementing certain key sections of the Sarbanes-Oxley Act for nine months. This gives the SEC more time to complete the regulations that all SEC-regulated companies will have to follow.

Postponing SarbOx (as it's affectionately called) will give CEOs, CFOs and external auditors more time to institute procedures for keeping track of all financial information, from the moment of inception to the final submission in an annual report to the SEC. It also delays the SarbOx mandate that every public company submit an annual report to the SEC that assesses the effectiveness of its internal controls for financial reporting.

Sounds like a purely financial issue, right? Not quite.

Yes, SarbOx is fundamentally financial legislation. Enacted in part as a reaction to Enron and other corporate financial scandals, the law's goal is for public companies to produce more complete and accurate financial reports. The emphasis on internal controls, however, goes far beyond policies, procedures and external audits.

The SEC still must define what "internal controls" means in terms of compliance regulations, but one thing is almost certain: Any public company that utilizes IT as part of its financial business processes will find that IT controls are included in the definition. SarbOx compliance could also mean an overhaul or upgrade of financial transaction and reporting systems for most companies, regardless of size, in order to meet regulatory requirements for more accurate, more detailed and speedier filings.

So far, CIOs have been warming the bench, while CEOs, CFOs, attorneys and auditors attempt to address known and anticipated SarbOx compliance issues. Now is the time for the CIO to get into the game and step up to take the lead on the IT control issue. The CIO should view the IT organization and infrastructure as if he were the CEO of a "business within the business." Would the CIO be comfortable putting his neck on the line during a SarbOx compliance audit? Probably not.

Although regulations haven't been defined for compliance with SarbOx Section 404 — which mandates an audit of internal controls — there are a number of areas where the CIO can apply common sense and best practices to comply with the act's goals.

Examining the control processes within the IT organization relating to financial systems is the logical place to start. For example, segregation of duties within the systems development staff is a widely recognized best practice that helps prevent errors and outright fraud. The people who code program changes should be different from the people who test them, and a separate team should be responsible for production change control.

Homegrown financial systems are fraught with potential data-integrity problems, but packaged systems aren't totally immune, either. Although leading ERP systems offer audit-trail functionality, customizations of these systems often bypass those controls. The CIO has to work with internal and external auditors to ensure that customizations can pass muster.

Closely related to development and change controls are project management methodologies. The leading cause of systems implementation failure continues to be poor project management. The CIO must ensure that the IT department has a process to ensure a successful selection and implementation of new or upgraded financial systems within defined schedules, budgets and acceptable levels of risk.

Records management is another area of concern for the CIO as the long-term custodian of corporate data. How a company stores and transmits electronic documents — and whether or not they're deleted — can have significant legal and financial consequences. The CIO should work with the CEO, CFO and corporate attorneys to create a document-retention-and-destruction policy that addresses what types of electronic documents should be saved — and for how long.

Ultimately, SarbOx compliance will require a close working relationship involving the CEO, CFO and CIO. Getting into the game starts with running IT as a business and strengthening IT internal controls. ▸

MORE COVERAGE

See all of *Computerworld*'s coverage of the Sarbanes-Oxley Act at our Web site:

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Data Warehouse Architect Specialist

A global, Boston-area company engaged in the design, manufacture and sale of consumer products, has an immediate need for a highly skilled Data Warehouse Architect Specialist in their Data Architecture and Capacity Planning group. This senior, mentor-level position is responsible for analyzing financial, manufacturing and retail sales data and converting business decision support requirements into implementable relational and multi-dimensional data and database models and maintaining them within an Oracle 8i data warehousing environment. Minimum education is a Bachelor's degree in Computer Science, Mathematics, MIS or similarly relevant field. Minimum experience required is five (5) years post-degree business systems intelligence experience involving relational data modeling and database design, to include 3 years of data warehousing for manufacturing and retail operations. Specific requirements include demonstrated ability to model complex business requirements into both relational and star-schema / snowflake conceptual and logical data models, leading to Oracle 8i-compliant physical models. Also required is the demonstrated ability to utilize the ERwin modeling tool, and the Oracle Express reporting tool. Additionally required is the demonstrated ability to develop, evaluate, enhance, and maintain data modeling standards and metadata repositories. Finally required is the demonstrated ability to code in ANSI SQL in an Oracle 8i environment on a UNIX platform. Base salary is $99,200 per year. Benefits include ten (10) days paid vacation, medical, dental, disability, life insurance, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case # 2002-02334, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114. An EOE/AA/F/H/V.

Software Engineer: Participate in the development design specifications and implementation of commercial applications. Ensure design integrity, timely delivery and high code quality of implemented work. Will participate in the design, development and support of proprietary software solutions in Web-based and Client/Server architecture. Develop software using Object Oriented Design technologies to create flexible large scale databases and information management systems. Requires M.S. in Computer Science or an Engineering or quantitative field with no experience or B.S. in Computer Science or Engineering or quantitative field and 5 years experience in software development. Demonstrated ability in Java, C ++, XML, Visual C ++, and MFC. Demonstrated knowledge of multiplatform development, distributed design concepts and data base access. 40hrs/wk (8:00 a.m. to 5:00 p.m.) $90,451.00/yr. Send two resumes/responses to: Case Number 200201557, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

Software Engineer (Bioinformatics)

Gemmaxience Pharmaceuticals, Inc. has an immediate opening in our New Haven, Connecticut facility for a Software Engineer (Bioinformatics). Will develop and execute software system test plans and perform various database, data mining, integration research, and design and testing assignments in the development of computer systems and applications in the field of Bioinformatics. Must possess a Ph.D. in Life Sciences, Mathematics, Physics, or Computer Science, and relevant work experience including experience with mathematical modeling and concepts, such as probability and statistical inferences and algorithmic proofs, socket programming for BSD Kernel and Java, Oracle, computing based environment, Java and SQL programming languages, and UNIX operating system.

Resume and/or cover letter must reflect each requirement above and specify reference code SZ/SEB or it will be rejected. Forward resume to Leigh Webb, Human Resources Associate, Genaissance Pharmaceuticals, Inc., Five Science Park, New Haven, CT 06511. We are an equal opportunity employer.

Aluminum Blanking has openings for system or programmer analyst responsible for Oracle database administration & Intranet management. Candidates must have BS with exp. in Oracle DBA. We offer competitive wage with full benefits. Please contact landerson@albl.com. EOE.

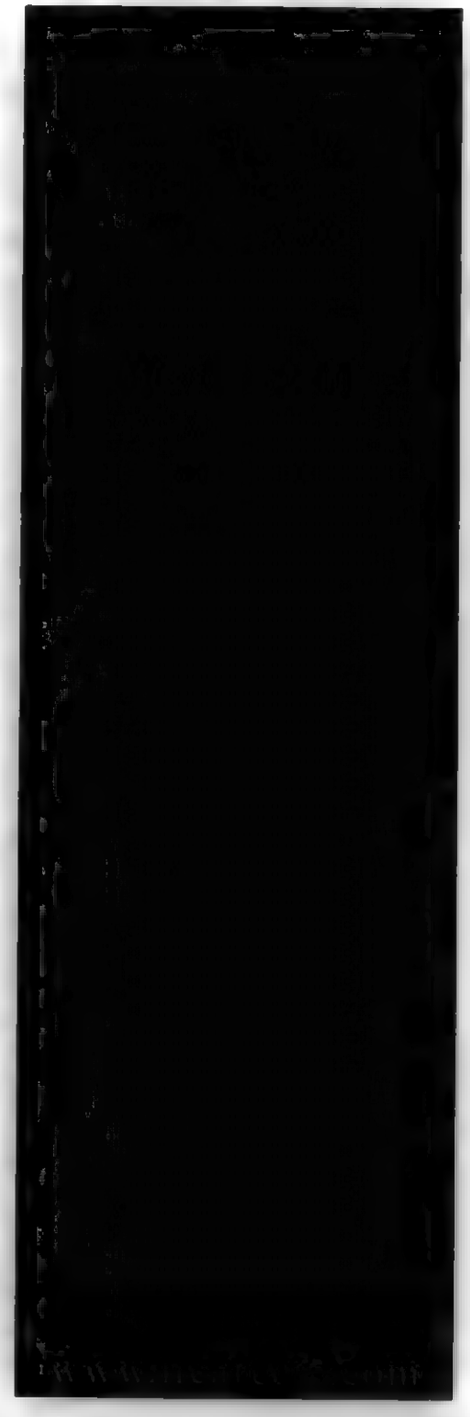
IT professionals (programmers/system analysts, software engineers) wanted by Advanced Technology Group USA. Minimum requirement is BS. Skills in Java, Oracle, SQL, HTML, WebLogic, JSP, VB, EJB are strong plus. Please send resume to info@atgusainc.com. EOE.

Application Development Consultant needed at client sites to build telecom enterprise business appl systems for business n/work inventory mgmt & svc delivery. For web based GUI dvlpmt using tools such as Java, JSP, Servlet, XML, XSL, JavaScript, Perl/CGI on servers such as Oracle9iAS, Apache, JURN, Web Logic, Tomcat; & for back-end & interface using tools such as C++, Java, CORBA, EJB, JDBC, XSQL + tools on Unix, PC & Oracle DB. Send resume to: Hireme, Global Consultants, 25 Airport Rd., Morristown, NJ 07960.

Prog/Analysts(Job 90) to analyze, design/develop and enhance online & batch programs using Java, JSP, Jscript, Servlets, HTML, COBOL, CICS, DB2 etc. under Windows and IBM ES 9000 envir; perform unit/system level testing, requirement analysis; implement new/modified programs; debug, maintain,document process. Require B.S. or foreign equiv in CS/Engg(any branch) & 2 yrs of exp. in IT. Send Resume to: Priscilla Vickers/HR, Transplace, 508 Enterprise Drive, Lowell, AR 72745. Must specify on cover letter applying to Job 90.

Systems & Software Test Engineer - Reqs BS-CS/CE with 1yr exp. Knowledge of iDen Technology & phone configurations; IPTF ISDS, Xflash, WebJAL, RSS, DDTS, & Clear Case req'd. Mail resumes to Signature Consultants, 2200 W. Commercial Blvd. #207, Ft. Lauderdale, FL 33309.

Software Developer - Reqs BS or equiv CS/CE with 1yr exp. Knowledge of iDen Technology, UIS frame work of iDen phones and phone configurations, SDS, IPTI, Xflash, WebJAL, RSS, DDTS, Clear Case req'd. Mail resumes to Signature Consultants, 2200 W. Commercial Blvd., #207, Ft. Lauderdale, FL 33309.



Senior Developer: Design and develop customized user tools for various client applications using e-commerce technologies and systems integration with object oriented analysis and design. Develop E-commerce projects using J2EE architecture, develop components using EJB, Servlets, JSP, JMS, Java Cryptography, Applets, Beans, Java Applications. Work on components to access different types of databases LDAP, Oracle and DB2. Work with Rational Rose to design object model for projects. Work on data-Warehousing projects using Oracle, Hyperion, Cognos, MicroStrategy. Work on tools for Y2K conversions using REXX, ISPF, COBOL. Implement projects Y2K projects. Using CICS, COBOL, PL/1, DB2, IMS, DB/DC, JCL, PACBASE, MANTIS and MVS. Requires: Bachelors in Electrical Engineering or its equivalence and 2 years experience in e-commerce technologies. 40hrs/wk (8:00 AM to 5:00 PM), $84,000.00/yr. Send two resumes/responses to: Case Number 200202467, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

SOFTWARE ENGINEERS (Multiple Openings): Candidate must have 1-4 yrs. of exp. in Software Development/Programming. BS/MS Comp.Sci/Engg/Bus. or related field. Exp. in all phases of software development life cycle. Knowledge of EJB, Vea Web Logic, Sebsphere, RMI, DB2, PowerBuilder, Rational Rose, C, C++, Java, J2EE, J-Builder, Vesual Basic, JDBC, XML, HTML, LDAP, PHP, Oracle, Sybase, ASP, COM/DCOM, SAP, SQL, Apache Web Server, CICS, JCL, ABAP, Siebel, and Object Oriented Programming Languages. Exp. in GUI development on Windows platforms. Familiarity with both UNIX & Windows environment. Knowledge of TCP/IP, SSH & Web Services. Exp. with Windows database technologies & database design. Strong teamwork & communications skills. May require traveling to client sites in the U.S. Top $$ + brnfts. Mail resume to: Yash Technologies, Inc., 605, 17th Ave., Suite #1, East Moline, IL, 61244.

BellSouth, a leader in providing local and cellular telephone, paging and mobile data services has multiple openings for the position of Systems Administrator in its Atlanta, Georgia office. Position requires relevant bachelor's degree or foreign degree equivalent and relevant experience. For consideration, please forward your resume to: Ms. Lisa Burlingame, BellSouth, 2247 Northlake Parkway, Suite 800, Tucker, Georgia 30084. Please do not email or fax resumes. EOE.

SOFTWARE PROGRAMMER

Participate in software dvlpmnt process, including generation of software specs & reqrmnts, prep. of detailed software dsgn documentation, modular decomposition of abstract functional reqrmnts into software module specs & templates, software code walk-throughs & reviews, & black box/white box testing. Will utilize C & C++ programming langs. in Embedded software for communication/network software dvlpmnt, COM component dvlpmnt. Basic language as used in Vis. Basic environment, & Java language. Will work in Windows NT operating sys. including Windows, COM, & ActiveX component technologies, MS Office, Networking, Communication & related tools. Utilize software config. & control tools. BS in Comp Sc or Engrng + 4 yrs exp in position offered or as a Software Engnr or Sys. Engnr. Must have (i) exp. w/C & C++ programming languages, COM component dvlpmnt, Basic & Java languages, Windows NT operating sys., ActiveX, MS Office & related tools & software config. & control tool, & (ii) worked on Network/Communication software dvlpmnt, incl. working knowledge of SNMP V2 MIBs. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $84,240/yr. Applicants submit resumes to: Site Manager, PA CareerLink - Westmoreland County, 300 East Hills Street, Youngwood, PA 15697-1808. Please refer to Job Order Number WEB 3378011.

Architect, Hardware Development Group. Responsible for 1) Algorithm Development and Simulation aimed at proving out algorithms for incorporation into future graphics cores, (2)Algorithm Migration aimed at implementation specification for graphics chip,(3) supporting chip development team for such implementation, and(4) Industry and Academia interaction including giving presentations and writing technical papers. Requires Ph.D. in Computer Science plus 4 years exp. in job offered or 4 years directly related professional experience. Rate of pay $100,000.00/year. Hours 40/week - 9 am to 5pm. Reply by resume only (2 copies) to: Case # 200201558, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

BellSouth, a leader in providing local and cellular telephone, paging and mobile data services has multiple openings for the following positions in its Atlanta, Georgia office:

Senior Software Developer
Software Engineer
Portal Content Analyst - Latin Market - Spanish fluency required
Channel Analyst

All positions require a relevant bachelor's or master's degree or foreign degree equivalent and relevant experience including experience with Homebase software.

For consideration, please forward your resume to: Ms. Lisa Burlingame, BellSouth, 2247 Northlake Parkway, Suite 800, Tucker, Georgia 30084. Please do not email or fax resumes. EOE.

Computer Programmers: Must have 4 years of experience plus a BS in Comp/Elect Eng or related field. Mediaspace Solutions, 101 Merritt 7, 3rd Floor, Norwalk, CT 06851. Please send resumes to jobs@mss-mail.com in MS Word or Adobe Acrobat format.

Senior Design Verification Test Engineer: Develop and integrate all aspects of hardware diagnostics. Will develop read/write and device driver capability for new hardware product components using in real time operating OS in addition to working on data communication technologies such as SONET/SDH, 10/100 Ethernet, ATM and legacy transport protocols such as DS1 and DS3. Requires: Bachelor of Science in Electronics and Engineering and 2 years experience in Information Technology. Must have hands on knowledge of C, C++, Assembly, and OOD computer languages. 40hrs/wk (8:00 AM to 5:00 PM), $77,000.00/yr. Send two resumes/responses to: Case Number 200202532, Labor Exchange Office, 19 Stanford Street, 1st Floor, Boston, MA 02114.

Software Engineers & Programmers: Analyze, design, develop, test and maintain a highly sophisticated/interactive Web Portal, e-commerce and content management system encompassing over 500 categories and 22,000 products/services and software solutions employing state of the art engine search technology including DB2 7.0, WebSphere 3.5, IBM Server, Tomcat, Oracle/Oracle 9iAS, WebLogic, Microsoft Visio, UML, P3P, IBM policy Editor, SilverPop & Accucast email servers, SalesLogix, Proficient, Web Trends & KeyLine tracking, Starteam, Unix Shell Scripting, Ultra edit, Top Style Pro, XML, J2EE and related technologies. For info or to apply, contact Human Resources, KnowledgeStorm, Inc., 2520 Northwinds Parkway, Suite 300, Alpharetta, GA 30004. EOE. No phone calls, please.

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Network Systems and Data Communications Analyst. Analyze user & software reqs & plan computer systems of networks; analyze, evaluate, test & troubleshoot computer systems, computer networks, PBX network, telecomm systems & A/V systems; design info and comm. system; augment existing network of computers, printers, scanners, projectors, etc; manage user accts in network. Req: Bachelor's degree in Electronics Eng'g, or related, or equiv and 1 yr exp in job offered or as Network Eng'r. $14.67/hr, 40 hpw, M-F, 8a-5p. Send resume to Larry Farish, Manager, Premier Hospitality LLC, 400 Greymont Ave., Jackson MS 39202.

Prog Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, WorkFlow Technology, C, C++, VB, Oracle, MS SQL Server on UNIX and Windows os; gather and document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equivalent in CS/Engg (any branch) or related field with 2 yrs exp in IT. Highsalary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071

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Oracle Apps DBA Design, develop, implement & test the business applications in areas of database optimization, logical & physical database design, data extraction, conversion, migration, procedures, data modeling using oracle 9i, 8i, 8.0 PL/SQL, Oracle Designer, Developer 2000 & relational database tools on a UNIX system Exp with systems support on Solaris & Websphere App. Server, performance tuning, Erwin, E/R studio designer, power designer, informatica & Oracle-enterprise manager Req MS in Comp. Sci. Engg/Rel field with 2 yrs exp or BS with 5 yrs exp. Wages: $75,000/yr, 40 hrs/wk, 8am-5pm. Send 2 resumes to: Case #200202166, Labor Exchange Office, 19 Stamford St. 1st Fl., Boston, MA 02114

VegaStream, Inc., located in Boca Raton is seeking F/T exp'd. Manager of Product Support to research, design, and developing of computer software systems, in conjunction with hardware product development. Analyze software requirements to determine feasibility of design within time and cost constraints. Consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements of overall system. Formulate and design software system, using scientific analysis and mathematical models to predict and measure outcome and consequences of design. Bachelor's degree in Computer Science, competitive salary. Fax returns to H.R. (561) 995-6027

Sys/Analysts to analyze, design, customize and implement businessapps using Oracle Financial Applications, PL/SQL, SQL Plus, SQL Loader and Oracle; perform data conversions, customize Forms/Reports using Oracle Applications standards, document, maintain & update development process;perform tuning, modification, troubleshooting and debugging of system software.Require: BS or foreign equiv with concentration in CS/Engg(any branch)/Business admin. & 2 yrs exp in IT. In lieu of BS, 3 yrs of academic studies towards a Bachelors plus 1yrs of exp in Oracle Applications will be accepted. Travel required. High salary. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123.

Prog Analysts to analyze, design, code and maintain web/client server applications using Java, C, C++, CORBA, J2EE, HTML, Servlets, XML, Weblogic Server, IIS, Oracle, MS Access etc under Windows, Sun Solaris OS; perform automation of functional/regression testing with WinRunner, eTester and Astra Quick Test; provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require: BS or foreign equivalent in CS/Engg(any branch) with 2 yrs exp in IT. High salary, F/T, Travel involved. Resume to: HR, Semalor Technologies, Inc., 3300 Holcomb Bridge Road, Suite 212, Norcross, GA 30092.

SENIOR (UNIX) SYSTEMS ENGINEER

A global consumer packaged goods company based in the Greater Boston area, engaged in the manufacture, distribution and marketing of a range of personal care products, has an immediate need for a highly skilled Senior (UNIX) Systems Engineer. This senior-level position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, running SAP applications in an Oracle environment. Minimum educational requirements include an Associates degree (or equivalent) in Computer Science, Math, MIS, Electrical/Electronic Engineering, or similarly relevant field. Minimum experience required is at least seven (7) years specifying HP-UX hardware / software system solutions, at least two (2) years of which specifically was for SAP R/3 in an Oracle 7.x and 8.x environment. Specific requirements include the demonstrated ability to implement complex external disk subsystem integration of EMC and HDS storage systems with HP-UX and AIX operating systems. Also required is the demonstrated ability to specify, install and configure HP 9000 series N4000 and newer Enterprise Servers. Additionally required is the demonstrated ability to install, configure and test HP MC/ServiceGuard clustering and EMC SRDF software. Further required is the demonstrated ability to write PERL scripts and convert Shell scripts to PERL. Finally required is the demonstrated ability to implement enterprise backup solutions using HP OmniBack integration with SAP brtools. Base salary is $93,000 per year. Benefits include ten days paid vacation, contributory medical, dental, disability, life insurance, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case # 2002-02333, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114. An EOE/M/F/H/V

Principal Software Engineer responsible for project management of new systems architecture projects. Will oversee & participate in design, development, testing & implementation of new software; perform client/server application design & development; review technical requirement specifications for software code development; and solve technical problems related to the software development as needed. Will apply knowledge of C/C++, HTML, Visual Basic, UNIX & various database applications. Requires Bachelor's or equiv in CSc., Engineering, Math or Physics, plus 5 yrs experience in Job Offered OR 5 years' developing client/server applications. Alternatively, will accept Master's or equiv in C.Sc., Eng, Math or Physics, plus 3 yrs in Job Offered OR 3 yrs developing client/server applications. Candidate must also possess demonstrated expertise in design & development of COM, COM+, business objects & web-based user interfaces; dem expertise in design & development of multi-threaded user interface interactive systems; and dem expertise in design & development of remote access interactive tool w/in a multi-hardware/software/network infrastructure. Sal: $80,500/yr M-F, 9AM-5PM. Send 2 resumes to Case # 2002-01701, Labor Exchange Office, 19 Stamford St., 1st fl., Boston, MA 02114. EOE. Applicants must be US workers eligible to accept full-time employment in U.S.

Manager, Software Development. Manage the development of software to combine physiological and operational requirements in real world operations. Design customized scheduling software for North American railroad operations. Supervise members of the software development team and contract employees. Draft marketing products for company's software products. Manage creation of user manuals and training material for software products. Provide training to clients on software products. Oversee strategy for system development. Sales presentations for software products to industry clients. Supervise and manage software engineers and other professionals engaged in the following job duties: Digital Signal Processing of physiological data (e.g.: EEG, EOG, ECG, video data); Feature extraction (understanding of the physiological underlying processes and the mathematical implications); Design and training of Artificial Neural Networks; Application of Pattern Recognition algorithms for classification of physiological data; Application of pattern recognition methods for predicting microsleeps; Development of software for modeling physiological processes (alertness model); Integration and modifying hardware for detecting driver fatigue; Testing hardware for detecting driver fatigue. Designing and programming of software to analyze data from tested driver fatigue detection hardware; Realization of programming tasks in MATLAB, C, Delphi Assembler and Visual Basic. Requirements: Master's degree or equivalent in Computer Science, Engineering or related field plus 2 years experience in job offered or 2 years experience as a Software Engineer in the field of Artificial Neural Network. Must have at least 2 years concurrent experience with the design, training, and application of Artificial Neural Networks in industrial context, as well as MATLAB, C, Visual Basic, Assembler and Delphi. Salary: $88,500/yr. for 5 day, 40 hour work week, 9:00 a.m.-5:00 p.m. Submit two (2) copies of resume to Case #200201982, Labor Exchange Office, 19 Stamford St., 1st Floor, Boston, MA 02114.

Senior Software Engineer: Specify, design, develop and support various aspects of the products. Work within teams to define the next generation architecture of the company's products that include agents, networking, management tools and policy server. Work closely with members of the Product Management, Quality Assurance, Release Engineering, Documentation and Customer Support teams to ensure proper product development and support. Follow rigorous software engineering standards including development of product requirements, functional and design specifications and adhere to coding standards. Work with partners and industry groups to create and promote standards in security and e-commerce. Requirements include a Bachelor's degree or equivalent in Computer Science or related field and five years of experience in job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $87,000/year. 40 hours/wk. Respond with two copies of resume to Case #200202112, Labor Exchange Office, 19 Stamford St., 1st Fl., Boston, MA 02114.

HCL

HCL TECHNOLOGIES AMERICA, INC.

HCL Technologies America, Inc. and its affiliate companies, like HCL Technologies (Illinois) Inc., and HCL Technologies (Mass.) Inc., have multiple openings at its offices in Sunnyvale, CA, Stamford CT, Plano TX, Florham NJ, Irvine CA, Vienna VA, Boston, MA, Chicago, IL, Detroit MI as well as project sites throughout the United States for the following positions

Software Engineers
Programmer Analysts
Systems Analysts
Database Administrators
Hardware Engineers
Budget Analysts
Systems/Network Administrators
Project Managers
Account Managers/Sales Managers/Business Managers
Sales Engineers
Industrial Engineers
Market Research Analysts
Management Analysts
Human Resource Representative
Accountants

Salary will be commensurate with education and experience. All positions may involve travel or relocating to various client sites through out the US

For consideration please send your resume to

HCL America Technologies, Inc.
Attn: HR Dept. (Computerworld Ad)
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Sunnyvale, CA 94085
Email: calobs@hcltech.com

Please indicate the location and the position you are applying for

www.hcltechnologies.com

SAP Information Technology Consultant - Initiate plan & evaluate ways to improve global supply chain, scheduling & demand planning operations using SAP platform (R/3, APO, ABAP, BAPI). Perform cost-benefit analyses for different deployment strategies. Design integration model w/focus on Schedule-X interface w/ SAP R/3 Enterprise Resource Planning & APO. Develop Business Scenario flow documents & implementation analysis report. Validate global Demand Planning design in line w/US requirements. Design & configure Supply Network Planning. Must be willing to travel to project sites throughout US & abroad approx. 25-30% of time. Must have Bachelor's degree or foreign equiv. in Comp Sci, Engineering, Business or related field + 3 yrs exp in job offered or cross-modular SAP Programmer/Analyst. 8:30am-5pm, M-F, OT as needed. $102,549/yr. Reply to Job Order #WEB-337067, Manager, Beaver County Team PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957.

Quality Assurance Engineer needed to initiate, develop, implement structured SQA testing environments, processes, manuals, and automated projects, using advanced knowledge of computer science and engineering. Must have Master's Degree in Engineering or Computer Science plus work experience with the following computer languages: C, C++, Java, SQL, PL/SQL and testing tools WinRunner, LoadRunner, Silk, and Rational Robot. Send resume to: Links Technology Solutions, Inc., 444 East State Parkway, # 219, Schaumburg, IL 60173.

Senior Oracle Database Developers / Administrators (Pharmaceutical)

A global biotechnology company locally based in the Greater Boston area is engaged in the research, development, manufacture, and marketing of prescription drugs, has an immediate need for two experienced, highly-skilled Senior Oracle Database Developers / Administrators (Pharmaceutical). The responsibilities of these senior level positions involve the design, setup and maintenance of clinical trial databases in Oracle, in accordance with FDA regulatory standards. Parallel responsibilities include computer system validation and database administration tasks. Minimum education required is a Bachelor's-level degree in MIS, CS, Math, Business, or a field of engineering. Minimum experience required is at least five (5) years involving Oracle database programming and administration, at least two (2) years of which specifically were in the pharmaceutical / biotechnology industry using PL/SQL, Oracle Forms and Reports. Specifically required is the demonstrated ability to design, set-up, implement and maintain clinical trial databases within the federally-mandated guidelines set forth in FDA's "Good Clinical Practices" ("GCP's"), and FDA's 21CFR11 re electronic signatures. Also required is the demonstrated ability to annotate a Case Report Form and program edit checks as indicated in a data validation plan. Additionally required is the demonstrated ability to perform validation of commercial off-the-shelf software and internally developed applications and tools, adhering to FDA regulatory standards on computerized systems. Finally required is the demonstrated ability of maintaining databases, creating users and roles and performance tuning. Base salary of $ 80,000 (benefits include Bachelor (15) days paid vacation, medical, dental, disability, life insurance, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resumes only to: Case # 200201818, Labor Exchange Office, 19 Stamford Street, 1st Floor, Boston, MA 02114. An EOE/M/F/H/V

ADVENT GLOBAL SOLUTIONS, INC.

Advent Global Solutions one of the fastest growing IT service companies has the following positions open in two locations:

SOFTWARE ENGINEERS to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software as required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems.

Please send resumes to the respective addresses.

3419 N. Kennicott Avenue, Suite C, Arlington Heights, IL 60004

12777 Jones Road, Suite # 445, Houston, Texas 77070

MIS Administrator - Install, monitor & maintain network system software incl operating system, data base & data comm control & other utility prog; prov tech. assist to users in operation & maint. of PCs; prov analyses & recommendations for network/systems/infrastructure improv; formulate & track budget expenses to ensure compliance w/depart constraints; coord Syst. integration, repair & installations w/internal resources & outside vendors; performs Network LAN mngt, troubleshoot, & setup network equip (hubs, routers, brides & switches) write prog docs. & users procedures & instructions. docs & manages LAN/WAN architecture & network policies & comm. network, mngt TCP/IP, internet access; prov expertise in develop security & firewall protection for the comp. network; configure, install, debug, troubleshoot & maintain performance of eng computer syst incl. both hardware/software applications; maintain hardware/software invent., maintain, manage & expand company's phone syst incl. PBx, switch mangt console & voicemail, works w/& install Autocad suite. BS in Electrical, Electronic or Systems Eng. & 1 yr exp in job offered. 40 hrs per wk M-F 9AM-6PM. Fax resume to RJ Behar & Company, Inc Attn Rober Behar. (954) 680-7781

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Systems Design Engr (Senior Level): Research, design & develop system level algorithms for data conversion & communication eqpt mixed signal IC applications; apply computer & electrical eng'g analysis to set operational specs & then formulate & analyze algorithms req'ts. Min req't: Ph D. degree in Electrical & Computer Eng'g. Job site: Austin, TX or Broomfield, CO.

Product Marketing Engr: Responsible for product strategy, definition, pricing & promotion on a family of mixed signal ICs for wireless products; provide customer support & interact with other companies' design, manufacturing and finance groups. Min req't: BSEE or BSCE plus 2 yrs. exp.

Jobsite: Austin, TX. Please send ad & resume to HR Dept, Silicon Laboratories Inc., 4635 Boston Lane, Austin, TX 78735.

Programmer Analyst (multiple openings) - Design, develop, test and implement computer applications using one (1) or more of the following: RPG/400, AS/400, ILE/RPG, CL/400, SQL/400, Visual Basic and/or C++. Req's. Bach's in CS, Systems Analysis, CIS, MIS, Computer Engg., Computer Sci and Engg., Electrical Engg., Electronic Engg. or Math or its equiv. in edu. and exp. plus 2 yrs exp. in job offered or 2 yrs exp in a related occup. as a Programmer, Programmer Analyst, Systems Analyst, Senior Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs of college edu. plus 3 yrs exp. in job offered or in a related occup. in lieu of the req'd edu. and exp. Will also accept any equally suitable combination of edu., training and/or exp. which would qualify an applicant to perform the duties of job offered. $83,387.20/yr., 40 hrs/wk., 8a-5p, M-F. Submit resume to MDCD/ESA, P.O Box 11170, Detroit, MI 48211-1170. Ref. No. 210492. Employer Paid Ad.

VICE PRESIDENT OF IT OPERATIONS - Los Angeles. Direct management & strategic development of IT operations of worldwide publisher of interactive entertainment & productivity software. Bachelor's in computer sci., Computer studies information systems or engineering + 5 yrs experience in job offered or 6 yrs experience managing IT operations, including managerial responsibility for design & administration of enterprise-wide info systems. Must have knowledge of network infrastructure, directory services & digital asset mgt systems. Must be fluent in spoken & written French, including IT terminology. Send resume & letter to HR VPIT, Vivendi Universal Games, Inc., 6080 Center Dr., Los Angeles, CA 90045.

Senior Analyst (Oracle Applications and Databases) needed in the analysis, architecture, administration, maintenance, design, and implementation of Oracle Applications and Databases, using advanced knowledge of computer sciences and engineering as well as particular computer utilities. Bachelor's Degree in Computer Science or Computer Science Engineering required plus prior work experience with Oracle Applications and Databases. Positions in California and Illinois available. Send resume to Mr. Brian Burke, Unix Technology Solutions, Inc., 444 East State Parkway, Suite 218, Schaumburg, IL 60173.

Software Engineer

(Requires Masters degree and two years experience.) - Job entails and requires experience in design, development and implementation of enterprise level applications using C, VC++, .NET and Oracle; design and development experience must include Unix, NT and IRIX platforms. Attractive compensation package. Send resumes to Calvin Whittington, The Library Corporation, Research Park, Inwood, WV 25428.

Systems Admin's to install, maintain, support/administer operating systems like Unix, Linux, AIX, Solaris, Web Servers like Apache, IIS and application servers like Weblogic, Websphere; responsible for system security, UNIX Kernel and Oracle database tuning&network performance tuning; configure storage devices using Veritas Volume Manager. Require: BS or foreign equiv. in CS/Engg. (any branch) & 2 yrs of exp. in IT. Travel required. High Salary. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Oracle and UNIX Scripting also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Edify Technologies, Inc. needs Programmer Analysts: Bachelor's degree in Computer or related field with 2 years experience in C#, Unix Internals, Ant, C/C++, Bugzilla, WebLogic, Tornado, ClearCase/Quest/Make, VxWorks, Webservices. We accept foreign education degree or the degree equivalent in education and experience. Send your resume with covering letter to: Edify Tech. Inc. 1318 E Algonquin Road, 2H, Schaumburg, IL 60173. E-mail: resumes@edifytech.com.

Systems Analyst - Oracle

3-5 years experience supporting payroll and HR systems. Significant experience with Oracle databases and applications. Knowledge of database management systems. Project management experience. Strong Unix skills along with query languages such as PL/SQL and SQL. Knowledge and understanding of 3rd party report writers including Hoetix and Crystal Reports. Please send resume to: Embry-Riddle Aeronautical University, HR Dept., 600 S. Clyde Morris Blvd., Daytona Beach, FL 32114.

SOFTWARE ENG Design & implement complex operating software applications. B.S. Comp Science or equiv. & 2 years programming experience, must be proficient in PeopleSoft & related programs. Apply to: Harland Co., Attn: Caryl James, 2939 Miller Road Atlanta, Ga 30035.

SOFTWARE ENGINEER: Experience in full product life cycle & banking securities applications. Familiarity with VB3, PL/SQL, UNIX, ASP, Oracle, Foxpro2.5. Mail resume to: Corporate Software Solutions, Inc., 4251 Route 9 North Bldg. A #C, Freehold, NJ 07728.

Prog/Analysts to analyze, develop, maintain software appls using Oracle Applications, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; conduct functional testing/debugging; perform data conversions, customize Forms/Reports using Oracle Applications standards; document, maintain & update development process. Require: BS or foreign equiv. in CS/Engg. (any branch) or related field & 2yrs of exp. in IT. Travel involved. F/T position. Comp. Salary. Respond to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Technical Support Manager for distributor and value added reseller of internetworking solutions located in Miami, Florida. Bachelor Degree in Electronics or System Engineering or foreign equivalent and 2 yrs. exp. in job offered or telecommunications related area. Send resume to CLAdirect, Inc.; attn: HR Dept., 8600 N.W. 17th Street, Suite 140, Miami, FL 33126.

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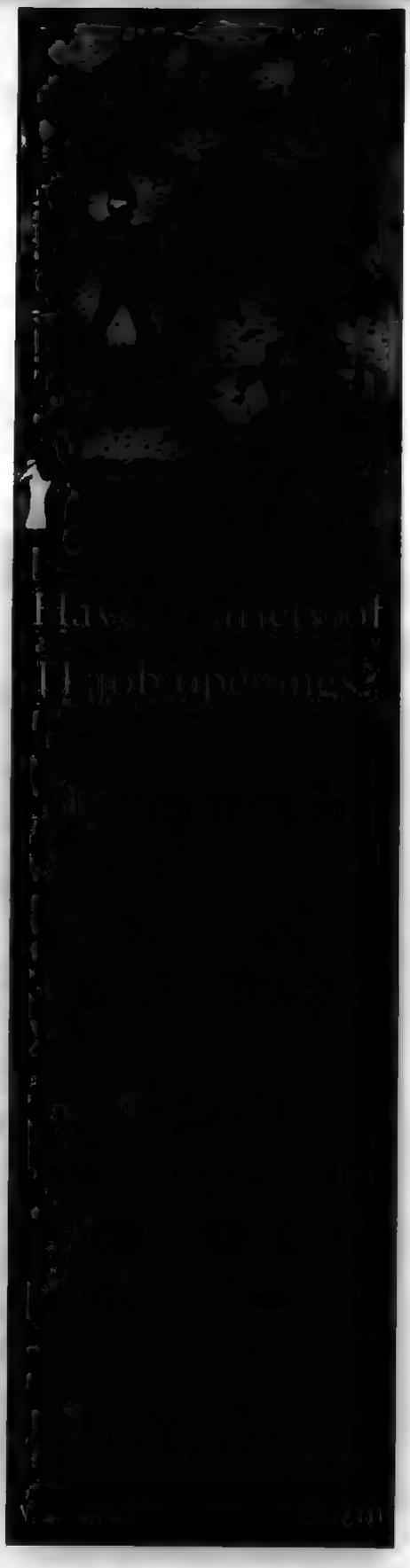

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- Senior Java Developer: Must have Master's degree or equivalent in Computer Science or related field. Must have 2 years of experience in the position offered or 2 years in Software Engineering.

For all positions salary commensurate with experience. Must have legal authority to work in the U.S. Send resume and cover letter to Sheri Mattison, Employment Manager, Witness Systems, Inc. 300 Colonial Center Parkway, Roswell, GA 30076.

Volition, Inc. (a wholly-owned subsidiary of THQ, Inc.) has an opening for a Game Programmer in Champaign, IL. MS in CS/CE + 6-12 mos. as junior game programmer/video game design. Development of a cross platform game engine; physics modeling and artificial intelligence programming; translation of visual style into code; 3D graphics programming for the game engine. Fax resume to Mike Kulas @ 818-871-7590.

A developer of FEA software systems, seeks qualified professionals to fill the following positions in our Los Angeles office: Project Engineers to define new product specifications & localization features of FEA software. Technical Support and Quality Assurance Engineers to provide FEA software support and testing. Technical/Training Engineers to provide training and field application engineering support for FEA software. 25-30% travel required. Interested applicants should send resume to: Department LAF#1, SolidWorks Corporation, 300 Baker Avenue, Concord, MA 01742. EOE.

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Web Developer

Conseco has positions for programmers to research, design, and develop internet website using vignette software as web-site platform, including ASP development and modular/adapter development with V5/6 platform, BIS method development including advanced data manipulation and logic development and XML coding with XLS parsing for HTML presentation layer, complex relational database design/technology, SQL/stored procedure management, UNIX-based environments, integration of third-party product into vignette environment using ASP within the vignette platform, XML, XSL, HTML, PERL, CGI, jsp/Java (J2EE compliant) in Microsoft operating systems. Duties include consulting with other computer professionals to evaluate interface between hardware and software and operational performance requirements of system; developing and directing software systems testing procedures, programming, and documentation; and consulting with system users concerning maintenance of system software and coordination of installation of software system. Candidates must have a bachelor's degree in computer science or related field. Please send resume to: Bernard Hodes Group Reply Service, #80808, 8440 Woodfield Crossing Blvd., Suite 290, Indianapolis, IN 46240. No phone calls, please. An equal opportunity employer.

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SOFTWARE ENGINEER: Software engineer to design, develop and test computer programs for business applications, analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in Progress 4GL, MFG/PRO, Cognos, XML and CIM. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Progress 4GL, MFG/PRO, Cognos, XML and CIM. Salary: $90,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 756, Kittanning, PA 16201. Job No WEB337358.

SOFTWARE ENGINEER: Multiple openings for software engineers to design, develop and test computer programs for business applications, analyze software requirements to determine feasibility of design, direct software system testing procedures using expertise in Visual Studio Net, ASP.Net, XML, Oracle and C#. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Visual Studio Net, ASP.Net, XML, Oracle and C#. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M. 40 hours/week, involves extensive travel and frequent relocation. Apply: Job Center/CareerLink Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701. Job No. WEB337387.

Req'd Computer Software Developer (Delphi Programmer): Develop programs and applications for microcomputers and LAN stations. Design database management systems and environment for MSDOS and Windows '98 operating systems utilizing various software applications written in either DATAFLEX, C or Delphi. Engage in client server applications and SQL Database set up and design. Prepare functional specifications and design software programs and modifications for scientific engineering and/or business applications. Test units and computer software systems and conduct end user training programs. Must have bachelor's degree or equivalent in Electronic Communications and three (3) years experience in the position offered. Equivalency must be based upon only educational credentials as determined by an accredited Credentials Evaluator. 40hrs/wk @ $2,718.24 per year. Must have proof of legal authority to work in the U.S. Send resume to: PO Box 11170 Detroit, Michigan 48202 Reference NO.: 211078. EMPLOYER PAID AD.

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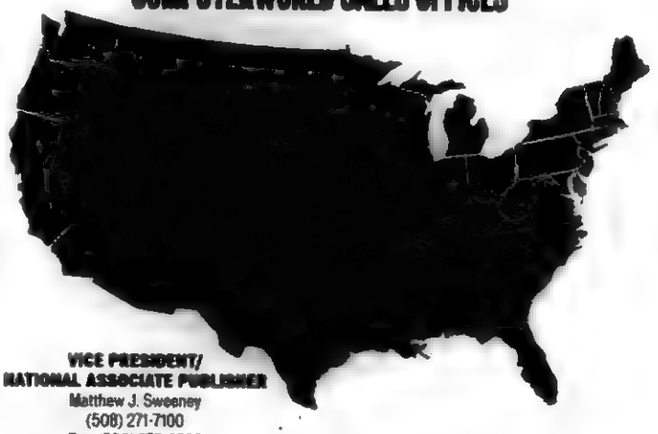

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Privacy Law

and database security.

The new law, SB 1386, requires companies to inform customers when their names — in combination with either their Social Security numbers, driver's license numbers or credit/debit card numbers with personal identification numbers — have been accessed by an unauthorized person [QuickLink 38357].

But confusion about what some observers characterize as a poorly written piece of legislation has given way to panic during the past two weeks, officials in the IT security and legal sectors said.

"Companies are literally shocked by this law, and many big companies are terrified," said Bob Walters, CEO of Teros Inc. in Santa Clara, Calif.

"Under a broad reading of 1386, even virus incidents that corrupt large amounts of data must be reported, even if there is no compromise of personal information," said Michael R. Overly, a partner at the Los Angeles office of law firm Foley & Lardner. "Very large class-action lawsuits are on the horizon."

No Mention of Standards

Under the law, the theft of data that's encrypted doesn't have to be reported. But because the law makes no mention of industry security standards, particularly the appropriate level of encryption needed to protect customer data, some companies may feel forced into taking drastic, costly actions, said Overly.

"What some companies are thinking of doing is assigning a random number to a customer name in one database and linking that random number to the personally identifiable information stored in a completely separate database," he said. "This would require major changes to large company databases."

Eric Beasley, senior network administrator at Baker Hill Corp., an application service provider to the financial industry, said that although the burden would be on financial institutions to notify customers of breaches, the new law has forced his company to purchase a Web application firewall from Teros and study database encryption options.

But performance issues are a concern with encryption, he said. Consequently, Carmel, Ind.-based Baker Hill is studying a possible move from the 32- to the 64-bit version of Microsoft SQL Server, which promises considerably higher performance. "That holds the promise of being able to do encryption without significantly reducing the performance we have today," Beasley said.

Network performance is far

from the only issue facing companies. Don Ulsch, managing director and CEO of Janus Risk Management Inc. in Marlboro, Mass., said SB 1386 cuts across virtually every corporate function, including IT security, physical security, classification management, process linkage, human resources operations and environmental monitoring.

According to Ulsch, the new law will put an even higher premium on internal monitoring, access control and personnel risk management because it "will make it easier to conduct internal sabotage operations by purposefully breaching security in order to financially and legally jeopardize the company."

Customer-tracking tools and network monitoring software capable of differentiating between genuine performance problems and security incidents that affect performance will also be critical in helping companies determine when they must make a public report, said Rajeev Khanolkar, CEO of netForensics Inc. in Edison, N.J. "If you don't know what has been compromised, you may be forced to disclose a potential compromise of your entire database," he said.

The new law may also change the way companies view and deploy wireless networks, said Ulsch. "With so much at risk, companies will have to look very seriously at wireless and the security implications," he said.

But Overly said there may be a bigger problem on the not-too-distant horizon. "Look what has happened with spam," he said. "We now have dozens of different spam laws. If individual states start doing what California is doing, companies could be faced with every state having different security requirements."

MORE THIS ISSUE

Computerworld's Robert L. Mitchell discusses ways companies can brace for the spate of new data privacy laws. **Page 34**

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European VAT

tions, the company set up a subsidiary in London. That lets it charge the U.K. VAT rate of 17.5% to all European customers who download products from its clients.

Ronning said the centralized operation includes systems that can handle all European business, including databases that correlate the locations of customers and track the VATs in different jurisdictions for comparative purposes.

By July 1, companies based outside the EU must register with European tax authorities to levy, collect and remit the VAT on sales of various digital goods and services.

Under a directive issued by the EU in May 2002, companies that don't have a physical presence in an EU member nation must assess the tax at the rates charged by the countries where individual customers are located.

AOL International, a division of New York-based AOL Time Warner Inc., has about 6.3 million dial-up and broadband customers in Europe and in response to the VAT has centralized its Internet service provider operations for the EU in Luxembourg, said spokeswoman Mia Kulla.

"If we hadn't done this, we would have had to comply with 15 different tax regimes, which was not a viable business option," Kulla said. She declined to comment on how much it has cost AOL International to set up the operations in Luxembourg but said the VAT won't result in higher prices for customers.

On the other hand, Scott Pendergrast, co-founder of Fictionwise Inc. in Chatham, N.J., said it wouldn't have been economically feasible to invest in a European operation. Instead, the seller of e-books is preparing to collect the tax in different countries, although Pendergrast said it's doing so reluctantly.

"I think paying it is ridiculous, and it's unfair for a foreign government to make me a tax collector," he said. "I have enough trouble keeping track of the the U.S. tax code."

Pendergrast said he plans to assign one of Fictionwise's two internal developers to write code to automate the VAT assessment and remittance process, although he believes the company is exempt from the tax for now because its annual European sales total less than 100,000 euros ($114,283). However, an EU spokesman said there is no such exemption.

Some businesses are questioning whether they need to collect the new tax on the grounds that European courts wouldn't have jurisdiction over them, said Jon Abolins, vice president of tax and government affairs at Taxware, a Salem, Mass.-based division of GovOne Solutions LP that develops e-commerce software.

Taxware has been hearing from some customers that are "scrambling" to get ready for the VAT, but others are asking if they can just ignore it, Abolins said. He has been advising companies not to do so, because there is speculation that EU countries might not fight to protect the intellectual property rights of sellers that fail to collect the VAT. "I don't think any business wants to be characterized in the EU as a tax cheat," he added.

Matthew King, a trade spokesman for the European Commission, the EU's executive arm, said it will be up to each of the 15 nations to decide how to enforce the VAT directive. According to King, the EU approved the VAT plan after content providers based in Europe complained that they were at a competitive disadvantage because they already have to collect the tax.

LOCATION CHALLENGES

Companies say it won't be easy to confirm which EU country a customer is based in:

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FRANK HAYES ■ FRANKLY SPEAKING

Sabotage Solution

SAY YOU'RE AN IT MANAGER with a project that's doomed. You know it's doomed. Everyone on the project team knows it's doomed. Maybe it's underfunded, or the technology turned out to be half-baked, or it's beyond the skills of your team, or it's just hopelessly off the tracks. Maybe you argued against it, but it has powerful sponsorship and there's no way you can talk the powers that be into shutting it down.

Is it time for a little sabotage to put it out of your misery?

Of course, sabotage is wrong. We all know that. But which is worse: torpedoing a doomed project, or flushing time and budget and morale down the drain in a futile effort to make it work?

Or suppose some user's PC fails intermittently. It doesn't happen every day, but every time it does, the user loses time and work and a little more sanity. The user's manager is demanding that you fix the PC, but there's no problem you can identify and reproduce. You know the right solution is to replace the PC, but as long as it tests out OK on the bench, corporate policy says it must be put back in service.

Do you make sure it gets a little, er, help to fail on the bench, so that poor user can get a reliable PC again?

Now try this one: For the first time, your team has been assigned a user to help identify problems with an important application. The user doesn't understand how your shop does things, doesn't have the clout or charisma to overcome outsider status and has slowed progress to a crawl with all his questions and objections. And you know that if this project is completed, you'll have users on lots of future projects — all with the same problems.

Do you drive the project — and the user — straight into the ground, just to avoid all that trouble?

It's sad but true: Sabotage is a slippery slope. At heart, it's about breaking things instead of making them work, destroying instead of building. It's an ugly concept that runs counter to everything you're supposed to be doing, a notion nasty enough that in most IT shops it's never even mentioned out loud.

Trouble is, in most IT shops it's also a reality. In fact, it's a necessity.

Sabotage shouldn't happen. But then, neither should ill-conceived projects or wrong-headed policies. And ugly as it may be, sometimes sabotage is the least ugly of the real options available.

Ironic, isn't it? You want your IT people to do what's right for users and the business — to keep time and effort and budget from being wasted. But sometimes they can't do that without a little sabotage. And you can't encourage them to keep doing what's right for users and the business unless you tolerate that sabotage.

But if you're *too* tolerant of it, you'll end up with self-serving sabotage — the kind that doesn't help users or the business at all, but is just a convenient way to cut corners and avoid challenges.

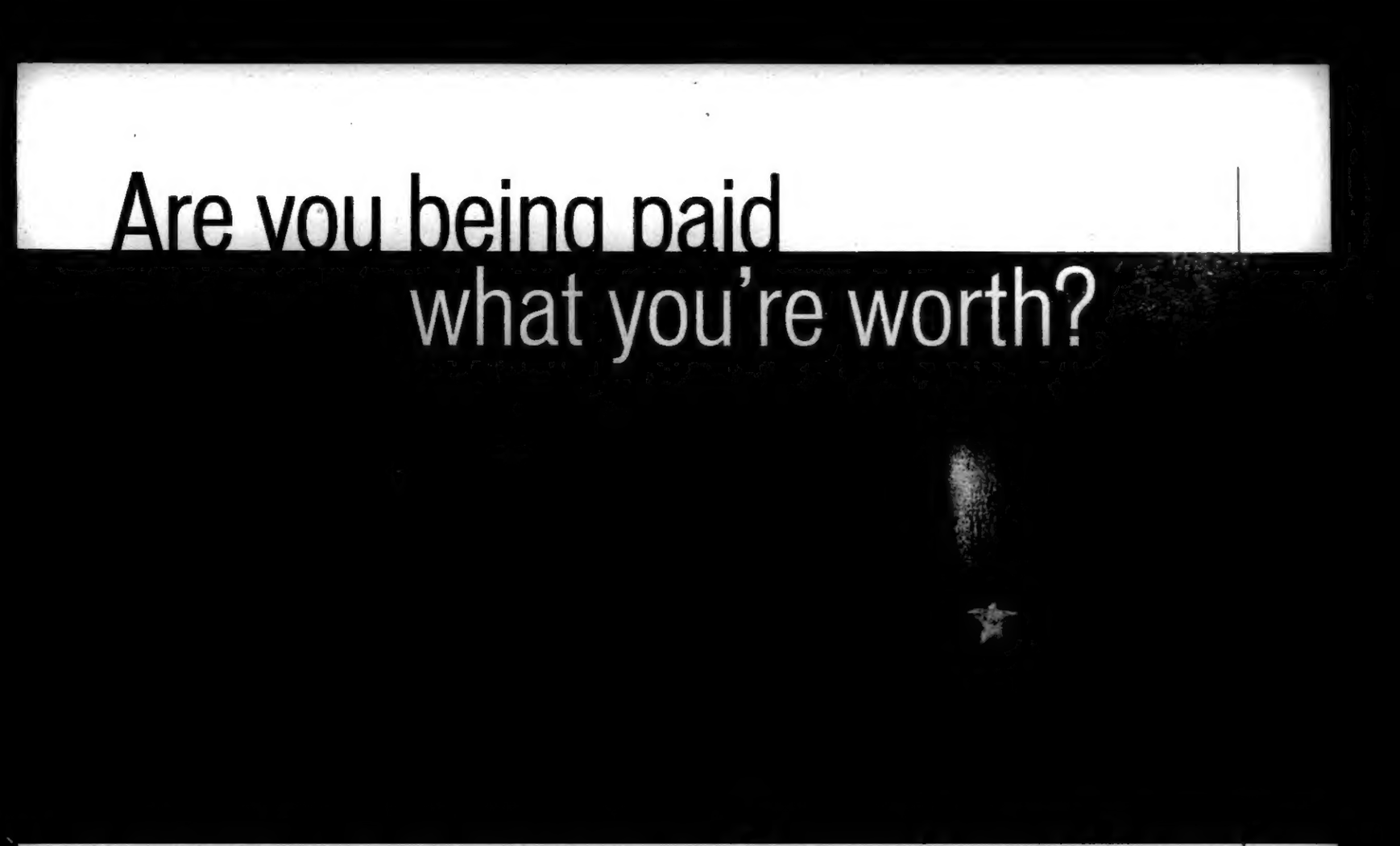
How can you be sure you'll get only the right kind of sabotage? You can't. Remember, sabotage is unmentionable. You can't clearly explain what kind is OK and what's not. And you can't officially support it, because by definition sabotage is against the rules.

So you'll have to depend on nudges and hints and the good judgment of your staff. You'll also need to watch out for cases of the wrong kind of sabotage, to stop them quickly and publicly. If you can't explain, at least you want to offer lots of examples.

Does all this subtlety and ambiguity make you uncomfortable? Good — it should. You really shouldn't need sabotage to serve users and your business. That discomfort should motivate you to keep chopping away at the things that make sabotage necessary — the foolish rules, the politically motivated projects, the really awful decisions.

Because until you can get rid of them, you're stuck with sabotage. ◗

Are you being paid what you're worth?



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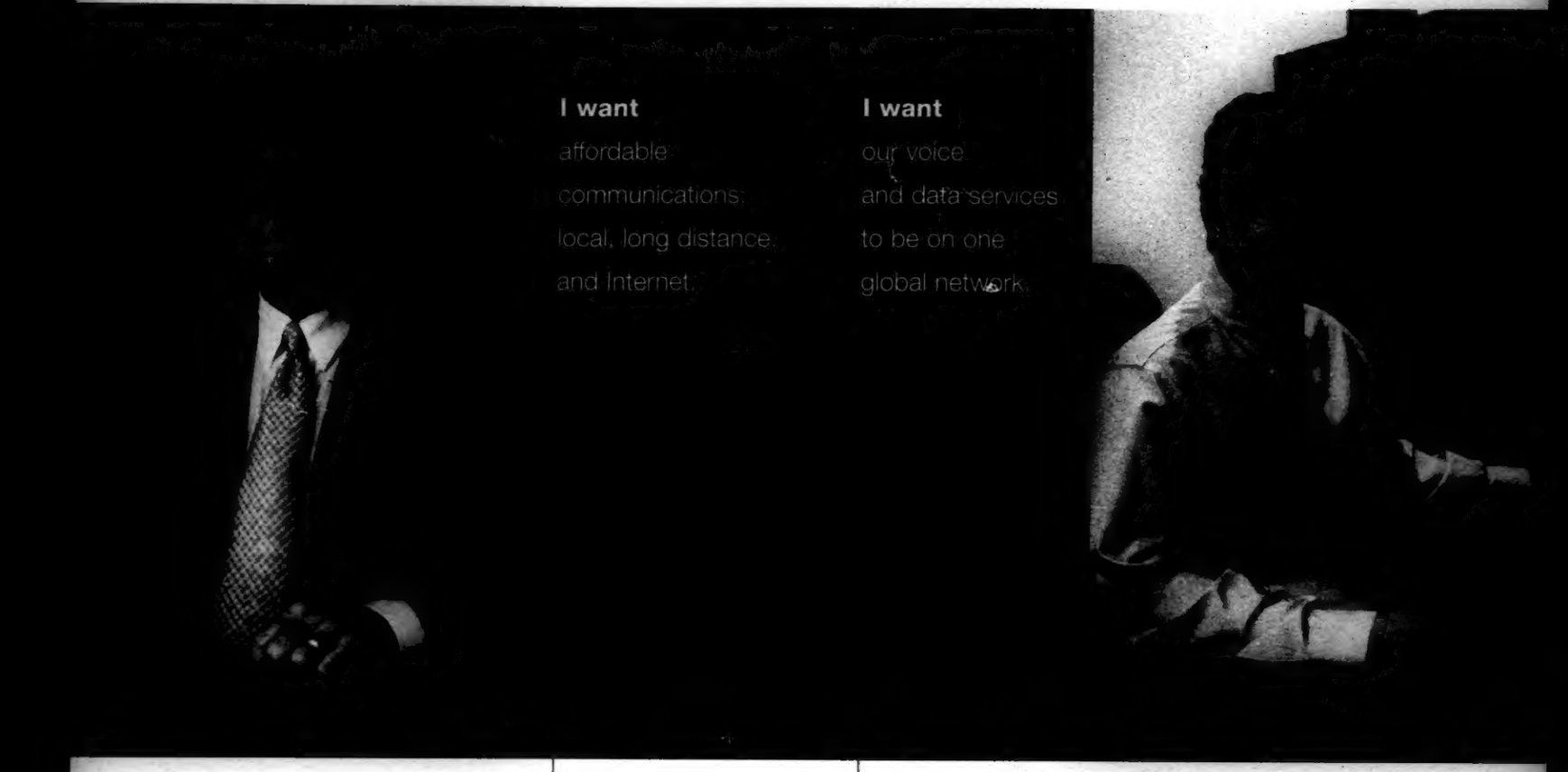

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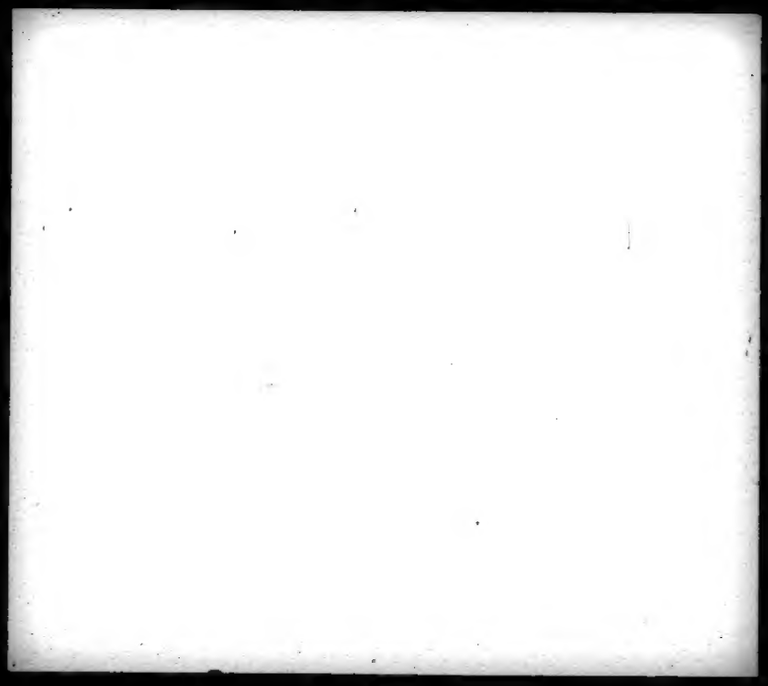

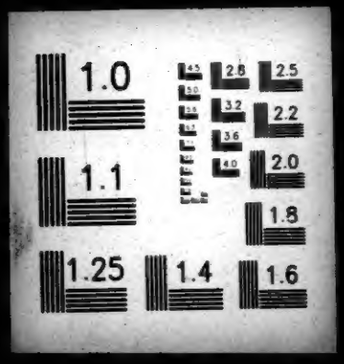
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